UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

☑ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2016

OR

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Transition Period from to

Commission File No. 1-11778

CHUBB LIMITED

(Exact name of registrant as specified in its charter)

Switzerland	**98-0091805**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

Baerengasse 32
Zurich, Switzerland CH-8001
(Address of principal executive offices) (Zip Code)
+41 (0)43 456 76 00
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Shares, par value CHF 24.15 per share	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
YES ☑ NO ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.
YES ☐ NO ☑

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15 (d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. YES ☑ NO ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). YES ☑ NO ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference into Part III of this Form 10-K or any amendment to this Form 10-K. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☑		Accelerated filer ☐
Non-accelerated filer ☐	(Do not check if a smaller reporting company)	Smaller reporting company ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). YES ☐ NO ☑

The aggregate market value of voting stock held by non-affiliates as of June 30, 2016 (the last business day of the registrant's most recently completed second fiscal quarter), was approximately $ 60 billion. For the purposes of this computation, shares held by directors and officers of the registrant have been excluded. Such exclusion is not intended, nor shall it be deemed, to be an admission that such persons are affiliates of the registrant.

As of February 13, 2017 there were 465,781,102 Common Shares par value CHF 24.15 of the registrant outstanding.

Documents Incorporated by Reference

Certain portions of the registrant's definitive proxy statement relating to its 2017 Annual General Meeting of Shareholders are incorporated by reference into Part III of this report.

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PART I

ITEM 1. Business

General

Chubb Limited is the Swiss-incorporated holding company of the Chubb Group of Companies. Chubb Limited, which is headquartered in Zurich, Switzerland, and its direct and indirect subsidiaries (collectively, the Chubb Group of Companies, Chubb, we, us, or our) are a global insurance and reinsurance organization, serving the needs of a diverse group of clients worldwide. At December 31, 2016 , we had total assets of $ 160 billion and shareholders' equity of $ 48 billion. Chubb was incorporated in 1985 at which time it opened its first business office in Bermuda and continues to maintain operations in Bermuda. We have grown our business through increased premium volume, expansion of product offerings and geographic reach, and the acquisition of other companies, including The Chubb Corporation (Chubb Corp) on January 14, 2016. With the acquisition of Chubb Corp, we have become a global property and casualty (P&C) leader.

With operations in 54 countries, Chubb provides commercial and personal property and casualty insurance, personal accident and supplemental health insurance (A&H), reinsurance and life insurance to a diverse group of clients. We offer commercial insurance products and service offerings such as risk management programs, loss control and engineering and complex claims management. We provide specialized insurance products ranging from Directors & Officers (D&O) and professional liability to various specialty-casualty and umbrella and excess casualty lines to niche areas such as aviation and energy. We also offer personal lines insurance coverage including homeowners, automobile, valuables, umbrella liability, and recreational marine products. In addition, we supply personal accident, supplemental health, and life insurance to individuals in select countries.

We serve multinational corporations, mid-size and small businesses with property and casualty insurance and risk engineering services; affluent and high net worth individuals with substantial assets to protect; individuals purchasing life, personal accident, supplemental health, homeowners, automobile and specialty personal insurance coverage; companies and affinity groups providing or offering accident and health insurance programs and life insurance to their employees or members; and insurers managing exposures with reinsurance coverage.

At December 31, 2016 , we employed approximately 31,000 people. We believe that employee relations are satisfactory.

We make available free of charge through our website (investors.chubb.com, under Financials) our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports, if any, filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after they have been electronically filed with or furnished to the U.S. Securities and Exchange Commission (SEC). Also available through our website (under Investor Relations / Corporate Governance) are our Corporate Governance Guidelines, Code of Conduct, and Charters for the Committees of our Board of Directors (the Board). Printed documents are available by contacting our Investor Relations Department (Telephone: +1 (441) 299-9283, E-mail: investorrelations@chubb.com).

We also use our website as a means of disclosing material, non-public information and for complying with our disclosure obligations under SEC Regulation FD (Fair Disclosure). Accordingly, investors should monitor the Investor Relations portion of our website, in addition to following our press releases, SEC filings, and public conference calls and webcasts. The information contained on, or that may be accessed through, our website is not incorporated by reference into, and is not a part of, this report. The public may also read and copy any materials Chubb files with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, DC 20549 or by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site (www.sec.gov) that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC.

Customers

For most commercial and personal lines of business we offer, insureds typically use the services of an insurance broker or agent. An insurance broker acts as an agent for the insureds, offering advice on the types and amount of insurance to purchase and also assisting in the negotiation of price and terms and conditions. We obtain business from the local and major international insurance brokers and typically pay a commission to brokers for any business accepted and bound. Loss of all or a substantial portion of the business provided by one or more of these brokers could have a material adverse effect on our business. In our opinion, no material part of our business is dependent upon a single insured or group of insureds. We do not believe that the loss of any one insured would have a material adverse effect on our financial condition or results of operations, and no one insured or group of affiliated insureds account for as much as 10 percent of our total revenues.

Competition
Competition in the insurance and reinsurance marketplace is substantial. Competitors include other stock companies, mutual companies, alternative risk sharing groups (such as group captives and catastrophe pools), and other underwriting organizations. Competitors sell through various distribution channels and business models, across a broad array of product lines, and with a high level of variation regarding geographic, marketing, and customer segmentation. We compete for business not only on the basis of price but also on the basis of availability of coverage desired by customers and quality of service. Our ability to compete is dependent on a number of factors, particularly our ability to maintain the appropriate financial strength ratings as assigned by independent rating agencies and effectively utilize new technology in our business. Our broad market capabilities in personal, commercial, specialty, and A&H lines made available by our underwriting expertise, business infrastructure, and global presence, define our competitive advantage. Our strong balance sheet is attractive to businesses, and our strong capital position and global platform affords us opportunities for growth not available to smaller, less diversified insurance companies. Refer to "Segment Information" for competitive environment by segment.

Trademarks and Trade Names
Various trademarks and trade names we use protect names of certain products and services we offer and are important to the extent they provide goodwill and name recognition in the insurance industry. We use commercially reasonable efforts to protect these proprietary rights, including various trade secret and trademark laws. We intend to retain material trademark rights in perpetuity, so long as it satisfies the use and registration requirements of applicable countries. One or more of the trademarks and trade names could be material to our ability to sell our products and services. We have taken appropriate steps to protect our ownership of key names, and we believe it is unlikely that anyone would be able to prevent us from using names in places or circumstances material to our operations.

Segment Information
We implemented organizational changes in 2016 that resulted in new business segments: North America Commercial P&C Insurance, North America Personal P&C Insurance, North America Agricultural Insurance, Overseas General Insurance, Global Reinsurance, and Life Insurance. In addition, the results of all run-off asbestos and environmental (A&E) exposures, the results of our run-off Brandywine business, the results of Westchester specialty operations for 1996 and prior years, and certain other run-off exposures are now presented within Corporate. Prior period amounts of Chubb Limited contained in this report have been adjusted to conform to the new segment presentation. The results of operations of Chubb Corp are included from the acquisition date forward (i.e., after January 14, 2016). The following table presents net premiums earned (NPE) by segment:

Years Ended December 31 (in millions of U.S. dollars, except for percentages)	**2016 Net Premiums Earned**	**% of Total**	2015 Net Premiums Earned	% of Total	2014 Net Premiums Earned	% of Total
North America Commercial P&C Insurance	**$ 12,217**	**43%**	$ 5,634	33%	$ 5,547	32%
North America Personal P&C Insurance	**4,319**	**15%**	948	5%	560	3%
North America Agricultural Insurance	**1,316**	**5%**	1,364	8%	1,526	9%
Overseas General Insurance	**8,132**	**28%**	6,471	38%	6,805	39%
Global Reinsurance	**710**	**2%**	849	5%	1,026	6%
Life Insurance	**2,055**	**7%**	1,947	11%	1,962	11%
Total	**$ 28,749**	**100%**	$ 17,213	100%	$ 17,426	100%

Additional financial information about our segments, including net premiums earned by geographic region, is included in Note 15 to the Consolidated Financial Statements.

North America Commercial P&C Insurance (43 percent of 2016 Consolidated NPE)

Overview
The North America Commercial P&C Insurance segment comprises operations that provide P&C insurance and services to large, middle market, and small commercial businesses in the U.S., Canada, and Bermuda. This segment includes:
- Major Accounts, a retail division focused on large institutional organizations and corporate companies
- Commercial Insurance, including Small Commercial Insurance, retail divisions focused on middle market customers and small businesses
- Westchester and Chubb Bermuda, our wholesale and specialty divisions

Products and Distribution
Major Accounts provides a broad array of traditional and specialty P&C, A&H, and risk management products and services to large U.S. and Canadian-based institutional organizations and corporate companies. Major Accounts distributes its insurance products primarily through a limited number of retail brokers. In addition to using brokers, certain products are also distributed through general agents, independent agents, managing general agents (MGA), managing general underwriters, alliances, affinity groups, and direct marketing operations. Products and services offered include property, professional liability, excess casualty, commercial marine, surety, environmental, inland marine, A&H coverages, as well as claims and risk management products and services.

The Major Accounts operations, which represented 41 percent of North America Commercial P&C Insurance's net premiums earned in 2016, are organized into the following distinct business units, each offering specialized products and services targeted at specific markets:

- Chubb Global Casualty offers a range of customized risk management primary casualty products designed to help large insureds, including national accounts, address the significant costs of financing and managing risk for workers' compensation, general liability and automobile liability coverages. Chubb Global Casualty also provides products which insure specific global operating risks of U.S.-based multinational companies and include deductible programs, captive programs, and paid or incurred loss retrospective plans. Within Chubb Global Casualty, Chubb Alternative Risk Solutions Group underwrites contractual indemnification policies which provides prospective coverage for loss events within the insured's policy retention levels, and underwrites assumed loss portfolio transfer (LPT) contracts in which insured loss events have occurred prior to the inception of the contract.
- Property provides products and services including primary, quota share and excess all-risk insurance, risk management programs and services, commercial and inland marine products.
- Surety offers a wide variety of surety products and specializes in underwriting both commercial and contract bonds and has the capacity for bond issuance on an international basis.
- Accident & Health products include employee benefit plans, occupational accident, student accident, and worldwide travel accident and global medical programs. With respect to products that include supplemental medical and hospital indemnity coverages, we typically pay fixed amounts for claims and are therefore insulated from rising healthcare costs. Accident & Health also provides specialty personal lines products, including credit card enhancement programs (identity theft, rental car collision damage waiver, trip travel, and purchase protection benefits) distributed through affinity groups.
- Financial Lines provides management liability and professional liability (D&O and E&O) and cyber risk products to public companies as well as to private and not for profit organizations
- Casualty Risk provides coverages including umbrella and excess liability, environmental risk, and casualty programs for commercial construction related projects for companies and institutions.
- Medical Risk offers a wide range of specialty liability products for the healthcare industry through licensed excess and surplus lines brokers. Products include primary coverages for professional liability and general liability for selected types of medical facilities, excess/umbrella liability for medical facilities, primary and excess coverages for products liability for large biotechnology and specialty pharmaceutical companies, and liability insurance for human clinical trials.
- ESIS Inc. (ESIS), is an in-house third-party claims administrator, performs claims management and risk control services for domestic and international organizations as well as for the North America Commercial P&C Insurance segment. ESIS services include comprehensive medical managed care; integrated disability services; pre-loss control and risk management; and health, safety and environmental consulting; salvage and subrogation; and healthcare recovery services. The net results for ESIS are included in North America Commercial P&C Insurance's administrative expenses.

The Commercial Insurance operations, including Small Commercial, represented 40 percent of North America Commercial P&C Insurance's net premiums earned in 2016. Commercial Insurance provides a broad range of P&C and professional lines products targeted to U.S and Canadian-based middle market customers in a variety of industries with annual revenues greater than $10 million, while the Small Commercial operations provide a broad range of small commercial management and professional liability and standard insurance coverages for small businesses based in the U.S., targeted to customers with annual revenues up to $10 million.

- Commercial Insurance products and services offered include traditional property and casualty lines of business, including Package which combines property and general liability, Workers Compensation, Automobile, Umbrella; financial lines of business, including professional liability, management liability and Cyber risk coverage; and other lines including Environmental, Accident & Health, International coverages, and Product Recall. Commercial Insurance distributes its insurance products through a North American network of independent retail agents, regional brokers and multinational brokers. Generally, our customers purchase insurance through a single retail agent or broker, do not employ a risk management department and do not retain significant risk through self-insured retentions or cash flow programs. The majority of our customers purchase a Package or Portfolio product.
- Small Commercial Insurance products and services offered include property, professional and management liability, environmental, inland marine, umbrella, workers' compensation, automobile liability, surety, A&H coverages, and business owner's policy package coverage. Products are generally offered through a North American network of retail agents and brokers.

Wholesale and Specialty P&C, which represented 19 percent of North America Commercial P&C Insurance's net premiums earned in 2016, comprises Westchester and Chubb Bermuda. Chubb Westchester serves the market for business risks that tend to be hard to place due to unique or complex exposures. Products offered include wholesale excess and surplus lines property, casualty, environmental, professional liability, inland marine, and product recall coverages in the U.S., Canada, and Bermuda.

Chubb Bermuda, provides commercial insurance products on an excess basis including excess liability, D&O, professional liability, property, and political risk, the latter being written by Sovereign Risk Insurance Ltd., a wholly-owned managing agent. Chubb Bermuda focuses on Fortune 1000 companies and targets risks that are generally low in frequency and high in severity. Chubb Bermuda offers its products primarily through the Bermuda offices of major, internationally recognized insurance brokers.

Competitive Environment
Major Accounts competes against a number of large, national carriers as well as regional competitors and other entities offering risk alternatives such as self-insured retentions and captive programs. The markets in which we compete are subject to significant cycles of fluctuating capacity and wide disparities in price adequacy. We pursue a specialist strategy and focus on market opportunities where we can compete effectively based on service levels and product design, while still achieving an adequate level of profitability. We also achieve a competitive advantage through Major Accounts' innovative product offerings and our ability to provide multiple products to a single client due to our nationwide local presence. In addition, all our domestic commercial units are able to deliver global products and coverage to customers in concert with our Overseas General Insurance segment.

The Commercial Insurance and Small Commercial Insurance operations compete against numerous insurance companies ranging from large national carriers to small and mid-size insurers who provide specialty coverages and standard P&C products.

Westchester competes against a number of large, national carriers as well as regional competitors and other entities offering risk alternatives such as self-insured retentions and captive programs. Chubb Bermuda competes against international commercial carriers writing business on an excess of loss basis.

North America Personal P&C Insurance (15 percent of 2016 Consolidated NPE)

Overview
The North America Personal P&C Insurance segment includes the business written by Chubb Personal Risk Services division, which comprises Chubb high net worth personal lines business and ACE Private Risk Services, with operations in the U.S. and Canada. This segment provides affluent and high net worth individuals and families with homeowners, automobile and collector cars, valuable articles (including fine arts), personal and excess liability, travel insurance, and recreational marine insurance and services. Our homeowners business represented 70 percent of North America Personal P&C Insurance's net premiums earned in 2016.

Products and Distribution
Chubb Personal Risk Services offers comprehensive personal insurance products and services to meet the evolving needs of successful families and individuals. Our seamless customer experience and superior coverage protect not only our clients' most valuable possessions, but also their standard of living. Our target customers consist of high net worth consumers with insurance needs that typically extend beyond what mass market carriers can offer. These coverages are offered through independent regional agents and brokers.

Competitive Environment
Chubb Personal Risk Services competes against insurance companies of varying sizes that sell personal lines products through various distribution channels, including retail agents as well as online distribution channels. We achieve a competitive advantage through our ability to provide superior service to our customers as well as our ability to address the specific needs of high net worth families and individuals.

North America Agricultural Insurance (5 percent of 2016 Consolidated NPE)

Overview
The North America Agricultural Insurance segment comprises our U.S. and Canadian-based businesses that provide a variety of coverages including crop insurance, primarily Multiple Peril Crop Insurance (MPCI) and crop-hail insurance through Rain and Hail Insurance Service, Inc. (Rain and Hail) as well as farm and ranch and specialty P&C commercial insurance products and services through our Chubb Agribusiness unit.

Products and Distribution
The Rain and Hail business provides comprehensive MPCI and crop-hail insurance, and Chubb Agribusiness offers farm and ranch coverages as well as specialty P&C coverages for companies that manufacture, process and distribute agriculture products. The MPCI program is offered in conjunction with the U.S. Department of Agriculture (USDA). The USDA's Risk Management Agency (RMA) sets the policy terms and conditions, rates and forms, and is also responsible for setting compliance standards. As a participating company, we report all details of policies underwritten to the RMA and are party to a Standard Reinsurance Agreement (SRA). The SRA sets out the relationship between private insurance companies and the Federal Crop Insurance Corporation (FCIC) concerning the terms and conditions regarding the risks each will bear including the pro-rata and state stop-loss provisions which allow companies to limit the exposure of any one state or group of states on their underwriting results. In addition to the pro-rata and excess of loss reinsurance protections inherent in the SRA, we also purchase third-party proportional and stop-loss reinsurance for our MPCI business to reduce our exposure. We may also enter into crop derivative contracts to further manage our risk exposure. For additional information, refer to "Crop Insurance", under Item 7.

Competitive Environment
Rain and Hail primarily operates in a federally regulated program where all approved providers offer the same product forms and rates through independent and/or captive agents. Chubb Agribusiness competes against both national and regional competitors offering specialty P&C insurance coverages to companies that manufacture, process, and distribute agricultural products.

Overseas General Insurance (28 percent of 2016 Consolidated NPE)

Overview
The Overseas General Insurance segment comprises Chubb International and Chubb Global Markets (CGM). CGM, our London-based international specialty and excess and surplus lines business, includes Lloyd's of London (Lloyd's) Syndicate 2488 and Syndicate 1882, both wholly-owned Chubb syndicates supported by funds at Lloyd's provided by Chubb Corporate Members. Effective December 31, 2016, Syndicate 1882 ceased underwriting new business and Syndicate 2488 will underwrite all Chubb's Lloyd's business from January 1, 2017 onwards. Syndicate 2488 has an underwriting capacity of £405 million for the Lloyd's 2017 year of account. The syndicates are managed by Chubb's Lloyd's managing agency, ACE Underwriting Agencies Limited. The reinsurance operation of CGM is included in the Global Reinsurance segment.

Products and Distribution
Chubb International maintains a presence in every major insurance market in the world and is organized geographically along product lines as follows: Europe, Asia Pacific, Eurasia and Africa, Far East, and Latin America. Products offered include P&C, A&H, specialty coverages, and personal lines insurance products and services. Chubb International's P&C business is generally

written, on both a direct and assumed basis, through major international, regional, and local brokers and agents. Certain Europe branded products are also offered via an e-commerce platform, Chubb Online, that allows brokers to quote, bind, and issue specialty policies online. Property insurance products include traditional commercial fire coverage as well as energy industry-related, marine, construction, and other technical coverages. Principal casualty products are commercial primary and excess casualty, environmental, and general liability. A&H and other consumer lines products are distributed through brokers, agents, direct marketing programs, and sponsor relationships. Chubb International specialty coverages include D&O, professional indemnity, energy, aviation, political risk, and specialty personal lines products. The A&H operations primarily offer personal accident and supplemental medical coverages including accidental death, business/holiday travel, specified disease, disability, medical and hospital indemnity, and income protection. We are not in the primary healthcare business. With respect to our supplemental medical and hospital indemnity products, we typically pay fixed amounts for claims and are therefore largely insulated from the direct impact of rising healthcare costs. Chubb International's personal lines operations provide specialty products and services designed to meet the needs of specific target markets and include property damage, automobile, homeowners, and personal liability.

CGM offers products through its parallel distribution network via ACE European Group Limited (AEGL) and Syndicate 2488. CGM uses the syndicate to underwrite P&C business on a global basis through Lloyd's worldwide licenses. CGM uses AEGL to underwrite similar classes of business through its network of U.K. and European licenses, and in the U.S. where it is eligible to write excess and surplus lines business. Factors influencing the decision to place business with each syndicate or AEGL include licensing eligibilities, capitalization requirements, and client/broker preference. All business underwritten by CGM is accessed through registered brokers. The main lines of business include aviation, property, energy, professional lines, marine, financial lines, political risk, and A&H.

Competitive Environment

Chubb International's primary competitors include U.S.-based companies with global operations, as well as non-U.S. global carriers and indigenous companies in regional and local markets. For the A&H lines of business, locally based competitors include financial institutions and bank owned insurance subsidiaries. Our international operations have the distinct advantage of being part of one of the few international insurance groups with a global network of licensed companies able to write policies on a locally admitted basis. The principal competitive factors that affect the international operations are underwriting expertise and pricing, relative operating efficiency, product differentiation, producer relations, and the quality of policyholder services. A competitive strength of our international operations is our global network and breadth of insurance programs, which assist individuals and business organizations to meet their risk management objectives, while also giving us the advantage of accessing local technical expertise, accomplishing a spread of risk, and offering a global network to service multinational accounts.

CGM is one of the preeminent international specialty insurers in London and is an established lead underwriter on a significant portion of the risks it underwrites for all lines of business. This leadership position allows CGM to set the policy terms and conditions of many of the policies written. All lines of business face competition, depending on the business class, from Lloyd's syndicates, the London market, and other major international insurers and reinsurers. Competition for international risks is also seen from domestic insurers in the country of origin of the insured. CGM differentiates itself from competitors through long standing experience in its product lines, its multiple insurance entities (Syndicate 2488 and AEGL), and the quality of its underwriting and claims service.

Global Reinsurance (2 percent of 2016 Consolidated NPE)

Overview

The Global Reinsurance segment represents Chubb's reinsurance operations comprising Chubb Tempest Re Bermuda, Chubb Tempest Re USA, Chubb Tempest Re International, and Chubb Tempest Re Canada. The Global Reinsurance segment also includes CGM's reinsurance operations. Global Reinsurance markets reinsurance products worldwide under the Chubb Tempest Re brand name and provides solutions for small to mid-sized clients and multinational ceding companies. Global Re offers a broad array of traditional and non-traditional property and casualty products.

Products and Distribution

Global Reinsurance services clients globally through its major units. Major international brokers submit business to one or more of these units' underwriting teams who have built strong relationships with both key brokers and clients by providing a responsive, client-focused approach to risk assessment and pricing.

Chubb Tempest Re Bermuda principally provides property catastrophe reinsurance globally to insurers of commercial and personal property. Property catastrophe reinsurance is on an occurrence or aggregate basis and protects a ceding company against an accumulation of losses covered by its issued insurance policies, arising from a common event or occurrence. Chubb Tempest Re Bermuda underwrites reinsurance principally on an excess of loss basis, meaning that its exposure only arises after the ceding company's accumulated losses have exceeded the attachment point of the reinsurance policy. Chubb Tempest Re Bermuda also writes other types of reinsurance on a limited basis for selected clients. Examples include proportional property where the reinsurer shares a proportional part of the premiums and losses of the ceding company and per risk excess of loss treaty reinsurance where coverage applies on a per risk basis rather than per event or aggregate basis, together with casualty (catastrophe workers' compensation) and specialty lines (crop and terrorism). Chubb Tempest Re Bermuda's business is produced through reinsurance intermediaries.

Chubb Tempest Re USA writes all lines of traditional and specialty P&C reinsurance, and surety and fidelity reinsurance for the North American market, principally on a treaty basis, with a focus on writing property per risk and casualty reinsurance. Chubb Tempest Re USA underwrites reinsurance on both a proportional and excess of loss basis. This unit's diversified portfolio is produced through reinsurance intermediaries.

Chubb Tempest Re International provides traditional and specialty P&C reinsurance to insurance companies worldwide, with emphasis on non-U.S. and Canadian risks. Chubb Tempest Re International writes all lines of traditional and specialty reinsurance including property risk and property catastrophe, casualty, marine, aviation, and specialty through our London- and Zurich-based divisions. The London-based divisions of Chubb Tempest Re International focus on the development of business sourced through London market brokers and, accordingly, write a diverse book of international business using Syndicate 2488 and AEGL. The Zurich-based division focuses on providing reinsurance to continental European insurers via continental European brokers while also serving Asian and Latin American markets. Chubb Tempest Re International also includes our Shanghai, China office which provides reinsurance coverage for Chinese-based risks. Chubb Tempest Re International underwrites reinsurance on both a proportional and excess of loss basis.

Chubb Tempest Re Canada offers a full array of traditional and specialty P&C, and reinsurance to the Canadian market, including casualty, property risk and property catastrophe. Chubb Tempest Re Canada provides coverage through its Canadian company platform and also offers clients access to Syndicate 2488. Chubb Tempest Re Canada underwrites reinsurance on both a proportional and excess of loss basis.

Competitive Environment

The Global Reinsurance segment competes worldwide with major U.S. and non-U.S. reinsurers as well as reinsurance departments of numerous multi-line insurance organizations. In addition, over the last several years, capital markets participants have developed financial products intended to compete with traditional reinsurance. Additionally, government sponsored or backed catastrophe funds can affect demand for reinsurance. Global Reinsurance is considered a lead reinsurer and is typically involved in the negotiation and quotation of the terms and conditions of the majority of the contracts in which it participates. Global Reinsurance competes effectively in P&C markets worldwide because of its strong capital position, analytical capabilities and quality customer service, the leading role it plays in setting the terms, pricing, and conditions in negotiating contracts, and its customized approach to risk selection. The key competitors in our markets vary by geographic region and product line. An advantage of our international platform is that we are able to change our mix of business in response to changes in competitive conditions in the territories in which we operate. Our geographic reach is also sought by multinational ceding companies since all of our offices, with the exception of Bermuda, provide local reinsurance license capabilities which benefit our clients in dealing with country regulators.

Life Insurance (7 percent of 2016 Consolidated NPE)

Overview
The Life segment comprises Chubb's international life operations (Chubb Life), Chubb Tempest Life Re (Chubb Life Re), and the North American supplemental A&H and life business of Combined Insurance.

Products and Distribution
Chubb Life provides individual life and group benefit insurance primarily in emerging markets, including Hong Kong, Indonesia, South Korea, Taiwan, Thailand, Vietnam, and Egypt; also throughout Latin America; selectively in Europe; and in China through a non-consolidated joint venture insurance company. Chubb Life offers a broad portfolio of protection and savings products including whole life, endowment plans, individual term life, group term life, medical and health, personal accident, credit life, universal life, and unit linked contracts. The policies written by Chubb Life generally provide funds to beneficiaries of insureds after death and/or protection and/or savings benefits while the contract owner is living. Chubb Life sells to consumers through a variety of distribution channels including captive and independent agency, bancassurance, worksite marketing, retailers, brokers, and direct to consumer marketing. We continue to expand Chubb Life with a focus on opportunities in emerging markets that we believe will result in strong and sustainable operating profits as well as a favorable return on capital commitments over time. Our dedicated captive agency distribution channel, whereby agents sell Chubb Life products exclusively, enables us to maintain direct contact with the individual consumer, promote quality sales practices, and exercise greater control over the future of the business. We have developed a substantial sales force of agents principally located in our Asia-Pacific countries. Chubb also maintains approximately 36 percent direct and indirect ownership interest in Huatai Life Insurance Co., Ltd. (Huatai Life), which commenced operations in 2005 and has since grown to become one of the larger life insurance foreign joint ventures in China. Huatai Life offers a broad portfolio of insurance products through a variety of distribution channels including approximately 333 licensed sales locations in 16 Chinese provinces.

Chubb Life Re's core business is a Bermuda-based operation which provides reinsurance to primary life insurers, focusing on guarantees included in certain fixed and variable annuity products and also on more traditional mortality reinsurance protection. Chubb Life Re's U.S.-based traditional life reinsurance operation was discontinued for new business in January 2010. Since 2007, Chubb Life Re has not quoted on new opportunities in the variable annuity reinsurance marketplace and our focus has been on managing the current portfolio of risk, both in the aggregate and on a contract basis. This business is managed with a long-term perspective and short-term earnings volatility is expected.

Combined Insurance distributes specialty supplemental A&H and life insurance products targeted to middle income consumers and businesses in the U.S. and Canada. Combined Insurance's substantial North American sales force distributes a wide range of supplemental accident and sickness insurance products, including personal accident, short-term disability, critical illness, Medicare supplement products, and hospital confinement/recovery. Most of these products are primarily fixed-indemnity benefit obligations and are not directly subject to escalating medical cost inflation.

Competitive Environment
Chubb Life's competition differs by location but generally includes multinational insurers, and in some locations, local insurers, joint ventures, or state-owned insurers. Chubb's financial strength and reputation as an entrepreneurial organization with a global presence gives Chubb Life a strong base from which to compete. While Chubb Life Re is not currently quoting on new opportunities in the variable annuity reinsurance marketplace, we continue to monitor developments in this market. Combined Insurance competes for A&H business in the U.S. against numerous A&H and life insurance companies across various industry segments.

Corporate

Overview
Corporate results primarily include loss and loss expenses of asbestos and environmental (A&E) liabilities and certain other run-off exposures, income and expenses not attributable to reportable segments and the results of our non-insurance companies. The run-off operations do not actively sell insurance products, but are responsible for the management of existing policies and settlement of related claims.

Our exposure to A&E claims principally arises out of liabilities acquired when we purchased Westchester Specialty in 1998, CIGNA’s P&C business in 1999, and legacy Chubb Corp A&E claims in 2016. The A&E liabilities principally relate to claims arising from bodily-injury claims related to asbestos products and remediation costs associated with hazardous waste sites.

Underwriting

Chubb is an underwriting company and we strive to emphasize quality of underwriting rather than volume of business or market share. Our underwriting strategy is to manage risk by employing consistent, disciplined pricing and risk selection. This, coupled with writing a number of less cyclical product lines, has helped us develop flexibility and stability of our business, and has allowed us to maintain a profitable book of business throughout market cycles. Clearly defined underwriting authorities, standards, and guidelines coupled with a strong underwriting audit function are in place in each of our local operations and global profit centers. Global product boards ensure consistency of approach and the establishment of best practices throughout the world. Our priority is to help ensure adherence to criteria for risk selection by maintaining high levels of experience and expertise in our underwriting staff. In addition, we employ a business review structure that helps ensure control of risk quality and conservative use of policy limits and terms and conditions. Underwriting discipline is at the heart of our operating philosophy.

Actuaries in each region work closely with the underwriting teams to provide additional expertise in the underwriting process. We use internal and external data together with sophisticated analytical, catastrophe loss and risk modeling techniques to ensure an appropriate understanding of risk, including diversification and correlation effects, across different product lines and territories. This helps to ensure that losses are contained within our risk tolerance and appetite for individual product lines, businesses, and Chubb as a whole. Our use of such tools and data also reflects an understanding of their inherent limitations and uncertainties. We also purchase protection from third parties, including, but not limited to, reinsurance as a tool to diversify risk and limit the net loss potential of catastrophes and large or unusually hazardous risks. For additional information refer to "Risk Factors" under Item 1A, “Reinsurance Protection”, below, “Catastrophe Management” and “Natural Catastrophe Property Reinsurance Program”, under Item 7, and Note 5 to the Consolidated Financial Statements, under Item 8.

Reinsurance Protection

As part of our risk management strategy, we purchase reinsurance protection to mitigate our exposure to losses, including certain catastrophes, to a level consistent with our risk appetite. Although reinsurance agreements contractually obligate our reinsurers to reimburse us for an agreed-upon portion of our gross paid losses, reinsurance does not discharge our primary liability to our insureds and, thus, we ultimately remain liable for the gross direct losses. In certain countries, reinsurer selection is limited by local laws or regulations. In most countries there is more freedom of choice, and the counterparty is selected based upon its financial strength, claims settlement record, management, line of business expertise, and its price for assuming the risk transferred. In support of this process, we maintain a Chubb authorized reinsurer list that stratifies these authorized reinsurers by classes of business and acceptable limits. This list is maintained by our Reinsurance Security Committee (RSC), a committee comprising senior management personnel and a dedicated reinsurer security team. Changes to the list are authorized by the RSC and recommended to the Chair of the Risk and Underwriting Committee. The reinsurers on the authorized list and potential new markets are regularly reviewed and the list may be modified following these reviews. In addition to the authorized list, there is a formal exception process that allows authorized reinsurance buyers to use reinsurers already on the authorized list for higher limits or different lines of business, for example, or other reinsurers not on the authorized list if their use is supported by compelling business reasons for a particular reinsurance program.

A separate policy and process exists for captive reinsurance companies. Generally, these reinsurance companies are established by our clients or our clients have an interest in them. It is generally our policy to obtain collateral equal to the expected losses that may be ceded to the captive. Where appropriate, exceptions to the collateral requirement are granted but only after senior management review. Specific collateral guidelines and an exception process are in place for the North America Commercial P&C Insurance, North America Personal P&C Insurance, and Overseas General Insurance segments, all of which have credit management units evaluating the captive's credit quality and that of their parent company. The credit management units, working with actuaries, determine reasonable exposure estimates (collateral calculations), ensure receipt of collateral in an acceptable form, and coordinate collateral adjustments as and when needed. Financial reviews and expected loss evaluations are performed annually for active captive accounts and as needed for run-off exposures. In addition to collateral, parental guarantees are often used to enhance the credit quality of the captive.

In general, we seek to place our reinsurance with highly rated companies with which we have a strong trading relationship. For additional information refer to “Catastrophe Management” and “Natural Catastrophe Property Reinsurance Program” under Item 7, and Note 5 to the Consolidated Financial Statements, under Item 8.

Unpaid Losses and Loss Expenses

We establish reserves for unpaid losses and loss expenses, which are estimates of future payments on reported and unreported claims for losses and related expenses, with respect to insured events that have occurred. These reserves are recorded in Unpaid losses and loss expenses in the Consolidated balance sheets. The process of establishing loss and loss expense reserves for P&C claims can be complex and is subject to considerable uncertainty as it requires the use of informed estimates and judgments based on circumstances known at the date of accrual. These estimates and judgments are based on numerous factors, and may be revised as additional experience and other data become available and are reviewed, as new or improved methodologies are developed, or as laws change. Internal actuaries regularly analyze the levels of loss and loss expense reserves, taking into consideration factors that may impact the ultimate settlement value of the unpaid losses and loss expenses. These analyses could result in future changes in the estimates of loss and loss expense reserves or reinsurance recoverables and any such changes would be reflected in our results of operations in the period in which the estimates are changed. Losses and loss expenses are charged to income as incurred. The reserve for unpaid losses and loss expenses represents the estimated ultimate losses and loss expenses less paid losses and loss expenses, and comprises case reserves and incurred but not reported (IBNR) loss reserves. With the exception of certain structured settlements, for which the timing and amount of future claim payments are reliably determinable, and certain reserves for unsettled claims that are discounted in statutory filings, our loss reserves are not discounted for the time value of money. In connection with such structured settlements and certain reserves for unsettled claims, we carried net discounted reserves of $88 million at December 31, 2016 .

For each product line, management, in conjunction with internal actuaries, develops a “best estimate” of the ultimate settlement value of the unpaid losses and loss expenses that it believes provides a reasonable estimate of the required reserve. We evaluate our estimates of reserves quarterly in light of developing information. While we are unable at this time to determine whether additional reserves may be necessary in the future, we believe that our reserves for unpaid losses and loss expenses are adequate at December 31, 2016 . Future additions to reserves, if needed, could have a material adverse effect on our financial condition, results of operations, and cash flows. For additional information refer to “Critical Accounting Estimates – Unpaid losses and loss expenses”, under Item 7, and Note 7 to the Consolidated Financial Statements, under Item 8.

Investments

Our objective is to maximize investment income and total return while ensuring an appropriate level of liquidity and investment quality and diversification. As such, Chubb's investment portfolio is invested primarily in investment-grade fixed-income securities as measured by the major rating agencies. We do not allow leverage or complex credit structures in our investment portfolio.

The critical aspects of the investment process are controlled by Chubb Asset Management, an indirect wholly-owned subsidiary of Chubb. These aspects include asset allocation, portfolio and guideline design, risk management and oversight of external asset managers. In this regard, Chubb Asset Management:

- conducts formal asset allocation modeling for each of the Chubb subsidiaries, providing formal recommendations for the portfolio's structure;
- establishes recommended investment guidelines that are appropriate to the prescribed asset allocation targets;
- provides the analysis, evaluation, and selection of our external investment advisors;
- establishes and develops investment-related analytics to enhance portfolio engineering and risk control;
- monitors and aggregates the correlated risk of the overall investment portfolio; and
- provides governance over the investment process for each of our operating companies to ensure consistency of approach and adherence to investment guidelines.

Under our guidance and direction, external asset managers conduct security and sector selection and transaction execution. Use of multiple managers benefits Chubb in several ways – it provides us with operational and cost efficiencies, diversity of styles and approaches, innovations in investment research and credit and risk management, all of which enhance the risk adjusted returns of our portfolios.

Chubb Asset Management determines the investment portfolio's allowable, targeted asset allocation and ranges for each of the segments. These asset allocation targets are derived from sophisticated asset and liability modeling that measures correlated histories of returns and volatility of returns. Allowable investment classes are further refined through analysis of our operating environment, including expected volatility of cash flows, potential impact on our capital position, as well as regulatory and rating agency considerations.

The Board has established a Risk & Finance Committee which helps execute the Board's supervisory responsibilities pertaining to enterprise risk management including investment risk. Under the overall supervision of the Risk & Finance Committee, Chubb's governance over investment management is rigorous and ongoing. Among its responsibilities, the Risk & Finance Committee of the Board:

- reviews and approves asset allocation targets and investment policy to ensure that it is consistent with our overall goals, strategies, and objectives;
- reviews and approves investment guidelines to ensure that appropriate levels of portfolio liquidity, credit quality, diversification, and volatility are maintained; and
- systematically reviews the portfolio's exposures including any potential violations of investment guidelines.

We have long-standing global credit limits for our entire portfolio across the organization and for individual obligors. Exposures are aggregated, monitored, and actively managed by our Global Credit Committee, comprising senior executives, including our Chief Financial Officer, our Chief Risk Officer, our Chief Investment Officer, and our Treasurer.

Within the guidelines and asset allocation parameters established by the Risk & Finance Committee, individual investment committees of the segments determine tactical asset allocation. Additionally, these committees review all investment-related activity that affects their operating company, including the selection of outside investment advisors, proposed asset allocation changes, and the systematic review of investment guidelines.

For additional information regarding the investment portfolio, including breakdowns of the sector and maturity distributions, refer to Note 3 to the Consolidated Financial Statements, under Item 8.

Regulation

Our insurance and reinsurance subsidiaries conduct business globally, including in all 50 states of the United States and the District of Columbia. Our businesses in each of these jurisdictions are subject to varying degrees of regulation and supervision. The laws and regulations of the jurisdictions in which our insurance and reinsurance subsidiaries are domiciled require among other things that these subsidiaries maintain minimum levels of statutory capital, surplus, and liquidity, meet solvency standards, and submit to periodic examinations of their financial condition. The complex regulatory environments in which Chubb operates are subject to change and are regularly monitored.

Group Supervision

In September 2012, pursuant to legislation passed in the state of Pennsylvania, U.S., based on the Model Insurance Holding Company System Regulatory Act (model law) adopted by the National Association of Insurance Commissioners (NAIC), the Pennsylvania Insurance Department (Department), in consultation with other insurance regulatory bodies that oversee Chubb's insurance activities, convened the first Chubb Supervisory College (College). Regulators from approximately 15 jurisdictions worldwide were invited to participate in the College, the purpose of which was to initiate establishment of, and to clarify the membership, participation, functionality, and ongoing activities in, the College with respect to group-wide supervision of Chubb. Representatives from approximately ten jurisdictions attended the College in Philadelphia, Pennsylvania, during which the supervisors reviewed, without adverse comment, information on our group governance, risk assessment and management, capital adequacy, and material intercompany transactions. On October 19, 2012, the Department, in cooperation with the other supervisory college regulators, published a notice of its determination that it is the appropriate group-wide supervisor for Chubb.

In September 2014, the Department, in consultation with other insurance regulatory bodies that oversee Chubb's insurance activities, convened the second College. Representatives from approximately ten jurisdictions attended the College in Philadelphia, Pennsylvania, during which the supervisors reviewed, without adverse comment, information on our group governance, compliance, risk assessment and management, and capital adequacy.

In September 2016, the Department, in consultation with other insurance regulatory bodies that oversee Chubb's insurance activities, convened the third College. Representatives from six jurisdictions participated in the College, held in Lafayette Hill, Pennsylvania, during which the supervisors reviewed, without adverse comment, the company's legal and compliance operations, cyber security, business plans and enterprise risk and capital/liquidity management, as well as company-specific issues of interest.

The following is an overview of regulations for our operations in Switzerland, the U.S., Bermuda, and other international locations.

Swiss Operations
The Swiss Financial Market Supervisory Authority (FINMA) has the discretion to supervise Chubb on a group-wide basis. However, FINMA acknowledges the Department's assumption of group supervision over us.

In 2008, we formed Chubb Insurance (Switzerland) Limited which offers property and casualty insurance to Swiss companies, A&H insurance for individuals of Swiss Corporations as well as reinsurance predominantly in Continental Europe. We have also formed a reinsurance subsidiary named Chubb Reinsurance (Switzerland) Limited, which we operate as primarily a provider of reinsurance to Chubb entities. Both companies are licensed and governed by FINMA.

U.S. Operations
Our U.S. insurance subsidiaries are subject to extensive regulation and supervision by the states in which they do business. The laws of the various states establish departments of insurance with broad authority to regulate, among other things: the standards of solvency that must be met and maintained, the licensing of insurers and their producers, approval of policy forms and rates, the nature of and limitations on investments, restrictions on the size of the risks which may be insured under a single policy, deposits of securities for the benefit of policyholders, requirements for the acceptability of reinsurers, periodic examinations of the affairs of insurance companies, the form and content of reports of financial condition required to be filed, and the adequacy of reserves for unearned premiums, losses, and other purposes.

Our U.S. insurance subsidiaries are required to file detailed annual and quarterly reports with state insurance regulators. In addition, our U.S. insurance subsidiaries' operations and financial records are subject to examination at regular intervals by state regulators.

All states have enacted legislation that regulates insurance holding companies. This legislation provides that each insurance company in the insurance holding company system (system) is required to register with the insurance department of its state of domicile and furnish information concerning the operations of companies within the system that may materially affect the operations, management, or financial condition of the insurers within the system. We are required to file an annual enterprise risk report with the Department, identifying the material risks within our system that could pose enterprise risk to the insurance subsidiaries in the system. All transactions within a system must be fair and equitable. Notice to the insurance departments is required prior to the consummation of transactions affecting the ownership or control of an insurer and of certain material transactions between an insurer and an entity in its system. In addition, certain transactions may not be consummated without the department's prior approval.

We are also required to file an annual summary report with the Department, reflecting our internal assessment of material risks associated with our current business plan and the sufficiency of our capital resources to support those risks.

Statutory surplus is an important measure used by the regulators and rating agencies to assess our U.S. insurance subsidiaries' ability to support business operations and provide dividend capacity. Our U.S. insurance subsidiaries are subject to various state statutory and regulatory restrictions that limit the amount of dividends that may be paid without prior approval from regulatory authorities. These restrictions differ by state, but are generally based on calculations incorporating statutory surplus, statutory net income, and/or investment income.

The NAIC has a risk-based capital requirement for P&C insurance companies. This risk-based capital formula is used by many state regulatory authorities to identify insurance companies that may be undercapitalized and which merit further regulatory attention. These requirements are designed to monitor capital adequacy using a formula that prescribes a series of risk measurements to determine a minimum capital amount for an insurance company, based on the profile of the individual company. The ratio of a company's actual policyholder surplus to its minimum capital requirement will determine whether any state regulatory action is required. There are progressive risk-based capital failure levels that trigger more stringent regulatory action. If an insurer's policyholders' surplus falls below the Mandatory Control Level (70 percent of the Authorized Control Level, as defined by the NAIC), the relevant insurance commissioner is required to place the insurer under regulatory control.

However, an insurance regulator may allow a P&C company operating below the Mandatory Control Level that is writing no business and is running off its existing business to continue its run-off. Brandywine is running off its liabilities consistent with the terms of an order issued by the Insurance Commissioner of Pennsylvania. This includes periodic reporting obligations to the Department.

Government intervention has also occurred in the insurance and reinsurance markets in relation to terrorism coverage in the U.S. (and through industry initiatives in other countries). The U.S. Terrorism Risk Insurance Act (TRIA), which was enacted in 2002 to ensure the availability of insurance coverage for certain types of terrorist acts in the U.S., was extended in 2015 for six years, through December 31, 2020, and applies to certain of our operations.

From time to time, Chubb and its subsidiaries and affiliates receive inquiries from state agencies and attorneys general, with which we generally comply, seeking information concerning business practices, such as underwriting and non-traditional or loss mitigation insurance products. Moreover, many recent factors, such as consequences of and reactions to industry and economic conditions and focus on domestic issues, have contributed to the potential for change in the legal and regulatory framework applicable to Chubb's U.S. operations and businesses. We cannot assure that changes in laws or investigative or enforcement activities in the various states in the U.S. will not have a material adverse impact on our financial condition, results of operations, or business practices.

Bermuda Operations
The Insurance Act 1978 of Bermuda and related regulations, as amended (the Insurance Act), regulates the insurance business of our Bermuda domiciled (re)insurance subsidiaries (Bermuda domiciled subsidiaries) and provides that no person may carry on any insurance business in or from within Bermuda unless registered as an insurer by the Bermuda Monetary Authority (BMA). The Insurance Act imposes solvency and liquidity standards and auditing and reporting requirements on Bermuda insurance companies and grants the BMA powers to supervise, investigate, and intervene in the affairs of insurance companies.

Bermuda domiciled subsidiaries must prepare and file with the BMA, audited annual statutory financial statements and audited annual financial statements prepared in accordance with accounting principles generally accepted in the U.S. (GAAP), International Financial Reporting Standards (IFRS), or any such other generally accepted accounting principles as the BMA may recognize. These audited financial statements are made public by the BMA. The Insurance Act prescribes rules for the preparation and content of the statutory financial statements that require Bermuda domiciled subsidiaries to give detailed information and analyses regarding premiums, claims, reinsurance, and investments. In addition, commencing with the 2016 financial year end filing, the Bermuda domiciled subsidiaries will be required to prepare and publish a Financial Condition Report (FCR). The FCR shall provide details of measures governing the business operations, corporate governance framework, solvency and financial performance. The FCR will be required to be filed with the BMA and requires Bermuda insurance companies to make the FCR publicly available.

Effective January 1, 2016, Bermuda implemented a new solvency and risk management regime which has been deemed equivalent to the EU's Solvency II regime. Bermuda statutory reporting rules have been amended to introduce an economic balance sheet ("EBS") framework.

Bermuda's regulatory regime provides a risk-based capital model, termed the Bermuda Solvency Capital Requirement (BSCR), as a tool to assist the BMA both in measuring risk and in determining appropriate levels of capitalization. The BSCR employs a standard mathematical model that correlates the risk underwritten by Bermuda insurers to their capital. The BSCR framework applies a standard measurement format to the risk associated with an insurer's assets, liabilities, and premiums, including a formula to take account of catastrophe risk exposure.

The BMA established risk-based regulatory capital adequacy and solvency margin requirements for Bermuda insurers that mandate that a Bermuda domiciled subsidiary's Enhanced Capital Requirement (ECR) be calculated by either (a) BSCR, or (b) an internal capital model which the BMA has approved for use for this purpose. The Bermuda domiciled subsidiaries use the BSCR in calculating their solvency requirements. The EBS framework is embedded as part of the BSCR and forms the basis of our ECR.

In order to minimize the risk of a shortfall in capital arising from an unexpected adverse deviation and in moving towards the implementation of a risk based capital approach, the BMA has established a threshold capital level, (termed the Target Capital Level (TCL)), set at 120 percent of ECR, that serves as an early warning tool for the BMA and failure to maintain statutory capital at least equal to the TCL will likely result in increased BMA regulatory oversight.

The Bermuda domiciled subsidiaries will submit their first annual filings under the EBS framework in 2017. The new regulations are not expected to have a material effect on our capital management strategies, results of operations or financial condition.

Under the Insurance Act, Chubb's Bermuda domiciled subsidiaries are prohibited from declaring or paying any dividends of more than 25 percent of total statutory capital and surplus, as shown in its previous financial year statutory balance sheet, unless at least seven days before payment of the dividends, it files with the BMA an affidavit that it will continue to meet its required solvency margins. Furthermore, Bermuda domiciled subsidiaries may only declare and pay a dividend from retained earnings and a dividend or distribution from contributed surplus if it has no reasonable grounds for believing that it is, or would after the payment be, unable to pay its liabilities as they become due, or if the realizable value of its assets would not be less than the aggregate of its liabilities and its issued share capital and share premium accounts.

In addition, Chubb's Bermuda domiciled subsidiaries must obtain the BMA's prior approval before reducing total statutory capital, as shown in its previous financial year statutory balance sheet, by 15 percent or more.

Other International Operations

The extent of insurance regulation varies significantly among the countries in which non-U.S. Chubb operations conduct business. While each country imposes licensing, solvency, auditing, and financial reporting requirements, the type and extent of the requirements differ substantially. For example:

- in some countries, insurers are required to prepare and file monthly and/or quarterly financial reports, and in others, only annual reports;
- some regulators require intermediaries to be involved in the sale of insurance products, whereas other regulators permit direct sales contact between the insurer and the customer;
- the extent of restrictions imposed upon an insurer's use of local and offshore reinsurance vary;
- policy form filing and rate regulation vary by country;
- the frequency of contact and periodic on-site examinations by insurance authorities differ by country; and
- regulatory requirements relating to insurer dividend policies vary by country.

Significant variations can also be found in the size, structure, and resources of the local regulatory departments that oversee insurance activities. Certain regulators prefer close relationships with all subject insurers and others operate a risk-based approach.

Chubb operates in some countries through subsidiaries and in some countries through branches of subsidiaries. Local capital requirements applicable to a subsidiary generally include its branches. Certain Chubb companies are jointly owned with local companies to comply with legal requirements for local ownership. Other legal requirements include discretionary licensing procedures, compulsory cessions of reinsurance, local retention of funds and records, data privacy and protection program requirements, and foreign exchange controls. Chubb's international companies are also subject to multinational application of certain U.S. laws.

There are various regulatory bodies and initiatives that impact Chubb in multiple international jurisdictions and the potential for significant impact on Chubb could be heightened as a result of recent industry and economic developments. In particular, the European Union's (EU) executive body, the European Commission, implemented a new capital adequacy and risk management regulations for the European insurance industry, known as Solvency II, which aims to establish a revised set of EU-wide capital requirements and risk management standards that replaced the Solvency I requirements. The Solvency II requirements were effective January 1, 2016 for our European operations.

Under Solvency II, it is possible that a U.S. domiciled parent company of a subsidiary domiciled in the EU could be subject to certain requirements if determined by the regulator that its subsidiary's capital position is dependent on the U.S. parent company that is not subject to requirements deemed to be "equivalent" to Solvency II. We do not currently expect that our capital management strategies, results of operations, and financial condition will be materially affected by the Solvency II requirements.

Enterprise Risk Management

As an insurer, Chubb is in the business of profitably managing risk for its customers. Since risk management must permeate an organization conducting a global insurance business, we have an established Enterprise Risk Management (ERM) framework that is integrated into management of our businesses and is led by Chubb's senior management. As a result, ERM is a part of the day-to-day management of Chubb and its operations.

Our global ERM framework is broadly multi-disciplinary and its objectives include:

- **External Risks** : identify, analyze, quantify, and where possible, mitigate significant external risks that could materially hamper the financial condition of Chubb and/or the achievement of corporate business objectives over the next 36 months;
- **Exposure Accumulations** : identify and quantify the accumulation of exposure to individual counterparties, products or industry sectors, particularly those that materially extend across or correlate between business units or divisions and/or the balance sheet;
- **Risk Modeling** : develop and use various data-sets, analytical tools, metrics and processes (including economic capital models and advanced analytics) that help division and corporate leaders make informed underwriting, portfolio management and risk management decisions within a consistent risk/reward framework;
- **Governance** : establish and coordinate risk guidelines that reflect the corporate appetite for risk, monitor exposure accumulations relative to established guidelines, and ensure effective internal risk management communication up to management and the Board, down to the various business units and legal entities, and across the firm; and
- **Disclosure** : develop protocols and processes for risk-related disclosure internally as well as externally to rating agencies, regulators, shareholders and analysts.

Chubb Group's Risk and Underwriting Committee (RUC) reports to and assists the Chief Executive Officer in the oversight and review of the ERM framework which covers the processes and guidelines used to manage insurance risk, financial risk, strategic risk, and operational risk. The RUC is chaired by Chubb Group's Chief Risk Officer. The RUC meets at least monthly, and is comprised of Chubb Group's most senior executives, in addition to the Chair, including the Chief Executive Officer, Chief Operating Officer, Chief Financial Officer, Chief Investment Officer, Chief Claims Officer, General Counsel, President – North America Commercial and Personal Insurance, President – North America Major Accounts and Specialty Insurance, President – Overseas General Insurance, and Chief Underwriting Officer.

The RUC is assisted in its activities by Chubb's Enterprise Risk Unit (ERU) and Product Boards. The ERU is responsible for the collation and analysis of risk insight in two key areas. First, external information that provides insight to the RUC on existing or emerging risks that might significantly impact Chubb's key objectives and second, internal risk aggregations arising from Chubb's business writings and other activities such as investments and operations. The ERU is independent of the operating units and reports to our Chief Risk Officer. The Product Boards exist to provide oversight for products that we offer globally. A Product Board currently exists for each of Chubb's major product areas. Each Product Board is responsible for ensuring consistency in underwriting and pricing standards, identification of emerging issues, and guidelines for relevant accumulations.

Chubb's Chief Risk Officer also reports to the Board's Risk & Finance Committee, which helps execute the Board's supervisory responsibilities pertaining to ERM. The role of the Risk & Finance Committee includes evaluation of the integrity and effectiveness of our ERM procedures, systems, and information; governance on major policy decisions pertaining to risk aggregation and minimization; and assessment of our major decisions and preparedness levels pertaining to perceived material risks. The Audit Committee meets annually and on an as needed basis with the Risk & Finance Committee in order to exercise its duties under New York Stock Exchange Rules.

Others within the ERM structure contribute toward accomplishing Chubb's ERM objectives, including regional management, Corporate Underwriting, Internal Audit, Compliance, external consultants, and managers of our internal control processes and procedures.

Tax Matters

Refer to “Risk Factors”, under Item 1A and Note 1 o) and Note 8 to the Consolidated Financial Statements, under Item 8.

EXECUTIVE OFFICERS OF THE REGISTRANT

Name	Age	Position
Evan G. Greenberg	62	Chairman, President, Chief Executive Officer, and Director
John W. Keogh	52	Executive Vice Chairman and Chief Operating Officer
Philip V. Bancroft	57	Executive Vice President and Chief Financial Officer
John J. Lupica	51	Vice Chairman; President, North America Major Accounts & Specialty Insurance
Joseph F. Wayland	59	Executive Vice President and General Counsel
Sean Ringsted	53	Executive Vice President, Chief Digital Officer, and Chief Risk Officer
Timothy A. Boroughs	67	Executive Vice President and Chief Investment Officer
Paul J. Krump	57	Executive Vice President; President, North America Commercial and Personal Insurance
Juan C. Andrade	51	Executive Vice President; President, Overseas General Insurance

Evan G. Greenberg has been a director of Chubb Limited since August 2002. Mr. Greenberg was elected Chairman of the Board of Directors in May 2007. Mr. Greenberg was a director of The Coca-Cola Company from February 2011 until his resignation in October 2016. Mr. Greenberg was appointed to the position of President and Chief Executive Officer of Chubb Limited in May 2004, and in June 2003, was appointed President and Chief Operating Officer of Chubb Limited. Mr. Greenberg was appointed to the position of Chief Executive Officer of Chubb Overseas General in April 2002. He joined Chubb as Vice Chairman, Chubb Limited, and Chief Executive Officer of Chubb Tempest Re in November 2001. Prior to joining Chubb, Mr. Greenberg was most recently President and Chief Operating Officer of American International Group (AIG), a position he held from 1997 until 2000.

John W. Keogh was appointed Executive Vice Chairman of Chubb Limited in November 2015. Mr. Keogh has served as Chief Operating Officer of Chubb Limited since July 2011 and Vice Chairman of Chubb Limited and Chubb Group Holdings since August 2010. Mr. Keogh joined Chubb as Chief Executive Officer of Overseas General Insurance in April 2006 and became Chairman of Overseas General Insurance in August 2010. Prior to joining Chubb, Mr. Keogh served as Senior Vice President, Domestic General Insurance of AIG, and President and Chief Executive Officer of National Union Fire Insurance Company, AIG's member company that specializes in D&O and fiduciary liability coverages. Mr. Keogh joined AIG in 1986. He served in a number of other senior positions there including as Executive Vice President of AIG's Domestic Brokerage Group and as President and Chief Operating Officer of AIG's Lexington Insurance Company unit.

Philip V. Bancroft was appointed Chief Financial Officer of Chubb Limited in January 2002. For nearly 20 years, Mr. Bancroft worked for PricewaterhouseCoopers LLP. Prior to joining Chubb, he served as partner-in-charge of the New York Regional Insurance Practice. Mr. Bancroft had been a partner with PricewaterhouseCoopers LLP for ten years.

John J. Lupica was appointed President, North America Major Accounts & Specialty Insurance in January 2016, Vice Chairman of Chubb Limited and Chubb Group Holdings in November 2013 and Chairman, Insurance - North America, in July 2011. Mr. Lupica had been Chief Operating Officer, Insurance - North America, since 2010 and President of ACE USA since 2006. He also previously served as Division President of U.S. Professional Risk business and U.S. Regional Operations. Mr. Lupica joined Chubb as Executive Vice President of Professional Risk in 2000. Prior to joining Chubb, he served as Senior Vice President for Munich-American Risk Partners, Inc. He also held various management positions at AIG.

Joseph F. Wayland was appointed Executive Vice President of Chubb Limited in January 2016, General Counsel and Secretary of Chubb Limited in July 2013. Mr. Wayland joined Chubb from the law firm of Simpson Thacher & Bartlett LLP, where he was a partner since 1994. From 2010 to 2012, he served in the United States Department of Justice, first as Deputy Assistant Attorney General of the Antitrust Division, and was later appointed as the Acting Assistant Attorney General in charge of that division.

Sean Ringsted was appointed Executive Vice President and Chief Digital Officer in February 2017 and Chief Risk Officer in November 2008. Mr. Ringsted previously served as Chief Actuary of Chubb Limited from November 2008 to January 2017. Mr. Ringsted's previous roles at Chubb also include Chief Actuary for Chubb Group from 2004 to 2008, Executive Vice President and Chief Risk Officer for Chubb Tempest Re from 2002 to 2004, and Senior Vice President and Chief Actuary for Chubb Tempest Re from 1998 to 2002. Prior to joining Chubb, Mr. Ringsted was a consultant at Tillinghast-Towers Perrin.

Timothy A. Boroughs was appointed Executive Vice President and Chief Investment Officer of Chubb Group in June 2000. Prior to joining Chubb, Mr. Boroughs was Director of Fixed Income at Tudor Investment Corporation from 1997 to 2000, and Managing Partner and Director of Global Leveraged Investment Activity at Fischer Francis Trees & Watts from 1976 to 1997.

Paul J. Krump was appointed Executive Vice President, Chubb Group and President North America Commercial and Personal Insurance in January 2016. Prior to Chubb Limited’s January 2016 acquisition of The Chubb Corporation, Mr. Krump was Chief Operating Officer of The Chubb Corporation, responsible for the company’s Commercial, Specialty, Personal and Accident & Health insurance lines; Claims; Global Field Operations; Information Technology; Human Resources; Communications; and External Affairs. Mr. Krump joined The Chubb Corporation in 1982 as a commercial underwriting trainee in the Minneapolis office. He held numerous headquarters and field positions in the United States and Europe, including President of Personal Lines and Claims and President of Commercial and Specialty Lines.

Juan C. Andrade was appointed Executive Vice President, Chubb Group and President, Overseas General Insurance in January 2016. Mr. Andrade joined Chubb in December 2010 to lead the global personal lines and small commercial property & casualty insurance businesses. In January 2013, he became the Chief Operating Officer for Overseas General Insurance. Prior to joining Chubb, Mr. Andrade was President and Chief Operating Officer of property & casualty operations for The Hartford Financial Services Group. He joined The Hartford in 2006 as head of the property & casualty claims organization.

ITEM 1A. Risk Factors

Factors that could have a material impact on our results of operations or financial condition are outlined below. Additional risks not presently known to us or that we currently deem insignificant may also impair our business or results of operations as they become known or as facts and circumstances change. Any of the risks described below could result in a significant or adverse effect on our results of operations or financial condition.

Insurance

Our results of operations or financial condition could be adversely affected by the occurrence of natural and man-made disasters.
We have substantial exposure to losses resulting from natural disasters, man-made catastrophes such as terrorism or cyber-attack, and other catastrophic events, including pandemics. This could impact a variety of our businesses, including our commercial and personal lines, and life and accident and health (A&H) products. Catastrophes can be caused by various events, including hurricanes, typhoons, earthquakes, hailstorms, drought, explosions, severe winter weather, fires, war, acts of terrorism, nuclear accidents, political instability, and other natural or man-made disasters, including a global or other wide-impact pandemic or a significant cyber-attack. The incidence and severity of catastrophes are inherently unpredictable and our losses from catastrophes could be substantial. In addition, climate conditions may be changing, primarily through changes in global temperatures, which may increase the frequency and severity of natural catastrophes and the resulting losses in the future. We cannot predict the impact that changing climate conditions, if any, may have on our results of operations or our financial condition. Additionally, we cannot predict how legal, regulatory and/or social responses to concerns around global climate change may impact our business. The occurrence of claims from catastrophic events could result in substantial volatility in our results of operations or financial condition for any fiscal quarter or year. The historical incidence for events such as earthquakes, pandemics and cyber-attacks is infrequent and may not be representative of contemporary exposures and risks. As an example, increases in the values and concentrations of insured property may increase the severity of these occurrences in the future. Although we attempt to manage our exposure to such events through the use of underwriting controls, risk models, and the purchase of third-party reinsurance, catastrophic events are inherently unpredictable and the actual nature of such events when they occur could be more frequent or severe than contemplated in our pricing and risk management expectations. As a result, the occurrence of one or more catastrophic events could have an adverse effect on our results of operations and financial condition.

If actual claims exceed our loss reserves, our financial results could be adversely affected.
Our results of operations and financial condition depend upon our ability to accurately assess the potential losses associated with the risks that we insure and reinsure. We establish reserves for unpaid losses and loss expenses, which are estimates of future payments of reported and unreported claims for losses and related expenses, with respect to insured events that have occurred at or prior to the balance sheet date. The process of establishing reserves can be highly complex and is subject to considerable variability as it requires the use of informed estimates and judgments.

Actuarial staff in each of our segments analyzes insurance reserves and regularly evaluates the levels of loss reserves. Any such evaluation could result in future changes in estimates of losses or reinsurance recoverables and would be reflected in our results of operations in the period in which the estimates are changed. Losses and loss expenses are charged to income as incurred. During the loss settlement period, which can be many years in duration for some of our lines of business, additional facts regarding individual claims and trends often will become known which may result in a change in overall reserves. In addition, application of statistical and actuarial methods may require the adjustment of overall reserves upward or downward from time to time.

Included in our loss reserves are liabilities for latent claims such as asbestos and environmental (A&E), which are principally related to claims arising from remediation costs associated with hazardous waste sites and bodily-injury claims related to exposure to asbestos products and environmental hazards. At December 31, 2016 , gross A&E liabilities represented approximately 3.8 percent of our loss reserves. The estimation of these liabilities is subject to many complex variables including: the current legal environment; specific settlements that may be used as precedents to settle future claims; assumptions regarding trends with respect to claim severity and the frequency of higher severity claims; assumptions regarding the ability to allocate liability among defendants (including bankruptcy trusts) and other insurers; the ability of a claimant to bring a claim in a state in which it has no residency or exposure; the ability of a policyholder to claim the right to non-products coverage; whether high-level excess policies have the potential to be accessed given the policyholder's claim trends and liability situation; payments to unimpaired claimants; and the potential liability of peripheral defendants. Accordingly, the ultimate settlement of losses, arising from either latent or non-latent causes, may be significantly greater or less than the loss and loss expense reserves held at the balance sheet date. In particular the amount and timing of the settlement of our P&C liabilities are not determinate and our actual payments could be higher than contemplated in our loss reserves owing to the impact of insurance, judicial decisions, and/or social inflation. If our loss reserves are determined to be inadequate, we may be required to increase loss reserves at the time of the determination and our net income and capital may be reduced.

The effects of emerging claim and coverage issues on our business are uncertain.
As industry practices and legislative, regulatory, judicial, social, financial, technology and other environmental conditions change, unexpected and unintended issues related to claims and coverage may emerge. These issues may adversely affect our business by either extending coverage beyond our underwriting intent or by increasing the frequency and severity of claims. In some instances, these changes may not become apparent until after we have issued insurance or reinsurance contracts that are affected by the changes. As a result, the full extent of liability under our insurance or reinsurance contracts may not be known for many years after issuance.

The failure of any of the loss limitation methods we use could have an adverse effect on our results of operations and financial condition.
We seek to manage our loss exposure by maintaining a disciplined underwriting process throughout our insurance operations. We also look to limit our loss exposure by writing a number of our insurance and reinsurance contracts on an excess of loss basis. Excess of loss insurance and reinsurance indemnifies the insured against losses in excess of a specified amount. In addition, we limit program size for each client and purchase third-party reinsurance for our own account. In the case of our assumed proportional reinsurance treaties, we seek per occurrence limitations or loss and loss expense ratio caps to limit the impact of losses ceded by the client. In proportional reinsurance, the reinsurer shares a proportional part of the premiums and losses of the reinsured. We also seek to limit our loss exposure by geographic diversification. Geographic zone limitations involve significant underwriting judgments, including the determination of the area of the zones and the inclusion of a particular policy within a particular zone's limits.

However, there are inherent limitations in all of these tactics and no assurance can be given against the possibility of an event or series of events that could result in loss levels that could have an adverse effect on our financial condition or results of operations. It is also possible that losses could manifest themselves in ways that we do not anticipate and that our risk mitigation strategies are not designed to address. Additionally, various provisions of our policies, such as limitations or exclusions from coverage or choice of forum negotiated to limit our risks, may not be enforceable in the manner we intend. As a result, one or more natural catastrophes and/or terrorism or other events could result in claims that substantially exceed our expectations, which could have an adverse effect on our results of operations and financial condition.

We may be unable to purchase reinsurance, and/or if we successfully purchase reinsurance, we are subject to the possibility of non-payment.
We purchase protection from third parties including, but not limited to, reinsurance to protect against catastrophes and other sources of volatility, to increase the amount of protection we can provide our clients, and as part of our overall risk management strategy. Our reinsurance business also purchases retrocessional protection which allows a reinsurer to cede to another company all or part of the reinsurance originally assumed by the reinsurer. A reinsurer's or retrocessionaire's insolvency or inability or unwillingness to make timely payments under the terms of its reinsurance agreement with us could have an adverse

effect on us because we remain liable to the insured. From time to time, market conditions have limited, and in some cases have prevented, insurers and reinsurers from obtaining the types and amounts of reinsurance or retrocessional reinsurance that they consider adequate for their business needs.

There is no guarantee our desired amounts of reinsurance or retrocessional reinsurance will be available in the marketplace in the future. In addition to capacity risk, the remaining capacity may not be on terms we deem appropriate or acceptable or with companies with whom we want to do business. Finally, we face some degree of counterparty risk whenever we purchase reinsurance or retrocessional reinsurance. Consequently, the insolvency of these counterparties, or the inability, or unwillingness of any of our present or future reinsurers to make timely payments to us under the terms of our reinsurance or retrocessional agreements could have an adverse effect on us. At December 31, 2016 , we had $13.8 billion of reinsurance recoverables, net of reserves for uncollectible recoverables.

Certain active Chubb companies are primarily liable for A&E and other exposures they have reinsured to our inactive run-off company Century Indemnity Company (Century). At December 31, 2016 , the aggregate reinsurance balances ceded by our active subsidiaries to Century were approximately $1.2 billion . Should Century's loss reserves experience adverse development in the future and should Century be placed into rehabilitation or liquidation, the reinsurance recoverables due from Century to its affiliates would be payable only after the payment in full of third party expenses and liabilities, including administrative expenses and direct policy liabilities. Thus, the intercompany reinsurance recoverables would be at risk to the extent of the shortage of assets remaining to pay these recoverables. While we believe the intercompany reinsurance recoverables from Century are not impaired at this time, we cannot assure that adverse development with respect to Century's loss reserves, if manifested, will not result in Century's insolvency, which could result in our recognizing a loss to the extent of any uncollectible reinsurance from Century. This could have an adverse effect on our results of operations and financial condition.

Our net income may be volatile because certain products sold by our Life Insurance business expose us to reserve and fair value liability changes that are directly affected by market and other factors and assumptions.
Our pricing, establishment of reserves for future policy benefits and valuation of life insurance and annuity products, including reinsurance programs, are based upon various assumptions, including but not limited to market changes, interest rates, mortality rates, morbidity rates, and policyholder behavior. The process of establishing reserves for future policy benefits relies on our ability to accurately estimate insured events that have not yet occurred but that are expected to occur in future periods. Significant deviations in actual experience from assumptions used for pricing and for reserves for future policy benefits could have an adverse effect on the profitability of our products and our business.

Under reinsurance programs covering variable annuity guarantees, we assumed the risk of guaranteed minimum death benefits (GMDB) and guaranteed living benefits (GLB) associated with variable annuity contracts. Our GLB liability includes guaranteed minimum income benefits (GMIB) and guaranteed minimum accumulation benefits (GMAB). We ceased writing this business in 2007. Our net income is directly impacted by changes in the reserves calculated in connection with the reinsurance of GMDB and GLB liabilities. In addition, our net income is directly impacted by the change in the fair value of the GLB liability. Reported liabilities for both GMDB and GLB reinsurance are determined using internal valuation models which require considerable judgment and are subject to significant uncertainty. Refer to the “Critical Accounting Estimates – Guaranteed living benefits (GLB) derivatives” under Item 7 and “Quantitative and Qualitative Disclosures about Market Risk – Reinsurance of GMDB and GLB guarantees” under Item 7A for additional information on the assumptions used in this program. We view our variable annuity reinsurance business as having a similar risk profile to that of catastrophe reinsurance, with the probability of long-term economic loss relatively small at the time of pricing. Adverse changes in market factors and policyholder behavior will have an impact on both Life Insurance underwriting income and consolidated net income.

Payment of obligations under surety bonds could have an adverse effect on our results of operations.
The surety business tends to be characterized by infrequent but potentially high severity losses. The majority of our surety obligations are intended to be performance-based guarantees. When losses occur, they may be mitigated, at times, by recovery rights to the customer’s assets, contract payments, and collateral and bankruptcy recoveries. We have substantial commercial and construction surety exposure for current and prior customers. In that regard, we have exposures related to surety bonds issued on behalf of companies that have experienced or may experience deterioration in creditworthiness. If the financial condition of these companies were adversely affected by the economy or otherwise, we may experience an increase in filed claims and may incur high severity losses, which could have an adverse effect on our results of operations.

Our exposure to counterparties in various industries, our reliance on brokers, and certain of our policies may subject us to credit risk.
We have exposure to counterparties through reinsurance and in various industries, including banks, hedge funds and other investment vehicles, and derivative transactions that expose us to credit risk in the event our counterparty fails to perform its obligations. We also have exposure to financial institutions in the form of secured and unsecured debt instruments and equity securities.

In accordance with industry practice, we generally pay amounts owed on claims to brokers who, in turn, remit these amounts to the insured or ceding insurer. Although the law is unsettled and depends upon the facts and circumstances of the particular case, in some jurisdictions, if a broker fails to make such a payment, we might remain liable to the insured or ceding insurer for the deficiency. Conversely, in certain jurisdictions, if a broker does not remit premiums paid for these policies over to us, these premiums might be considered to have been paid and the insured or ceding insurer will no longer be liable to us for those amounts, whether or not we have actually received the premiums from the broker. Consequently, we assume a degree of credit risk associated with a broker with whom we transact business. However, due to the unsettled and fact-specific nature of the law, we are unable to quantify our exposure to this risk. To date, we have not experienced any material losses related to these credit risks.

Under the terms of certain high-deductible policies which we offer, such as workers' compensation and general liability, our customers are responsible to reimburse us for an agreed-upon dollar amount per claim. In nearly all cases we are required under such policies to pay covered claims first, and then seek reimbursement for amounts within the applicable deductible from our customers. This obligation subjects us to credit risk from these customers. While we generally seek to mitigate this risk through collateral agreements and maintain a provision for uncollectible accounts associated with this credit exposure, an increased inability of customers to reimburse us in this context could have an adverse effect on our financial condition and results of operations. In addition, a lack of credit available to our customers could impact our ability to collateralize this risk to our satisfaction, which in turn, could reduce the amount of high-deductible policies we could offer.

Since we depend on a few distribution partners for a large portion of our revenues, loss of business provided by any one of them could adversely affect us.
We market our insurance and reinsurance worldwide primarily through independent insurance agents and insurance and reinsurance brokers. Accordingly, our business is dependent on the willingness of these agents and brokers to recommend our products to their customers, who may also promote and distribute the products of our competitors. Deterioration in relationships with our agent and broker distribution network or their increased promotion and distribution of our competitors' products could adversely affect our ability to sell our products. Loss of all or a substantial portion of the business provided by one or more of these agents and brokers could have an adverse effect on our business.

Financial

Our investment performance may affect our financial results and our ability to conduct business.
Our investment assets are invested by professional investment management firms under the direction of our management team in accordance with investment guidelines approved by the Risk & Finance Committee of the Board of Directors. Although our investment guidelines stress diversification of risks and conservation of principal and liquidity, our investments are subject to market risks and risks inherent in individual securities. Interest rates are highly sensitive to many factors, including inflation, monetary and fiscal policies, and domestic and international political conditions. The volatility of our losses may force us to liquidate securities, which may cause us to incur capital losses. Realized and unrealized losses in our investment portfolio would reduce our book value, and if significant, can affect our ability to conduct business.

Volatility in interest rates could impact the performance of our investment portfolio which could have an adverse effect on our investment income and operating results. Although we take measures to manage the risks of investing in a changing interest rate environment, we may not be able to effectively mitigate interest rate sensitivity. Our mitigation efforts include maintaining a high quality portfolio of primarily fixed income investments with a relatively short duration to reduce the effect of interest rate changes on book value. A significant increase in interest rates would generally have an adverse effect on our book value. Our life insurance investments typically focus on longer duration bonds to better match the obligations of this business. For the life insurance business, policyholder behavior may be influenced by changing interest rate conditions and require a re-balancing of duration to effectively manage our asset/liability position.

As stated, our fixed income portfolio is primarily invested in high quality, investment-grade securities. However, a smaller portion of the portfolio, approximately 12 percent at December 31, 2016 , is invested in below investment-grade securities.

These securities, which pay a higher rate of interest, also have a higher degree of credit or default risk and may also be less liquid in times of economic weakness or market disruptions. While we have put in place procedures to monitor the credit risk and liquidity of our invested assets, it is possible that, in periods of economic weakness (such as recession), we may experience credit or default losses in our portfolio, which could adversely affect our results of operations and financial condition.

As a part of our ongoing analysis of our investment portfolio, we are required to assess whether the debt and equity securities we hold for which we have recorded an unrealized loss have been “other-than-temporarily impaired” under GAAP, which implies an inability to recover the full economic benefits of these securities. Refer to Note 3 to the Consolidated Financial Statements for additional information. This analysis requires a high degree of judgment and requires us to make certain assessments about the potential for recovery of the assets we hold. Declines in relevant stock and other financial markets, and other factors impacting the value of our investments, could result in impairments and could adversely affect our net income and other financial results.

We may require additional capital or financing sources in the future, which may not be available or may be available only on unfavorable terms.
Our future capital and financing requirements depend on many factors, including our ability to write new business successfully and to establish premium rates and reserves at levels sufficient to cover losses, as well as our investment performance and capital expenditure obligations, including with respect to acquisitions. We may need to raise additional funds through financings or access funds through existing or new credit facilities or through short-term repurchase agreements. We also from time to time seek to refinance debt or credit as amounts become due or commitments expire. Any equity or debt financing or refinancing, if available at all, may be on terms that are not favorable to us. In the case of equity financings, dilution to our shareholders could result, and in any case, such securities may have rights, preferences, and privileges that are senior to those of our Common Shares. Our access to funds under existing credit facilities is dependent on the ability of the banks that are parties to the facilities to meet their funding commitments. If we cannot obtain adequate capital or sources of credit on favorable terms, or at all, we could be forced to use assets otherwise available for our business operations, and our business, results of operations, and financial condition could be adversely affected.

We may be required to post additional collateral because of changes in our reinsurance liabilities to regulated insurance companies, or because of regulatory changes that affect our companies.
If our reinsurance liabilities increase, including in our property & casualty and variable annuity reinsurance businesses, we may be required to post additional collateral for insurance company clients. In addition, regulatory changes sometimes affect our obligations to post collateral. The need to post this additional collateral, if significant enough, may require us to sell investments at a loss in order to provide securities of suitable credit quality or otherwise secure adequate capital at an unattractive cost. This could adversely impact our net income and liquidity and capital resources.

U.S. and global economic and financial industry events and their consequences could harm our business, our liquidity and financial condition, and our stock price.
The consequences of adverse global or regional market and economic conditions may affect (among other aspects of our business) the demand for and claims made under our products, the ability of customers, counterparties, and others to establish or maintain their relationships with us, our ability to access and efficiently use internal and external capital resources, the availability of reinsurance protection, the risks we assume under reinsurance programs covering variable annuity guarantees, and our investment performance. Volatility in the U.S. and other securities markets may adversely affect our stock price.

A decline in our financial strength ratings could affect our standing among brokers and customers and cause our premiums and earnings to decrease. A decline in our debt ratings could increase our borrowing costs and impact our ability to access capital markets.
Ratings are an important factor in establishing the competitive position of insurance and reinsurance companies. The objective of these rating systems is to provide an opinion of an insurer's financial strength and ability to meet ongoing obligations to its policyholders. A ratings downgrade could result in a substantial loss of business as insureds, ceding companies, and brokers move to other insurers and reinsurers with higher ratings. If one or more of our debt ratings were downgraded, we could also incur higher borrowing costs, and our ability to access the capital markets could be impacted. Additionally, we could be required to post collateral or be faced with the cancellation of policies and resulting premium in certain circumstances. We cannot give any assurance regarding whether or to what extent any of the rating agencies might downgrade our ratings in the future.

Our ability to pay dividends and/or to make payments on indebtedness may be constrained by our holding company structure.
Chubb Limited is a holding company and does not have any significant operations or assets other than its ownership of the shares of its operating insurance and reinsurance subsidiaries. Dividends and other permitted distributions from our insurance subsidiaries are our primary source of funds to meet ongoing cash requirements, including any future debt service payments and other expenses, and to pay dividends to our shareholders. Some of our insurance subsidiaries are subject to significant regulatory restrictions limiting their ability to declare and pay dividends. The inability of our insurance subsidiaries to pay dividends in an amount sufficient to enable us to meet our cash requirements at the holding company level could have an adverse effect on our operations and our ability to pay dividends to our shareholders and/or meet our debt service obligations.

Our operating results and shareholders' equity may be adversely affected by currency fluctuations.
Our reporting currency is the U.S. dollar. In general, we match assets and liabilities in local currencies. Where possible, capital levels in local currencies are limited to satisfy minimum regulatory requirements and to support local insurance operations. The principal currencies creating foreign exchange risk are the British pound sterling, the euro, the Mexican peso, the Brazilian real, the Korean won, the Canadian dollar, the Japanese yen, the Thai baht, the Australian dollar, and the Hong Kong dollar. At December 31, 2016 , approximately 26.8 percent of our net assets were denominated in foreign currencies. We may experience losses resulting from fluctuations in the values of non-U.S. currencies, which could adversely impact our results of operations and financial condition.

Operational

The regulatory and political regimes under which we operate, and their volatility, could have an adverse effect on our business.
Our insurance and reinsurance subsidiaries conduct business globally. Our businesses in each jurisdiction are subject to varying degrees of regulation and supervision. The laws and regulations of the jurisdictions in which our insurance and reinsurance subsidiaries are domiciled require, among other things, maintenance of minimum levels of statutory capital, surplus, and liquidity; various solvency standards; and periodic examinations of subsidiaries' financial condition. In some jurisdictions, laws and regulations also restrict payments of dividends and reductions of capital. Applicable statutes, regulations, and policies may also restrict the ability of these subsidiaries to write insurance and reinsurance policies, to make certain investments, and to distribute funds. The purpose of insurance laws and regulations generally is to protect policyholders and ceding insurance companies, not our shareholders. For example, some jurisdictions have enacted various consumer protection laws that make it more burdensome for insurance companies to sell policies and interact with customers in personal lines businesses. Failure to comply with such regulations can lead to significant penalties and reputational injury. Fines and penalties in the U.S. in particular have been trending upwards.

The foreign and U.S. federal and state laws and regulations that are applicable to our operations are complex and may increase the costs of regulatory compliance or subject our business to the possibility of regulatory actions or proceedings. Laws and regulations not specifically related to the insurance industry include trade sanctions that relate to certain countries, anti-money laundering laws, and anti-corruption laws such as the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act 2010, the anti-bribery provisions of the Swiss Penal Code and similar local laws prohibiting corrupt payments to governmental officials. The insurance industry is also affected by political, judicial, and legal developments that may create new and expanded regulations and theories of liability. The current economic and financial climates present additional uncertainties and risks relating to increased regulation and the potential for increased involvement of the U.S. and other governments in the financial services industry.

In addition, various legislative initiatives may impact the conduct of our business.

Regulators in countries where we have operations are working with the International Association of Insurance Supervisors (IAIS) to consider changes to insurance company supervision, including with respect to group supervision and solvency requirements. The IAIS has developed a Common Framework for the Supervision of Internationally Active Insurance Groups (ComFrame) which is focused on the effective group-wide supervision of international active insurance groups (IAIGs), such as Chubb. As part of ComFrame, the IAIS has announced plans to develop an international capital standard for insurance groups. The details of ComFrame including this global capital standard and its applicability to Chubb are uncertain at this time. In addition, the European Union (EU) has implemented a new capital and risk management regime known as Solvency II that applies to our businesses across the EU, which became effective January 1, 2016. Bermuda also implemented a new capital and risk management regime effective January 1, 2016, which has been deemed equivalent to the EU's Solvency II regime. Chubb businesses are also subject to the requirements of the Swiss Financial Market Supervisory Authority (FINMA) whose regulations include Swiss Solvency Tests. There are also Risk Based Capital (RBC) requirements in the U.S. which are also subject to revision in response to global developments. While it is not certain how or if these actions will impact Chubb, we do not currently expect that our capital management strategies, results of operations and financial condition will be materially affected by these regulatory changes.

In the event or absence of changes in applicable laws and regulations in particular jurisdictions, we may from time to time face challenges, or changes in approach to oversight of our business from insurance or other regulators, including challenges resulting from requiring the use of information technology that cannot be quickly adjusted to address new regulatory requirements.

We may not be able to comply fully with, or obtain appropriate exemptions from, applicable statutes and regulations and any changes thereto, which could have an adverse effect on our business. Failure to comply with or obtain appropriate authorizations and/or exemptions under any applicable laws and regulations could result in restrictions on our ability to do business or undertake activities that are regulated in one or more of the jurisdictions in which we conduct business and could subject us to fines and other sanctions.

Political uncertainty in the United Kingdom and the European Union may lead to volatility and/or have an adverse effect on our business, our liquidity and financial condition, and our stock price.
On June 23, 2016, the United Kingdom (UK) voted in a national referendum to withdraw from the European Union. The UK’s Supreme Court has determined that an Act of Parliament is required to confer power on the UK government to give notice to the European Union, under Article 50(2) of the Treaty on European Union, of the UK’s intention to withdraw from the European Union. As of the date of this document, the European Union (Notification of Withdrawal) Bill has not yet been granted royal assent. The UK government has indicated that it intends to give notice of the UK’s intention to withdraw from the European Union before the end of March 2017 subject to the bill being granted royal assent by that time. If such notice is given by the UK government, the withdrawal process would be unprecedented in European Union history, and one that could involve months or years of negotiation to draft and approve a withdrawal agreement. In addition, a withdrawal agreement may not be concluded within the time limit specified in Article 50(3), in which case the UK may be required to withdraw from the European Union without a withdrawal agreement being in force.

The possible exit of the UK (or any other country) from the European Union, the potential withdrawal of Scotland or Northern Ireland from the UK, or prolonged periods of uncertainty relating to any of these possibilities could result in significant macroeconomic deterioration including, but not limited to, further decreases in global stock exchange indices, increased foreign exchange volatility (in particular a further weakening of the pound sterling and euro against other leading currencies), decreased GDP in the UK, and a downgrade of the UK’s sovereign credit rating. In addition, these events could push the UK, Eurozone, and/or United States into an economic recession any of which, were they to occur, would further destabilize the global financial markets and could have a material adverse effect on our business, financial condition, and results of operations. We have significant operations in the UK and other EU member states. Depending on the final terms of the UK exit, we may be required to reorganize our operations and legal entity structure in the UK and the EU in a manner that could be less efficient and more expensive.

The result of the June referendum has also raised concerns regarding the terms for future UK access to the EU Single Market, which is made up of the 27 other EU member states and, to some extent, Iceland, Liechtenstein, and Norway (together, the European Economic Area or EEA). The rules governing the EU Single Market require local risks to be underwritten by a local authorized insurer; an EEA authorized insurer or a non-local insurer with the benefit of an EU “passport”. As such, UK insurers, including us, are able to underwrite risks from the UK into EEA member states via a “passport”. The UK government has announced that it will not be seeking membership of the EU Single Market during any withdrawal negotiations but will pursue instead a free trade agreement that covers goods and services. However, there can be no assurance that any such agreement will maintain the passporting rights of UK insurers or will deem relevant UK regulations to be equivalent to those of the EU. In the event that, following the UK’s withdrawal from the EU, UK insurers were unable to access the EU Single Market via a passporting arrangement, a regulatory equivalence regime or other similar arrangement, such insurers may not be able to underwrite risks into EEA member states except through local branches incorporated in the EEA. Such branches might require local authorization, regulatory and prudential supervision, and capital to be deposited. Any change to the terms of the UK’s access to the EU Single Market following the withdrawal of the UK from the EU could have a material adverse effect on our business, financial condition, and results of operations.

In addition, Lloyd’s currently benefits from EU Single Market passporting arrangements, which allow its syndicates and coverholders to write business in EEA member states. Lloyd’s might not be able to maintain such passporting rights or equivalent rights following the withdrawal of the UK from the EU, which could restrict our ability to write business in the EEA through Lloyd's syndicates and coverholders and therefore have a material adverse effect on our business, financial condition, and results of operations.

Our worldwide operations, particularly in developing nations, expose us to global geopolitical developments that could have an adverse effect on our business, liquidity, results of operations, and financial condition.
With operations in 54 countries, we provide insurance and reinsurance products and services to a diverse group of clients worldwide, including operations in various developing nations. Both current and future foreign operations could be adversely affected by unfavorable geopolitical developments including law changes, tax changes, changes in trade policies, changes to visa or immigration policies, regulatory restrictions, government leadership changes, political events and upheaval, sociopolitical instability, and nationalization of our operations without compensation. Adverse activity in any one country could negatively impact operations, increase our loss exposure under certain of our insurance products, and could, otherwise, have an adverse effect on our business, liquidity, results of operations, and financial condition depending on the magnitude of the events and our net financial exposure at that time in that country.

A failure in our operational systems or infrastructure or those of third parties, including due to security breaches or cyber-attacks, could disrupt business, damage our reputation, and cause losses.
Our operations rely on the secure processing, storage, and transmission of confidential and other information and assets, including in our computer systems and networks and those of third-party service providers. Our business depends on effective information security and systems and the integrity and timeliness of the data our information systems use to run our business. Our ability to adequately price products and services, to establish reserves, to provide effective, efficient and secure service to our customers, to value our investments and to timely and accurately report our financial results also depends significantly on the integrity and availability of the data we maintain, including that within our information systems, as well as data in and assets held through third-party service providers and systems. In an effort to ensure the integrity of such data, we implement new security measures and systems, including the use of confidential intellectual property, and improve or upgrade our existing security measures and systems on a continuing basis. Although we have implemented administrative and technical controls and take protective actions to reduce the risk of cyber incidents and to protect our information technology and assets, and although we additionally endeavor to modify such procedures as circumstances warrant and negotiate agreements with third-party providers to protect our assets, such measures may be insufficient to prevent unauthorized access, computer viruses, malware or other malicious code or cyber-attack, catastrophic events, system failures and disruptions (including in relation to new security measures and systems), employee errors or malfeasance, third party (including outsourced service providers) errors or malfeasance, loss of assets and other events that could have security consequences (each, a Security Event). In some cases, such events may not be immediately detected. As the breadth and complexity of our security infrastructure continues to grow, the potential risk of a Security Event increases. Like other global companies, we have from time to time experienced Security Events, none of which had, individually or in the aggregate, an adverse impact on our business, results of operations, or financial condition. If additional Security Events occur, these events may jeopardize Chubb's or its clients' or counterparties' confidential and other information processed and stored within Chubb, and transmitted through its computer systems and networks, or otherwise cause interruptions, delays, or malfunctions in Chubb's, its clients', its counterparties', or third parties' operations, or result in data loss or loss of assets which could result in significant losses, reputational damage or an adverse effect on our operations and critical business functions. Chubb may be required to expend significant additional resources to modify our protective measures or to investigate and remediate vulnerabilities or other exposures and to pursue recovery of lost data or assets and we may be subject to litigation and financial losses that are either not insured against or not fully covered by insurance maintained.

The regulatory environment surrounding information security and privacy is increasingly demanding. We are subject to numerous U.S. federal and state laws and regulations in jurisdictions outside the U.S. governing the protection of personal and confidential information of our clients or employees, including in relation to medical records, credit card data and financial information. These laws and regulations are increasing in complexity and number, change frequently and sometimes conflict. If any person, including any of our employees or those with whom we share such information, negligently disregards or intentionally breaches our established controls with respect to our client data, or otherwise mismanages or misappropriates that data, we could be subject to significant monetary damages, regulatory enforcement actions, fines and/or criminal prosecution in one or more jurisdictions.

Despite the contingency plans and facilities we have in place and our efforts to observe the regulatory requirements surrounding information security, our ability to conduct business may be adversely affected by a disruption of the infrastructure that supports our business in the communities in which we are located, or of outsourced services or functions. This may include a disruption involving electrical, communications, transportation, or other services used by Chubb. If a disruption occurs in one location and

Chubb employees in that location are unable to occupy our offices and conduct business or communicate with or travel to other locations, our ability to service and interact with clients may suffer and we may not be able to successfully implement contingency plans that depend on communication or travel.

We use analytical models to assist our decision making in key areas such as underwriting, claims, reserving, and catastrophe risks but actual results could differ materially from the model outputs and related analyses.
We use various modeling techniques (e.g., scenarios, predictive, stochastic and/or forecasting) and data analytics to analyze and estimate exposures, loss trends and other risks associated with our assets and liabilities. We use the modeled outputs and related analyses to assist us in decision-making (e.g., underwriting, pricing, claims, reserving, reinsurance, and catastrophe risk) and to maintain competitive advantage. The modeled outputs and related analyses are subject to various assumptions, uncertainties, model errors and the inherent limitations of any statistical analysis, including the use of historical internal and industry data. In addition, the modeled outputs and related analyses may from time to time contain inaccuracies, perhaps in material respects, including as a result of inaccurate inputs or applications thereof. Consequently, actual results may differ materially from our modeled results. If, based upon these models or other factors, we misprice our products or underestimate the frequency and/or severity of loss events, or overestimate the risks we are exposed to, new business growth and retention of our existing business may be adversely affected which could have an adverse effect on our results of operations and financial condition.

We could be adversely affected by the loss of one or more key executives or by an inability to attract and retain qualified personnel.
Our success depends on our ability to retain the services of our existing key executives and to attract and retain additional qualified personnel in the future. The loss of the services of any of our key executives or the inability to hire and retain other highly qualified personnel in the future could adversely affect our ability to conduct or grow our business. This risk may be particularly acute for us relative to some of our competitors because some of our senior executives work in countries where they are not citizens and work permit and immigration issues could adversely affect the ability to retain or hire key persons. We do not maintain key person life insurance policies with respect to our employees.

Employee error and misconduct may be difficult to detect and prevent and could adversely affect our business, results of operations, and financial condition.
Losses may result from, among other things, fraud, errors, failure to document transactions properly, failure to obtain proper internal authorization, failure to comply with underwriting or other internal guidelines, or failure to comply with regulatory requirements. It is not always possible to deter or prevent employee misconduct and the precautions that we take to prevent and detect this activity may not be effective in all cases. Resultant losses could adversely affect our business, results of operations, and financial condition.

Strategic

Competition in the insurance and reinsurance markets could reduce our margins and adversely impact our business and results of operations.
Insurance and reinsurance markets are highly competitive. We compete on an international and regional basis with major U.S., Bermuda, European, and other international insurers and reinsurers and with underwriting syndicates, some of which have greater financial, marketing, and management resources than we do. We also compete with new companies that continue to be formed to enter the insurance and reinsurance markets. Technological advancements in the insurance industry in the markets in which we operate may also present competitive risks; technology advancements are occurring in distribution, underwriting and operations and at a pace that may increase. In addition, capital market participants have created alternative products that are intended to compete with reinsurance products. If competition or technological or other changes to the insurance markets in which we operate limit our ability to retain existing business or write new business at adequate rates or on appropriate terms, our business and results of operations could be materially and adversely affected. Increased competition could also result in fewer submissions, lower premium rates, and less favorable policy terms and conditions, which could reduce our profit margins and adversely impact our net income and shareholders' equity.

Insurance and reinsurance markets are historically cyclical, and we expect to experience periods with excess underwriting capacity and unfavorable premium rates.
The insurance and reinsurance markets have historically been cyclical, characterized by periods of intense price competition due to excessive underwriting capacity as well as periods when shortages of capacity permitted favorable premium levels. An increase in premium levels is often offset by an increasing supply of insurance and reinsurance capacity, either by capital provided by new entrants or by the commitment of additional capital by existing insurers or reinsurers, which may cause prices to decrease. Any of these factors could lead to a significant reduction in premium rates, less favorable policy terms, and fewer

submissions for our underwriting services. In addition to these considerations, changes in the frequency and severity of losses suffered by insureds and insurers may affect the cycles of the insurance and reinsurance markets significantly, as could periods of economic weakness (such as recession).

The integration of acquired companies may not be as successful as we anticipate.
Acquisitions, such as our acquisition of The Chubb Corporation (Chubb Corp) through a merger (the Chubb acquisition), involve numerous operational, strategic, financial, accounting, legal, tax, and other risks; potential liabilities associated with the acquired businesses; and uncertainties related to design, operation and integration of acquired businesses' internal controls over financial reporting. Difficulties in integrating an acquired company, along with its personnel, may result in the acquired company performing differently than we expected, in operational challenges or in our failure to realize anticipated expense-related efficiencies. Our existing businesses could also be negatively impacted by acquisitions. In addition, goodwill and intangible assets recorded in connection with insurance company acquisitions may be impaired if premium growth, underwriting profitability, agency retention and policy persistency, among other factors, differ from expectations.

There is also the potential that proposed acquisitions that have been publicly announced will not be consummated, even if a definitive agreement has been signed by the parties. If an agreement is terminated before closing, the result would be that our proposed acquisition would not occur, which could, among other things, expose us to damages or liability and adversely impact our stock price and future operations.

We may be subject to U.S. tax and Bermuda tax which may have an adverse effect on our results of operations and shareholder investment.
Chubb Limited and our non-U.S. subsidiaries operate in a manner so that none of these companies should be subject to U.S. tax (other than U.S. excise tax on insurance and reinsurance premium income attributable to insuring or reinsuring U.S. risks and U.S. withholding tax on some types of U.S. source investment income), because none of these companies should be treated as engaged in a trade or business within the U.S. However, because there is considerable uncertainty as to the activities that constitute being engaged in a trade or business within the U.S., we cannot be certain that the Internal Revenue Service (IRS) will not contend successfully that Chubb Limited or its non-U.S. subsidiaries are engaged in a trade or business in the U.S. If Chubb Limited or any of its non-U.S. subsidiaries were considered to be engaged in a trade or business in the U.S., such entity could be subject to U.S. corporate income and branch profits taxes on the portion of its earnings effectively connected to such U.S. business, in which case our results of operations and our shareholders' investments could be adversely affected.

The Bermuda Minister of Finance, under the Exempted Undertakings Tax Protection Act 1966 of Bermuda, as amended, has given Chubb Limited and its Bermuda insurance subsidiaries a written assurance that if any legislation is enacted in Bermuda that would impose tax computed on profits or income, or computed on any capital asset, gain, or appreciation, or any tax in the nature of estate duty or inheritance tax, then the imposition of any such tax would not be applicable to those companies or any of their respective operations, shares, debentures, or other obligations until March 31, 2035, except insofar as such tax would apply to persons ordinarily resident in Bermuda or is payable by us in respect of real property owned or leased by us in Bermuda. We cannot be certain that we will not be subject to any Bermuda tax after March 31, 2035.

The Organization for Economic Cooperation and Development (OECD) and the European Union (EU) are considering measures that might encourage countries to increase our taxes.
The OECD has published an action plan to address base erosion and profit shifting (BEPS) impacting its member countries and other jurisdictions. It is possible that jurisdictions in which we do business could react to the BEPS initiative or their own concerns by enacting tax legislation that could adversely affect us or our shareholders.

A number of multilateral organizations, including the EU and the OECD have, in recent years, expressed concern about some countries not participating in adequate tax information exchange arrangements and have threatened those that do not agree to cooperate with punitive sanctions by member countries. It is as yet unclear what all of these sanctions might be, which countries might adopt them, and when or if they might be imposed. We cannot assure, however, that the Tax Information Exchange Agreements (TIEAs) that have been or will be entered into by Switzerland and Bermuda will be sufficient to preclude all of the sanctions described above, which, if ultimately adopted, could adversely affect us or our shareholders.

Shareholders

There are provisions in our charter documents that may reduce the voting rights and diminish the value of our Common Shares.
Our Articles of Association generally provide that shareholders have one vote for each Common Share held by them and are entitled to vote at all meetings of shareholders. However, the voting rights exercisable by a shareholder may be limited so that

certain persons or groups are not deemed to hold 10 percent or more of the voting power conferred by our Common Shares. Moreover, these provisions could have the effect of reducing the voting power of some shareholders who would not otherwise be subject to the limitation by virtue of their direct share ownership. Our Board of Directors may refuse to register holders of shares as shareholders with voting rights based on certain grounds, including if the holder would, directly or indirectly, formally, constructively or beneficially own (as described in Articles 8 and 14 of our Articles of Association) or otherwise control voting rights with respect to 10 percent or more of the registered share capital recorded in the commercial register. In addition, the Board of Directors shall reject entry of holders of registered shares as shareholders with voting rights in the share register or shall decide on their deregistration when the acquirer or shareholder upon request does not expressly state that she/he has acquired or holds the shares in her/his own name and for her/his account.

Applicable laws may make it difficult to effect a change of control of our company.
Before a person can acquire control of a U.S. insurance company, prior written approval must be obtained from the insurance commissioner of the state where the domestic insurer is domiciled. Prior to granting approval of an application to acquire control of a domestic insurer, the state insurance commissioner will consider such factors as the financial strength of the applicant, the integrity and management of the applicant's Board of Directors and executive officers, the acquirer's plans for the future operations of the domestic insurer, and any anti-competitive results that may arise from the consummation of the acquisition of control. Generally, state statutes provide that control over a domestic insurer is presumed to exist if any person, directly or indirectly, owns, controls, holds with the power to vote, or holds proxies representing 10 percent or more of the voting securities of the domestic insurer. Because a person acquiring 10 percent or more of our Common Shares would indirectly control the same percentage of the stock of our U.S. insurance subsidiaries, the insurance change of control laws of various U.S. jurisdictions would likely apply to such a transaction. Laws of other jurisdictions in which one or more of our existing subsidiaries are, or a future subsidiary may be, organized or domiciled may contain similar restrictions on the acquisition of control of Chubb.

While our Articles of Association limit the voting power of any shareholder to less than 10 percent, we cannot assure that the applicable regulatory body would agree that a shareholder who owned 10 percent or more of our Common Shares did not, because of the limitation on the voting power of such shares, control the applicable insurance subsidiary.

These laws may discourage potential acquisition proposals and may delay, deter, or prevent a change of control of Chubb, including transactions that some or all of our shareholders might consider to be desirable.

Shareholder voting requirements under Swiss law may limit our flexibility with respect to certain aspects of capital management .
Swiss law allows our shareholders to authorize share capital which can be issued by the Board of Directors without shareholder approval but this authorization must be renewed by the shareholders every two years. Swiss law also does not provide as much flexibility in the various terms that can attach to different classes of stock as permitted in other jurisdictions. Swiss law also reserves for approval by shareholders many corporate actions over which the Board of Directors had authority prior to our re-domestication to Switzerland. For example, dividends must be approved by shareholders. While we do not believe that Swiss law requirements relating to our capital management will have an adverse effect on Chubb, we cannot assure that situations will not arise where such flexibility would have provided substantial benefits to our shareholders.

Chubb Limited is a Swiss company; it may be difficult to enforce judgments against it or its directors and executive officers.
Chubb Limited is incorporated pursuant to the laws of Switzerland. In addition, certain of our directors and officers reside outside the U.S. and all or a substantial portion of our assets and the assets of such persons are located in jurisdictions outside the U.S. As such, it may be difficult or impossible to effect service of process within the U.S. upon those persons or to recover against us or them on judgments of U.S. courts, including judgments predicated upon civil liability provisions of the U.S. federal securities laws.

Chubb has been advised by its Swiss counsel that there is doubt as to whether the courts in Switzerland would enforce:
- judgments of U.S. courts based upon the civil liability provisions of the U.S. federal securities laws obtained in actions against it or its directors and officers, who reside outside the U.S.; or
- original actions brought in Switzerland against these persons or Chubb predicated solely upon U.S. federal securities laws.

Chubb has also been advised by its Swiss counsel that there is no treaty in effect between the U.S. and Switzerland providing for this enforcement and there are grounds upon which Swiss courts may not enforce judgments of U.S. courts. Some remedies available under the laws of U.S. jurisdictions, including some remedies available under the U.S. federal securities laws, would not be allowed in Swiss courts as contrary to that nation's public policy.

Under Swiss law, if we need to raise equity capital at a time when our share price is below the par value of our shares, the equity issuance could be delayed by the need to obtain shareholder approval, which cannot be assured.
As of December 31, 2016, the par value of our Common Shares is CHF 24.15 per share. Under Swiss law, we generally may not issue registered shares below their par value. In the event there is a need to raise common equity capital at a time when the trading price of our registered shares is below our par value, we will need to obtain approval of our shareholders to decrease the par value of our registered shares. We cannot assure that we would be able to obtain such shareholder approval. Furthermore, obtaining shareholder approval would require filing a preliminary proxy statement with the SEC and convening a meeting of shareholders which would delay any capital raising plans. Furthermore, any reduction in par value would decrease our ability to pay dividends as a repayment of share capital which is not subject to Swiss withholding tax. See “Shareholders may be subject to Swiss withholding taxes on the payment of dividends” for additional information.

Shareholders may be subject to Swiss withholding taxes on the payment of dividends.
Our dividends are generally subject to a Swiss withholding tax at a rate of 35 percent; however, payment of a dividend in the form of a par value reduction or qualifying capital contribution reserves reduction is not subject to Swiss withholding tax. We have previously obtained shareholder approval for dividends to be paid in such form. We currently intend to recommend to shareholders that they annually approve the payment of dividends in such form but we cannot assure that our shareholders will continue to approve a reduction in such form each year or that we will be able to meet the other legal requirements for a reduction in par value, or that Swiss withholding tax rules will not be changed in the future. We estimate we would be able to pay dividends in such form, and thus exempt from Swiss withholding tax until 2028–2033. This range may vary depending upon changes in annual dividends, special dividends, fluctuations in U.S. dollar/Swiss franc exchange rates, changes in par value or qualifying capital contribution reserves or changes or new interpretations to Swiss corporate or tax law or regulations.

Under certain circumstances, U.S. shareholders may be subject to adverse U.S. federal income tax consequences.
Under certain circumstances, a U.S. person who owns 10 percent or more of the voting power of a foreign corporation that is a “controlled foreign corporation” (CFC) (a foreign corporation in which 10 percent U.S. shareholders own more than 50 percent of the voting power or value of the stock of a foreign corporation or more than 25 percent of certain foreign insurance corporations) for an uninterrupted period of 30 days or more during a taxable year must include in gross income for U.S. federal income tax purposes such "10 percent U.S. Shareholder's" pro rata share of the CFC's "subpart F income". We believe that because of the dispersion of our share ownership, provisions in our organizational documents that limit voting power, and other factors, no U.S. person who acquires shares of Chubb Limited directly or indirectly through one or more foreign entities should be required to include any subpart F income in income under the CFC rules of U.S. tax law. It is possible, however, that the IRS could challenge the effectiveness of these provisions and that a court could sustain such a challenge, in which case a U.S. person's investment in 10 percent or more of Chubb Limited's stock could be adversely affected.

Separately, any U.S. persons who hold shares may be subject to U.S. federal income taxation at ordinary income tax rates on their proportionate share of our Related Person Insurance Income (RPII). If the RPII of any of our non-U.S. insurance subsidiaries (each a "Non-U.S. Insurance Subsidiary") were to equal or exceed 20 percent of that company's gross insurance income in any taxable year and direct or indirect insureds (and persons related to those insureds) own directly or indirectly through foreign entities 20 percent or more of the voting power or value of Chubb Limited, then a U.S. person who owns any shares of Chubb Limited (directly or indirectly through foreign entities) on the last day of the taxable year would be required to include in his or her income for U.S. federal income tax purposes such person's pro rata share of such company's RPII for the entire taxable year. In addition, any RPII that is includible in the income of a U.S. tax-exempt organization may be treated as unrelated business taxable income. We believe that the gross RPII of each Non-U.S. Insurance Subsidiary did not in prior years of operation and is not expected in the foreseeable future to equal or exceed 20 percent of each such company's gross insurance income. Likewise, we do not expect the direct or indirect insureds of each Non-U.S. Insurance Subsidiary (and persons related to such insureds) to directly or indirectly own 20 percent or more of either the voting power or value of our shares. However, we cannot be certain that this will be the case because some of the factors which determine the extent of RPII may be beyond our control. If these thresholds are met or exceeded, any U.S. person’s investment in Chubb Limited could be adversely affected.

A U.S. tax-exempt organization may recognize unrelated business taxable income if a portion of our insurance income is allocated to the organization. This generally would be the case if either we are a CFC and the tax-exempt shareholder is a 10 percent U.S. shareholder or there is RPII, certain exceptions do not apply, and the tax-exempt organization, directly or indirectly through foreign entities, owns any shares of Chubb Limited. Although we do not believe that any U.S. tax-exempt organization should be allocated such insurance income, we cannot be certain that this will be the case. Potential U.S. tax-exempt investors are advised to consult their tax advisors.

U.S. persons who hold shares will be subject to adverse tax consequences if we are considered to be a Passive Foreign Investment Company (PFIC) for U.S. federal income tax purposes.
If Chubb Limited is considered a PFIC for U.S. federal income tax purposes, a U.S. person who holds Chubb Limited shares will be subject to adverse U.S. federal income tax consequences in which case their investment could be adversely affected. In addition, if Chubb Limited were considered a PFIC, upon the death of any U.S. individual owning shares, such individual's heirs or estate would not be entitled to a "step-up" in the basis of the shares which might otherwise be available under U.S. federal income tax laws. We believe that we are not, have not been, and currently do not expect to become, a PFIC for U.S. federal income tax purposes. We cannot assure, however, that we will not be deemed a PFIC by the IRS. The IRS issued proposed regulations regarding the application of the PFIC provisions to an insurance company, and final regulations or pronouncements interpreting or clarifying these rules may be forthcoming. We cannot predict what impact, if any, such guidance would have on an investor that is subject to U.S. federal income taxation.

Changes in tax law could adversely affect an investment in our shares.
Legislation is periodically introduced in the U.S. Congress intended to eliminate some perceived tax advantages of companies (including insurance companies) that have legal domiciles outside the U.S. but have certain U.S. connections. It is possible that such legislation or other legislation could be enacted in the future that could have an adverse impact on us or our shareholders. For example, tax reform has been identified by current U.S. administration as a priority in 2017. Certain provisions of the tax reform proposals, if enacted, as well as future U.S. Treasury Regulations and U.S. court decisions regarding current law or future legislation, could adversely affect us or our shareholders.

Similarly, jurisdictions outside the U.S. in which we do business could enact tax legislation in the future that could have an adverse impact on us or our shareholders. For example, Switzerland is currently pursuing the implementation of corporate tax reform measures. The first effort was rejected by a public vote; however a revised corporate tax reform measure is expected. The next tax reform version could adversely affect us or our shareholders.

Risks Relating to The Chubb Corporation Acquisition (Chubb Corp)

We have incurred, and will continue to incur, significant integration-related costs in connection with the Chubb Acquisition.
We have incurred and will continue to incur substantial expenses in connection with the Chubb Corp acquisition.

We expect to continue to incur a number of non-recurring costs associated with combining the operations of the two companies and achieving desired synergies. These fees and costs have been, and will continue to be, substantial, and include, among others, severance and benefit costs, employee retention costs, filing fees, and legal and professional fees.

We also will incur fees and costs related to formulating and implementing integration plans, including facilities and systems consolidation costs and employment-related costs. We continue to assess the magnitude of these costs, and additional unanticipated costs may be incurred as of a result of the Chubb Corp acquisition and the integration of the two companies' businesses. Although we expect that the elimination of duplicative costs, as well as the realization of other efficiencies related to the integration of the businesses, should allow us to offset integration-related costs over time, this net benefit may not be achieved in the near term, or at all.

These costs described above, as well as other unanticipated costs and expenses, could have an adverse effect on our financial condition and results of operations.

We may fail to realize all of the anticipated benefits of the Chubb Corp Acquisition.
The success of the Chubb Corp acquisition will depend, in part, on our ability to realize the anticipated benefits and cost savings from combining our businesses. The anticipated benefits and cost savings of the Chubb Corp acquisition may not be realized fully or at all, or may take longer to realize than expected or could have other adverse effects that we do not currently foresee. Some of the assumptions that we have made, such as the achievement of operating synergies, may not be realized. The integration process may result in the loss of key employees, the disruption of ongoing businesses or inconsistencies in standards, controls, procedures and policies. There could be potential unknown liabilities and unforeseen expenses associated with the Chubb Corp acquisition that were not discovered in the course of performing due diligence.

Chubb's results will suffer if it does not effectively manage its expanded operations following the Chubb Corp Acquisition.
Our success will depend, in part, on our ability to manage the expanded business following the merger, which poses numerous risks and uncertainties, including the need to integrate the operations and business of Chubb Corp into our existing business in an efficient and timely manner, to combine systems and management controls, and to integrate relationships with customers, vendors, and business partners.

ITEM 1B. Unresolved Staff Comments

There are currently no unresolved SEC staff comments regarding our periodic or current reports.

ITEM 2. Properties

We maintain office facilities around the world including in North America, Europe (including our principal executive offices in Switzerland), Bermuda, Latin America, Asia Pacific, and the Far East. Most of our office facilities are leased, although we own major facilities in Hamilton, Bermuda, and in the U.S., including in Philadelphia, Pennsylvania; Wilmington, Delaware; Whitehouse Station, New Jersey; and Simsbury, Connecticut. Management considers its office facilities suitable and adequate for the current level of operations.

ITEM 3. Legal Proceedings

The information required with respect to Item 3 is included in Note 10 h) to the Consolidated Financial Statements, which is hereby incorporated herein by reference.

ITEM 4. Mine Safety Disclosures

Item not applicable.

PART II

ITEM 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Repurchases of Equity Securities

Our Common Shares have been listed on the New York Stock Exchange since March 25, 1993, with a current par value of CHF 24.15 per share. The trading symbol for our Common Shares is "CB."

Quarterly Stock Information

The following table sets forth the high and low closing sales prices of our Common Shares per fiscal quarter, as reported on the New York Stock Exchange Composite Tape, and cash dividends on Common Shares:

	2016				2015			
			Dividends				Dividends	
Quarter Ending	**High**	**Low**	**USD**	**CHF**	High	Low	USD	CHF
March 31	**$ 122.47**	**$ 108.00**	**$ 0.67**	**0.66**	$ 115.00	$ 107.96	$ 0.65	0.62
June 30	**$ 130.71**	**$ 117.19**	**$ 0.69**	**0.68**	$ 112.37	$ 101.60	$ 0.67	0.62
September 30	**$ 130.32**	**$ 124.28**	**$ 0.69**	**0.67**	$ 111.13	$ 99.72	$ 0.67	0.65
December 31	**$ 133.32**	**$ 121.88**	**$ 0.69**	**0.69**	$ 119.47	$ 102.29	$ 0.67	0.67

We have paid dividends each quarter since we became a public company in 1993. Following Chubb's redomestication to Switzerland, our dividends have been distributed primarily by way of a par value reduction. However, at our May 2015 and 2016 annual general meetings, our shareholders approved annual dividends to be paid by way of a distribution from capital contribution reserves (Additional paid-in capital) through the transfer of dividends from Additional paid-in capital to Retained earnings (free reserves).

Chubb Limited is a holding company whose principal sources of income are investment income and dividends from its operating subsidiaries. The ability of the operating subsidiaries to pay dividends to us and our ability to pay dividends to our shareholders are each subject to legal and regulatory restrictions. The recommendation and payment of future dividends will be based on the determination of the Board of Directors (Board) and will be dependent upon shareholder approval, profits and financial requirements of Chubb and other factors, including legal restrictions on the payment of dividends and such other factors as the Board deems relevant. Refer to Part I, Item 1A and Part II, Item 7 for additional information.

The last reported sale price of the Common Shares on the New York Stock Exchange Composite Tape on February 13, 2017 was $133.81 . The number of record holders of Common Shares as of February 13, 2017 was 9,280 . This is not the actual number of beneficial owners of Chubb's Common Shares since most of our shareholders hold their shares through a stockbroker, bank or other nominee rather than directly in their own name.

Refer to Part III, Item 12 for information relating to compensation plans under which equity securities are authorized for issuance.

Issuer's Repurchases of Equity Securities

Period	Total Number of Shares Purchased (1)		Average Price Paid per Share		Approximate Dollar Value of Shares that May Yet be Purchased Under Publicly Announced Plan (2)
October 1 through October 31	10,125	$	123.87		—
November 1 through November 30	52,955	$	126.82	$	1.0 billion
December 1 through December 31	3,766	$	130.42	$	1.0 billion (3)
Total	66,846	$	126.58		

(1) This column includes activity related to the surrender to Chubb of common shares to satisfy tax withholding obligations in connection with the vesting of restricted stock issued to employees and the exercising of options by employees.

(2) In November 2016, our Board authorized a $1.0 billion share repurchase program of Chubb's Common Shares through December 31, 2017.

(3) For the period January 1, 2017 through February 24, 2017, we repurchased 419,623 Common Shares for a total of $55 million in a series of open market transactions. At February 24, 2017, $945 million in share repurchase authorization remained through December 31, 2017.

Performance Graph

Set forth below is a line graph comparing the dollar change in the cumulative total shareholder return on Chubb's Common Shares from December 31, 2011 , through December 31, 2016 , as compared to the cumulative total return of the Standard & Poor's 500 Stock Index and the cumulative total return of the Standard & Poor's Property-Casualty Insurance Index. The cumulative total shareholder return is a concept used to compare the performance of a company's stock over time and is the ratio of the stock price change plus the cumulative amount of dividends over the specified time period (assuming dividend reinvestment), to the stock price at the beginning of the time period. The chart depicts the value on December 31, 2012 , 2013 , 2014 , 2015 , and 2016 , of a $100 investment made on December 31, 2011 , with all dividends reinvested.

	12/31/2011	12/31/2012	12/31/2013	12/31/2014	12/31/2015	12/31/2016
Chubb Limited	$100	$117	$155	$177	$185	$213
S&P 500 Index	$100	$116	$154	$175	$177	$198
S&P 500 P&C Index	$100	$120	$166	$192	$211	$244

ITEM 6. Selected Financial Data

Effective January 1, 2016, we retrospectively adopted new accounting guidance that requires debt issuance costs (previously included in Other assets in the Consolidated balance sheets) to be recorded as a reduction of the carrying amount of the related debt liability instead of as a deferred charge. Prior year balances, including Total assets, Long-term debt, Trust preferred securities, and Total liabilities, have been adjusted in the table below to reflect this adoption. Refer to Note 1 to the Consolidated Financial Statements for additional information.

On January 14, 2016, we completed the acquisition of the Chubb Corporation (Chubb Corp). The results of operations of Chubb Corp are included in our results from the acquisition date forward (i.e., after January 14, 2016 and only in the 2016 column) within the table below. Refer to Note 2 to the Consolidated Financial Statements for additional information on the acquisition.

(in millions, except per share data and percentages)	**2016**	2015	2014	2013	2012
Operations data:					
Net premiums earned – excluding Life Insurance segment	**$ 26,694**	$ 15,266	$ 15,464	$ 14,708	$ 13,761
Net premiums earned – Life Insurance segment	**2,055**	1,947	1,962	1,905	1,916
Total net premiums earned	**28,749**	17,213	17,426	16,613	15,677
Net investment income	**2,865**	2,194	2,252	2,144	2,181
Losses and loss expenses	**16,052**	9,484	9,649	9,348	9,653
Policy benefits	**588**	543	517	515	521
Policy acquisition costs and administrative expenses	**8,985**	5,211	5,320	4,870	4,542
Net income	**4,135**	2,834	2,853	3,758	2,706
Weighted-average shares outstanding – diluted	**466**	329	339	344	343
Diluted earnings per share	**$ 8.87**	$ 8.62	$ 8.42	$ 10.92	$ 7.89
Balance sheet data (at end of period):					
Total investments	**$ 99,094**	$ 66,251	$ 62,904	$ 60,928	$ 60,264
Total assets	**159,786**	102,306	98,223	94,487	92,527
Net unpaid losses and loss expenses	**47,832**	26,562	27,008	26,831	26,547
Net future policy benefits	**4,854**	4,620	4,537	4,397	4,229
Long-term debt	**12,610**	9,389	3,334	3,786	3,344
Trust preferred securities	**308**	307	307	307	307
Total liabilities	**111,511**	73,171	68,636	65,662	64,996
Shareholders' equity	**48,275**	29,135	29,587	28,825	27,531
Book value per share	**$ 103.60**	$ 89.77	$ 90.02	$ 84.83	$ 80.90
Selected data:					
Loss and loss expense ratio (1)	**57.7%**	58.1%	58.7%	59.6%	65.7%
Underwriting and administrative expense ratio (2)	**30.6%**	29.2%	29.4%	28.4%	28.2%
Combined ratio (3)	**88.3%**	87.3%	88.1%	88.0%	93.9%
Cash dividends per share (4)	**$ 2.74**	$ 2.66	$ 2.70	$ 2.02	$ 2.06

(1) The loss and loss expense ratio is calculated by dividing Losses and loss expenses, excluding the Life Insurance segment, by Net premiums earned – excluding Life Insurance segment. Losses and loss expenses for the Life Insurance segment were $ 663 million , $601 million , $589 million , $582 million , and $611 million for the years ended December 31, 2016 , 2015 , 2014 , 2013 , and 2012 , respectively.

(2) The underwriting and administrative expense ratio is calculated by dividing the Policy acquisition costs and administrative expenses, excluding the Life Insurance segment, by Net premiums earned – excluding Life Insurance segment. Policy acquisition costs and administrative expenses for the Life Insurance segment were $ 816 million , $ 767 million , $ 763 million , $ 701 million , and $662 million for the years ended December 31, 2016 , 2015 , 2014 , 2013 , and 2012 , respectively.

(3) The combined ratio is the sum of loss and loss expense ratio and the underwriting and administrative expense ratio.

(4) Cash dividends per share in 2014 and 2012 include a $0.12 per share increase related to the fourth quarter 2013 and 2011 dividend installments, approved by our shareholders on January 10, 2014 and January 9, 2012, respectively.

ITEM 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following is a discussion of our results of operations, financial condition, and liquidity and capital resources as of and for the year ended December 31, 2016 . This discussion should be read in conjunction with the consolidated financial statements and related Notes, under Item 8 of this Form 10-K.

All comparisons in this discussion are to the corresponding prior year unless otherwise indicated.

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Forward-Looking Statements

The Private Securities Litigation Reform Act of 1995 provides a “safe harbor” for forward-looking statements. Any written or oral statements made by us or on our behalf may include forward-looking statements that reflect our current views with respect to future events and financial performance. These forward-looking statements are subject to certain risks, uncertainties, and other factors that could, should potential events occur, cause actual results to differ materially from such statements. These risks, uncertainties, and other factors, which are described in more detail under Part I, Item 1A, under Risk Factors, starting on page 18 and elsewhere herein and in other documents we file with the U.S. Securities and Exchange Commission (SEC), include but are not limited to:

- losses arising out of natural or man-made catastrophes such as hurricanes, typhoons, earthquakes, floods, climate change (including effects on weather patterns; greenhouse gases; sea; land and air temperatures; sea levels; and rain and snow), nuclear accidents, or terrorism which could be affected by:
  - the number of insureds and ceding companies affected;
  - the amount and timing of losses actually incurred and reported by insureds;
  - the impact of these losses on our reinsurers and the amount and timing of reinsurance recoverable actually received;
  - the cost of building materials and labor to reconstruct properties or to perform environmental remediation following a catastrophic event; and
  - complex coverage and regulatory issues such as whether losses occurred from storm surge or flooding and related lawsuits;
- actions that rating agencies may take from time to time, such as financial strength or credit ratings downgrades or placing these ratings on credit watch negative or the equivalent;
- the ability to collect reinsurance recoverable, credit developments of reinsurers, and any delays with respect thereto and changes in the cost, quality, or availability of reinsurance;
- actual loss experience from insured or reinsured events and the timing of claim payments;
- the uncertainties of the loss-reserving and claims-settlement processes, including the difficulties associated with assessing environmental damage and asbestos-related latent injuries, the impact of aggregate-policy-coverage limits, the impact of bankruptcy protection sought by various asbestos producers and other related businesses, and the timing of loss payments;
- changes to our assessment as to whether it is more likely than not that we will be required to sell, or have the intent to sell, available for sale fixed maturity investments before their anticipated recovery;
- infection rates and severity of pandemics and their effects on our business operations and claims activity;
- developments in global financial markets, including changes in interest rates, stock markets, and other financial markets, increased government involvement or intervention in the financial services industry, the cost and availability of financing, and foreign currency exchange rate fluctuations (which we refer to in this report as foreign exchange and foreign currency exchange), which could affect our statement of operations, investment portfolio, financial condition, and financing plans;
- general economic and business conditions resulting from volatility in the stock and credit markets and the depth and duration of potential recession;
- global political conditions, the occurrence of any terrorist attacks, including any nuclear, radiological, biological, or chemical events, or the outbreak and effects of war, and possible business disruption or economic contraction that may result from such events;
- the potential impact of the United Kingdom’s vote to withdraw from the European Union, including political, regulatory, social, and economic uncertainty and market and exchange rate volatility;
- judicial decisions and rulings, new theories of liability, legal tactics, and settlement terms;

- the effects of public company bankruptcies and/or accounting restatements, as well as disclosures by and investigations of public companies relating to possible accounting irregularities, and other corporate governance issues, including the effects of such events on:
  - the capital markets;
  - the markets for directors and officers (D&O) and errors and omissions (E&O) insurance; and
  - claims and litigation arising out of such disclosures or practices by other companies;
- uncertainties relating to governmental, legislative and regulatory policies, developments, actions, investigations, and treaties, which, among other things, could subject us to insurance regulation or taxation in additional jurisdictions or affect our current operations;
- the actual amount of new and renewal business, market acceptance of our products, and risks associated with the introduction of new products and services and entering new markets, including regulatory constraints on exit strategies;
- the competitive environment in which we operate, including trends in pricing or in policy terms and conditions, which may differ from our projections and changes in market conditions that could render our business strategies ineffective or obsolete;
- acquisitions made by us performing differently than expected, our failure to realize anticipated expense-related efficiencies or growth from acquisitions, the impact of acquisitions on our pre-existing organization, or announced acquisitions not closing;
- risks and uncertainties relating to our acquisition of The Chubb Corporation (Chubb Corp acquisition) including our ability to successfully integrate the acquired company;
- risks associated with being a Swiss corporation, including reduced flexibility with respect to certain aspects of capital management and the potential for additional regulatory burdens;
- the potential impact from government-mandated insurance coverage for acts of terrorism;
- the availability of borrowings and letters of credit under our credit facilities;
- the adequacy of collateral supporting funded high deductible programs;
- changes in the distribution or placement of risks due to increased consolidation of insurance and reinsurance brokers;
- material differences between actual and expected assessments for guaranty funds and mandatory pooling arrangements;
- the effects of investigations into market practices in the property and casualty (P&C) industry;
- changing rates of inflation and other economic conditions, for example, recession;
- the amount of dividends received from subsidiaries;
- loss of the services of any of our executive officers without suitable replacements being recruited in a reasonable time frame;
- the ability of our technology resources, including information systems and security, to perform as anticipated such as with respect to preventing material information technology failures or third-party infiltrations or hacking resulting in consequences adverse to Chubb or its customers or partners; and
- management's response to these factors and actual events (including, but not limited to, those described above).

The words "believe," "anticipate," "estimate," "project," "should," "plan," "expect," "intend," "hope," "feel," "foresee," "will likely result," or "will continue," and variations thereof and similar expressions, identify forward-looking statements. You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates. We undertake no obligation to publicly update or review any forward-looking statements, whether as a result of new information, future events or otherwise.

Overview

Effective the first quarter of 2016 and subsequent to our acquisition of The Chubb Corporation (Chubb Corp), we operate through the following business segments: North America Commercial P&C Insurance, North America Personal P&C Insurance, North America Agricultural Insurance, Overseas General Insurance, Global Reinsurance, and Life Insurance. 2015 results were revised to conform to the new segment presentation and only include legacy ACE results (i.e., does not include legacy Chubb Corp results except in "As If" presentations). For more information on our segments refer to “Segment Information” under Item 1.

We have grown our business through increased premium volume, expansion of product offerings and geographic reach, and acquisitions of other companies. Acquisitions in 2016, 2015, and 2014 are as follows:

- *All segments excluding North America Agricultural Insurance:* The Chubb Corporation (Chubb Corp) (January 14, 2016).
- *North America Personal P&C Insurance:* Fireman's Fund Insurance Company high net worth personal lines insurance business in the U.S. (April 1, 2015).
- *Overseas General Insurance:*
    - The large corporate account property and casualty (P&C) insurance business of Itaú Seguros (Itaú Seguros) (October 31, 2014); and
    - The Siam Commercial Samaggi Insurance PCL (Samaggi) (we and our local partner acquired 60.86 percent ownership on April 28, 2014, and subsequently acquired an additional 32.17 percent ownership through a mandatory tender offer, which expired on June 17, 2014).

The consolidated financial statements include results of acquired businesses from the acquisition dates. Refer to Note 2 to the Consolidated Financial Statements for additional information on our acquisitions.

Our product and geographic diversification differentiates us from the vast majority of our competitors and has been a source of stability during periods of industry volatility. Our long-term business strategy focuses on sustained growth in book value achieved through a combination of underwriting and investment income. By doing so, we provide value to our clients and shareholders through use of our substantial capital base in the insurance and reinsurance markets.

We are organized along a profit center structure by line of business and territory that does not necessarily correspond to corporate legal entities. Profit centers can access various legal entities, subject to licensing and other regulatory rules. Profit centers are expected to generate underwriting income and appropriate risk-adjusted returns. Our corporate structure has facilitated the development of management talent by giving each profit center's senior management team the necessary autonomy within underwriting authorities to make operating decisions and create products and coverages needed by its target customer base. We are focused on delivering underwriting profit by only writing policies which we believe adequately compensate us for the risk we accept.

Our insurance and reinsurance operations generate gross revenues from two principal sources: premiums and investment income. Cash flow is generated from premiums collected and investment income received less paid losses and loss expenses, policy acquisition costs, and administrative expenses. Invested assets are substantially held in liquid, investment grade fixed income securities of relatively short duration. Claims payments in any short-term period are highly unpredictable due to the random nature of loss events and the timing of claims awards or settlements. The value of investments held to pay future claims is subject to market forces such as the level of interest rates, stock market volatility, and credit events such as corporate defaults. The actual cost of claims is also volatile based on loss trends, inflation rates, court awards, and catastrophes. We believe that our cash balance, our highly liquid investments, credit facilities, and reinsurance protection provide sufficient liquidity to meet unforeseen claim demands that might occur in the year ahead. Refer to “Liquidity” and “Capital Resources” for additional information.

Combined legacy ACE and legacy Chubb Corp results ("As If")

We present financial measures on an "As If" basis for both the 2016 and 2015 periods throughout the Management's Discussion and Analysis section exclusive of the impact of the unearned premium reserves intangible amortization and the elimination of the historical policy acquisition costs as a result of purchase accounting related to the Chubb Corp acquisition in order to present the underlying profitability of our insurance business for the entire relevant periods. We believe these measures provide visibility into our results, allow for comparability to our historical results and are consistent with how management evaluates results. We define our results presented on an "As If" basis as follows:

2016 "As If" results: The combined company results do not include the impact of the unearned premium reserves intangible amortization and the elimination of the historical policy acquisition costs as a result of purchase accounting related to the Chubb Corp acquisition. The combined company results for the year ended December 31, 2016 are inclusive of the first 14 days of January 2016 (the Chubb Corp acquisition closed January 14, 2016).

2015 "As If" results: Legacy ACE plus legacy Chubb Corp historical results after accounting policy alignment adjustments, including reclassifying certain legacy Chubb Corp corporate expenses to administrative expenses and redefining legacy Chubb Corp segment underwriting income by allocating the amortization of deferred policy acquisition costs to each segment. 2015 "As If" results exclude purchase accounting adjustments related to the Chubb Corp acquisition.

A reconciliation of "As If" results as defined above is provided under the Non-GAAP Reconciliation section starting on page 72.

Financial Highlights for the Year Ended December 31, 2016

- Net income was $4,135 million compared with $2,834 million last year.
- Total company and P&C net premiums written were $28.1 billion and $26.0 billion, respectively, up 58.9 percent and 65.6 percent, respectively, reflecting the acquisition of Chubb Corp. P&C net premiums written decreased 5.1 percent, or 3.3 percent in constant dollars, when compared with last year on an "As If" basis.
- Since the acquisition of Chubb Corp, we have entered into new reinsurance agreements with third-party reinsurers for certain legacy Chubb Corp business and have taken other merger-related underwriting actions, including exiting certain types of business that do not meet our underwriting standards or adhere to our risk diversification strategy. Merger-related underwriting actions, including the purchase of additional reinsurance, adversely impacted P&C net premiums written growth by $650 million.
- On October 31, 2016, we harmonized and amended several U.S. retirement programs to create a unified retirement savings program. These changes reduced benefit obligations by $496 million. Net income was favorably impacted by the one-time curtailment benefit of $113 million pre-tax related to the harmonization of our U.S. pension plans, as well as a favorable recurring impact of approximately $17 million pre-tax related to harmonizing the post-retirement benefit programs. Refer to the outlook section below for the expected benefit in 2017 related to the plan changes.
- The combined ratio was 88.3 percent, which included 0.4 percentage point impact for the $113 million curtailment benefit. P&C combined ratio was 88.7 percent, which excludes the curtailment benefit, compared with 87.4 percent in 2015. On an “As If” basis, P&C combined ratio was 88.0 percent compared with 87.5 percent in 2015.
- Total pre-tax and after-tax catastrophe losses, including reinstatement premiums, were $1,060 million (4.0 percentage points of the combined ratio) and $844 million, respectively, compared with $322 million (2.1 percentage points of the combined ratio) and $272 million, respectively, in 2015.
- Total pre-tax and after-tax favorable prior period development was $1,135 million (4.3 percentage points of the combined ratio) and $898 million, respectively, compared with $546 million pre-tax (3.5 percentage points of the combined ratio) and $474 million after-tax in 2015.
- Net investment income was $2,865 million which is net of $393 million related to the amortization of the fair value adjustment on acquired invested assets of Chubb Corp. Excluding this amortization, net investment income was $3,258 million, compared with $2,194 million last year.
- Integration expenses related to the Chubb acquisition were $492 million pre-tax in 2016, and include all internal and external costs directly related to the integration activities of the Chubb Corp acquisition, consisting primarily of personnel-related expenses, including severance and employee retention and relocation; consulting fees; and advisor fees. Chubb integration expenses were $33 million pre-tax in 2015, consisting primarily of legal and professional fees.

Outlook

Chubb had an excellent year with many accomplishments. In 2016, we produced net income per share of $8.87 and book value per share growth of over 15 percent, despite elevated catastrophe losses and soft P&C market conditions globally. Operationally, we completed the largest merger in insurance history, and managed a transformational company-wide global integration effort, all while staying focused on our core business of underwriting and servicing customers and distribution partners, and retaining our commercial and personal lines customers. We launched new products and entirely new businesses, made investments in our people, technologies, and capabilities, and began to harness the complementary strengths of the organization in cross-selling and other revenue initiatives. We achieved financial and non-financial targets, including realizing efficiencies, while remaining outward-facing in managing and growing our business in all aspects. While more work remains, we have made progress, from underwriting to claims to real estate and information technology (IT), to finance and human resources, our operational integration has been detailed and all-encompassing, and we are ahead of schedule in all areas.

During the fourth quarter of 2016 we harmonized, and amended several U.S. retirement programs to create a unified retirement savings program. In 2020, we plan to transition a traditional defined benefit pension program that had been in effect for certain employees, to a defined contribution program. Additionally, after 2025, we plan to eliminate a subsidized U.S. retiree healthcare plan that had been in place for certain employees, generating an expected annualized benefit of $100 million pre-tax each year for the next five years, after which time the benefit is expected to continue in a range of $50 million to $80 million, pre-tax, depending on interest rates at the time.

In 2017, the expected retiree healthcare harmonization benefit of $100 million will be recognized in losses and loss expense (approximately $25 million) and administrative expenses (approximately $75 million), thereby benefiting both underwriting income and the combined ratio.

Also in 2017, we expect to recognize intangibles amortization expenses of $251 million, primarily associated with our agency distribution relationships and renewal rights established in connection with the Chubb Corp acquisition. This compares to $19 million of intangibles amortization expense in 2016.

Annual run-rate savings of $800 million by the end of 2018 are on track. Expected realized savings of $800 million will be partially offset by inflation and increased spending to support growth. The following table presents expected annualized and realized integration-related savings and integration and merger-related expenses by year:

	Actual		Expected		
(in millions of U.S. dollars)	2015	2016	2017	2018	Total
Chubb integration-related savings [1]					
Annualized savings		$ 578	$ 740	$ 800	$ 800
Realized savings [2]		$ 325	$ 580	$ 760	$ 800
Chubb integration and merger-related expenses [3]					
One-time integration expenses related to savings	$ 22	$ 299	$ 137	$ 39	$ 497
Other one-time merger-related expenses	11	193	97	11	312
Total expected integration and merger-related expenses	$ 33	$ 492	$ 234	$ 50	$ 809

(1) Realized savings are the portion that is recorded in the financial statements in the current period. Annualized savings are the annualized run rate of the realized savings that will impact future years.
(2) Refer to page 56 for realized savings by segment and income statement line item.
(3) Integration expenses related to savings are one-time costs that are directly attributable to the achievement of the annualized savings, including employee severance, third-party consulting fees, and systems integration expenses. Other merger-related expenses are one-time costs directly attributable to the merger, including rebranding, employee retention costs and other professional and legal fees related to the acquisition. These costs are not allocated at the segment level as they are one-time in nature and are not related to the ongoing business of the segment, and therefore are reported within Corporate.

The anticipated integration-related savings and integration and merger-related expenses may not be realized fully, or may take longer to realize than expected or could have other adverse effects that we do not currently foresee. Some of the assumptions that we have made, such as the achievement of operating synergies, may not be realized. Refer to the Risk Factors under Item 1A on page 18 for additional information.

Critical Accounting Estimates

Our consolidated financial statements include amounts that, either by their nature or due to requirements of generally accepted accounting principles in the U.S. (GAAP), are determined using best estimates and assumptions. While we believe that the amounts included in our consolidated financial statements reflect our best judgment, actual amounts could ultimately materially differ from those currently presented. We believe the items that require the most subjective and complex estimates are:

- unpaid loss and loss expense reserves, including long-tail asbestos and environmental (A&E) reserves;
- future policy benefits reserves;
- the valuation of value of business acquired (VOBA) and amortization of deferred policy acquisition costs and VOBA;
- the assessment of risk transfer for certain structured insurance and reinsurance contracts;
- reinsurance recoverable, including a provision for uncollectible reinsurance;
- the valuation of our investment portfolio and assessment of other-than-temporary impairments (OTTI);
- the valuation of deferred tax assets;
- the valuation of derivative instruments related to guaranteed living benefits (GLB); and
- the assessment of goodwill for impairment.

We believe our accounting policies for these items are of critical importance to our consolidated financial statements. The following discussion provides more information regarding the estimates and assumptions required to arrive at these amounts and should be read in conjunction with the sections entitled: Prior Period Development, Asbestos and Environmental (A&E), Reinsurance Recoverable on Ceded Reinsurance, Investments, Net Realized and Unrealized Gains (Losses), and Other Income and Expense Items.

Unpaid losses and loss expenses

As an insurance and reinsurance company, we are required by applicable laws and regulations and GAAP to establish loss and loss expense reserves for the estimated unpaid portion of the ultimate liability for losses and loss expenses under the terms of our policies and agreements with our insured and reinsured customers. At December 31, 2016 , our gross unpaid loss and loss expense reserves were $60.5 billion and our net unpaid loss and loss expense reserves were $47.8 billion. With the exception of certain structured settlements, for which the timing and amount of future claim payments are reliably determinable, and certain reserves for unsettled claims that are discounted in statutory filings, our loss reserves are not discounted for the time value of money. In connection with such structured settlements and certain reserves for unsettled claims, we carried net discounted reserves of $88 million and $92 million at December 31, 2016 and 2015 , respectively.

The following table presents a roll-forward of our unpaid losses and loss expenses:

	December 31, 2016			December 31, 2015		
(in millions of U.S. dollars)	**Gross Losses**	**Reinsurance Recoverable (1)**	**Net Losses**	Gross Losses	Reinsurance Recoverable (1)	Net Losses
Balance, beginning of year	**$ 37,303**	**$ 10,741**	**$ 26,562**	$ 38,315	$ 11,307	$ 27,008
Losses and loss expenses incurred	**20,195**	**4,143**	**16,052**	12,541	3,057	9,484
Losses and loss expenses paid	**(19,436)**	**(3,721)**	**(15,715)**	(12,914)	(3,249)	(9,665)
Other (including foreign exchange translation)	**(445)**	**24**	**(469)**	(1,056)	(374)	(682)
Losses and loss expenses acquired	**22,923**	**1,521**	**21,402**	417	—	417
Balance, end of year	**$ 60,540**	**$ 12,708**	**$ 47,832**	$ 37,303	$ 10,741	$ 26,562

(1) Net of provision for uncollectible reinsurance.

Unpaid losses and loss expenses acquired from Chubb Corp included an increase of $715 million to adjust the carrying value of Chubb Corp's historical unpaid losses and loss expenses to fair value as of the acquisition date. The estimated fair value consists of the present value of the expected net unpaid loss and loss adjustment expenses payments adjusted for an estimated risk margin. The expected cash flows are discounted at a risk free rate. The estimated risk margin varies based on the inherent risks associated with each type of reserve. This adjustment will be amortized to Amortization of purchased intangibles on the Consolidated statements of operations over a range of 5 to 17 years based on the estimated payout pattern of the loss reserves as of the acquisition date. The remaining balance of the fair value adjustment for unpaid losses and loss expenses at December 31, 2016 is $470 million.

The estimate of the liabilities includes provisions for claims that have been reported but are unpaid at the balance sheet date (case reserves) and for obligations on claims that have been incurred but not reported (IBNR) at the balance sheet date. IBNR may also include provisions to account for the possibility that reported claims may settle for amounts that differ from the established case reserves. Loss reserves also include an estimate of expenses associated with processing and settling unpaid claims (loss expenses). Our loss reserves comprise approximately 82 percent casualty-related business, which typically encompasses long-tail risks, and other risks where a high degree of judgment is required.

The process of establishing loss reserves for property and casualty claims can be complex and is subject to considerable uncertainty as it requires the use of informed estimates and judgments based on circumstances underlying the insured loss known at the date of accrual. For example, the reserves established for high excess casualty claims, asbestos and environmental claims, claims from major catastrophic events, or for our various product lines each require different assumptions and judgments to be made. Necessary judgments are based on numerous factors and may be revised as additional experience and other data become available and are reviewed, as new or improved methods are developed, or as laws change. Hence, ultimate loss payments may differ from the estimate of the ultimate liabilities made at the balance sheet date. Changes to our previous estimates of prior period loss reserves impact the reported calendar year underwriting results, adversely if our estimates increase and favorably if our estimates decrease. The potential for variation in loss reserve estimates is impacted by numerous factors. Reserve estimates for casualty lines are particularly uncertain given the lengthy reporting patterns and corresponding need for IBNR.

Case reserves for those claims reported by insureds or ceding companies to us prior to the balance sheet date and where we have sufficient information are determined by our claims personnel as appropriate based on the circumstances of the claim(s), standard claim handling practices, and professional judgment. Furthermore, for our Brandywine run-off operations and our assumed reinsurance operation, Global Reinsurance, we may adjust the case reserves as notified by the ceding company via use of an additional case reserve if the judgment of our respective claims department differs from that of the cedant.

With respect to IBNR reserves and those claims that have been incurred but not reported prior to the balance sheet date, there is, by definition, limited actual information to form the case reserve estimate and reliance is placed upon historical loss experience and actuarial methods to estimate the ultimate loss obligations and the corresponding amount of IBNR. IBNR reserve estimates are generally calculated by first projecting the ultimate amount of losses for a product line and subtracting paid losses and case reserves for reported claims. The judgments involved in projecting the ultimate losses may pertain to the use and interpretation of various standard actuarial reserving methods that place reliance on the extrapolation of actual historical data, loss development patterns, industry data, and other benchmarks as appropriate. The estimate of the required IBNR reserve also requires judgment by actuaries and management to reflect the impact of more contemporary and subjective factors, both qualitative and quantitative. Among some of these factors that might be considered are changes in business mix or volume, changes in ceded reinsurance structures, changes in claims handling practices, reported and projected loss trends, inflation, the legal environment, and the terms and conditions of the contracts sold to our insured parties.

Determining management's best estimate

Our recorded reserves represent management's best estimate of the provision for unpaid claims as of the balance sheet date and involves a process that includes collaboration with various relevant parties in the company. For information on our reserving process, refer to Note 7 to the Consolidated Financial Statements.

Sensitivity to underlying assumptions

While we believe that our reserve for unpaid losses and loss expenses at December 31, 2016, is adequate, new information or emerging trends that differ from our assumptions may lead to future development of losses and loss expenses that is significantly greater or less than the recorded reserve, which could have a material effect on future operating results. As noted previously, our best estimate of required loss reserves for most portfolios is judgmentally selected for each origin year after considering the results from a number of reserving methods and is not a purely mechanical process. Therefore, it is difficult to convey, in a simple and quantitative manner, the impact that a change to a single assumption will have on our best estimate. In the examples below, we attempt to give an indication of the potential impact by isolating a single change for a specific reserving method that would be pertinent in establishing the best estimate for the product line described. We consider each of the following sensitivity analyses to represent a reasonably likely deviation in the underlying assumption.

North America Commercial P&C Insurance
Given the long reporting and paid development patterns for workers' compensation business, the development factors used to project actual current losses to ultimate losses for our current exposure require considerable judgment that could be material to consolidated loss and loss expense reserves. Specifically, adjusting ground up ultimate losses by a one percent change in the tail factor (i.e., 1.04 changed to either 1.05 or 1.03) would cause a change of approximately $625 million, either positive or negative, for the projected net loss and loss expense reserves. This represents an impact of about 8.0 percent relative to recorded net loss and loss expense reserves of approximately $7.7 billion.

The reserve portfolio for our Chubb Bermuda operations contains exposure to predominantly high excess liability coverage on an occurrence-first-reported basis (typically with attachment points in excess of $325 million and gross limits of up to $150 million) and D&O and other professional liability coverage on a claims-made basis (typically with attachment points in excess of $125 million and gross limits of up to $75 million). Due to the layer of exposure covered, the expected frequency for this book is very low. As a result of the low frequency/high severity nature of the book, a small difference in the actual vs. expected claim frequency, either positive or negative, could result in a material change to the projected ultimate loss if such change in claim frequency was related to a policy where close to maximum limits were deployed.

North America Personal P&C Insurance
Due to the relatively short-tailed nature of many of the coverages involved (e.g., homeowners property damage), most of the incurred losses in Personal Lines are resolved within a few years of occurrence. As shown in our loss triangle disclosure, the vast majority (over 95 percent) of Personal Lines net ultimate loss and allocated loss adjustment expenses are typically paid within five years of the accident date and over 80 percent within two years. Even though there are significant reserves associated with some longer-tailed exposures such as personal excess/umbrella liability, our incurred loss triangle also shows a consistent pattern of only relatively minor movements in incurred estimates over time by accident year especially after twenty four months of maturity. While the longer-tailed exposures are subject to additional uncertainties from more protracted resolution times, the main drivers of volatility in the Personal Lines business are relatively short-term in nature and relate to things like natural catastrophes, non-catastrophe weather events, man-made risks, and individual large loss volatility from other fortuitous claim events.

North America Agricultural Insurance
Approximately 76 percent of the reserves for this segment are from the crop related lines, which all have short payout patterns, with the majority of the liabilities expected to be resolved in the ensuing twelve months. Reserves for our Multiple Peril Crop Insurance (MPCI) product are set on a case-by-case basis and our aggregate exposure is subject to state level risk sharing formulae as well as third-party reinsurance. The majority of the development risk arises out of the accuracy of case reserve estimates. We do not view our Agriculture reserves as substantially influenced by the general assumptions and risks underlying more typical P&C reserve estimates.

Overseas General Insurance
Certain long-tail lines, such as casualty and professional lines, are particularly susceptible to changes in loss trend and claim inflation. Heightened perceptions of tort and settlement awards around the world are increasing the demand for these products as well as contributing to the uncertainty in the reserving estimates. Our reserving methods rely on loss development patterns estimated from historical data and while we attempt to adjust such factors for known changes in the current tort environment, it is possible that such factors may not entirely reflect all recent trends in tort environments. For example, when applying the reported loss development method, the lengthening of our selected loss development patterns by six months would increase reserve estimates on long-tail casualty and professional lines for accident years 2013 and prior by approximately $493 million. This represents an impact of 14.0 percent relative to recorded net loss and loss expense reserves of approximately $3.5 billion.

Global Reinsurance
Typically, there is inherent uncertainty around the length of paid and reported development patterns, especially for certain casualty lines such as excess workers' compensation or general liability, which may take up to 30 years to fully develop. This uncertainty is accentuated by the need to supplement client development patterns with industry development patterns due to the sometimes low credibility of the data. The underlying source and selection of the final development patterns can thus have a significant impact on the selected ultimate net losses and loss expenses. For example, a 20 percent shortening or lengthening of the development patterns used for U.S. long-tail lines would cause the loss reserve estimate derived by the reported Bornhuetter-Ferguson method for these lines to change by approximately $650 million. This represents an impact of 60 percent relative to recorded net loss and loss expense reserves of approximately $1.1 billion.

Assumed reinsurance
At December 31, 2016 , net unpaid losses and loss expenses for the Global Reinsurance segment aggregated to $1.7 billion, consisting of $760 million of case reserves and $978 million of IBNR. In comparison, at December 31, 2015 , net unpaid losses and loss expenses for the Global Reinsurance segment aggregated to $1.7 billion, consisting of $740 million of case reserves and $975 million of IBNR.

For our catastrophe business, we principally estimate unpaid losses and loss expenses on an event basis by considering various sources of information, including specific loss estimates reported by our cedants, ceding company and overall industry loss estimates reported by our brokers, and our internal data regarding reinsured exposures related to the geographical location of the event. Our internal data analysis enables us to establish catastrophe reserves for known events with more certainty at an earlier date than would be the case if we solely relied on reports from third parties to determine carried reserves.

For our casualty reinsurance business, we generally rely on ceding companies to report claims and then use that data as a key input to estimate unpaid losses and loss expenses. Due to the reliance on claims information reported by ceding companies, as well as other factors, the estimation of unpaid losses and loss expenses for assumed reinsurance includes certain risks and uncertainties that are unique relative to our direct insurance business. These include, but are not necessarily limited to, the following:

- The reported claims information could be inaccurate;
- Typically, a lag exists between the reporting of a loss event to a ceding company and its reporting to us as a reinsurance claim. The use of a broker to transmit financial information from a ceding company to us increases the reporting lag. Because most of our reinsurance business is produced by brokers, ceding companies generally first submit claim and other financial information to brokers, who then report the proportionate share of such information to each reinsurer of a particular treaty. The reporting lag generally results in a longer period of time between the date a claim is incurred and the date a claim is reported compared with direct insurance operations. Therefore, the risk of delayed recognition of loss reserve development is higher for assumed reinsurance than for direct insurance lines; and
- The historical claims data for a particular reinsurance contract can be limited relative to our insurance business in that there may be less historical information available. Further, for certain coverages or products, such as excess of loss contracts, there may be relatively few expected claims in a particular year so the actual number of claims may be susceptible to significant variability. In such cases, the actuary often relies on industry data from several recognized sources.

We mitigate the above risks in several ways. In addition to routine analytical reviews of ceding company reports to ensure reported claims information appears reasonable, we perform regular underwriting and claims audits of certain ceding companies to ensure reported claims information is accurate, complete, and timely. As appropriate, audit findings are used to adjust claims in the reserving process. We also use our knowledge of the historical development of losses from individual ceding companies to adjust the level of adequacy we believe exists in the reported ceded losses.

On occasion, there will be differences between our carried loss reserves and unearned premium reserves and the amount of loss reserves and unearned premium reserves reported by the ceding companies. This is due to the fact that we receive consistent and timely information from ceding companies only with respect to case reserves. For IBNR, we use historical experience and other statistical information, depending on the type of business, to estimate the ultimate loss. We estimate our unearned premium reserve by applying estimated earning patterns to net premiums written for each treaty based upon that treaty's coverage basis (i.e., risks attaching or losses occurring). At December 31, 2016 , the case reserves reported to us by our ceding companies were $745 million, compared with the $760 million we recorded. Our policy is to post additional case reserves in addition to the amounts reported by our cedants when our evaluation of the ultimate value of a reported claim is different than the evaluation of that claim by our cedant.

Within Corporate, we also have exposure to certain liability reinsurance lines that have been in run-off since 1994. Unpaid losses and loss expenses relating to this run-off reinsurance business resides within the Brandywine Division of Corporate. Most of the remaining unpaid loss and loss expense reserves for the run-off reinsurance business relate to A&E claims. Refer to the “Asbestos and Environmental (A&E)” section for additional information.

Asbestos and environmental reserves
Included in our liabilities for losses and loss expenses are amounts for A&E (A&E liabilities). The A&E liabilities principally relate to claims arising from bodily-injury claims related to asbestos products and remediation costs associated with hazardous waste sites. The estimation of our A&E liabilities is particularly sensitive to future changes in the legal, social, and economic

environment. We have not assumed any such future changes in setting the value of our A&E liabilities, which include provisions for both reported and IBNR claims.

There are many complex variables that we consider when estimating the reserves for our inventory of asbestos accounts and these variables may directly impact the predicted outcome. We believe the most significant variables relating to our A&E liabilities include the current legal environment; specific settlements that may be used as precedents to settle future claims; assumptions regarding trends with respect to claim severity and the frequency of higher severity claims; assumptions regarding the ability to allocate liability among defendants (including bankruptcy trusts) and other insurers; the ability of a claimant to bring a claim in a state in which they have no residency or exposure; the ability of a policyholder to claim the right to unaggregated coverage; whether high-level excess policies have the potential to be accessed given the policyholder's claim trends and liability situation; payments to unimpaired claimants; and, the potential liability of peripheral defendants. Based on the policies, the facts, the law, and a careful analysis of the impact that these factors will likely have on any given account, we estimate the potential liability for indemnity, policyholder defense costs, and coverage litigation expense.

The results in asbestos cases announced by other carriers or defendants may well have little or no relevance to us because coverage exposures are highly dependent upon the specific facts of individual coverage and resolution status of disputes among carriers, policyholders, and claimants.

For additional information refer to the “Asbestos and Environmental (A&E)” section and to Note 7 to the Consolidated Financial Statements.

Future policy benefits reserves
We issue contracts in our Overseas General Insurance and Life Insurance segments that are classified as long-duration. These contracts generally include accident and supplemental health products, term and whole life products, endowment products, and annuities. In accordance with GAAP, we establish reserves for contracts determined to be long-duration based on approved actuarial methods that include assumptions related to expenses, mortality, morbidity, persistency, and investment yields with a factor for adverse deviation. These assumptions are “locked in” at the inception of the contract, meaning we use our original assumptions throughout the life of the policy and do not subsequently modify them unless we deem the reserves to be inadequate. The future policy benefits reserves balance is regularly evaluated for a premium deficiency. If experience is less favorable than assumptions, additional liabilities may be required, resulting in a charge to policyholder benefits and claims.

Valuation of value of business acquired (VOBA), and amortization of deferred policy acquisition costs and VOBA
As part of the acquisition of businesses that sell long-duration contracts, such as life products, we established an intangible asset related to VOBA, which represented the fair value of the future profits of the in-force contracts. The valuation of VOBA at the time of acquisition is derived from similar assumptions to those used to establish the associated future policy benefits reserves. The most significant input in this calculation is the discount rate used to arrive at the present value of the net cash flows. We amortize deferred policy acquisition costs associated with long-duration contracts and VOBA (collectively policy acquisition costs) over the estimated life of the contracts, generally in proportion to premium revenue recognized based upon the same assumptions used in estimating the liability for future policy benefits. For non-traditional long-duration contracts, we amortize policy acquisition costs over the expected life of the contracts in proportion to estimates of expected gross profits. The estimated life is established at the inception of the contracts or upon acquisition and is based on current persistency assumptions. Policy acquisition costs, which consist of commissions, premium taxes, and certain underwriting costs related directly to the successful acquisition of a new or renewal insurance contract, are reviewed to determine if they are recoverable from future income, including investment income. Unrecoverable costs are expensed in the period identified.

Risk transfer
In the ordinary course of business, we both purchase (or cede) and sell (or assume) reinsurance protection. We discontinued the purchase of all finite risk reinsurance contracts, as a matter of policy, in 2002. For both ceded and assumed reinsurance, risk transfer requirements must be met in order to use reinsurance accounting, principally resulting in the recognition of cash flows under the contract as premiums and losses. If risk transfer requirements are not met, a contract is to be accounted for as a deposit, typically resulting in the recognition of cash flows under the contract through a deposit asset or liability and not as revenue or expense. To meet risk transfer requirements, a reinsurance contract must include both insurance risk, consisting of underwriting and timing risk, and a reasonable possibility of a significant loss for the assuming entity. We also apply similar risk transfer requirements to determine whether certain commercial insurance contracts should be accounted for as insurance or a deposit. Contracts that include fixed premium (i.e., premium not subject to adjustment based on loss experience under the contract) for fixed coverage generally transfer risk and do not require judgment.

Reinsurance and insurance contracts that include both significant risk sharing provisions, such as adjustments to premiums or loss coverage based on loss experience, and relatively low policy limits, as evidenced by a high proportion of maximum premium assessments to loss limits, can require considerable judgment to determine whether or not risk transfer requirements are met. For such contracts, often referred to as finite or structured products, we require that risk transfer be specifically assessed for each contract by developing expected cash flow analyses at contract inception. To support risk transfer, the cash flow analyses must demonstrate that a significant loss is reasonably possible, such as a scenario in which the ratio of the net present value of losses divided by the net present value of premiums equals or exceeds 110 percent. For purposes of cash flow analyses, we generally use a risk-free rate of return consistent with the expected average duration of loss payments. In addition, to support insurance risk, we must prove the reinsurer's risk of loss varies with that of the reinsured and/or support various scenarios under which the assuming entity can recognize a significant loss.

To ensure risk transfer requirements are routinely assessed, qualitative and quantitative risk transfer analyses and memoranda supporting risk transfer are developed by underwriters for all structured products. We have established protocols for structured products that include criteria triggering an accounting review of the contract prior to quoting. If any criterion is triggered, a contract must be reviewed by a committee established by each of our segments with reporting oversight, including peer review, from our global Structured Transaction Review Committee.

With respect to ceded reinsurance, we entered into a few multi-year excess of loss retrospectively-rated contracts, principally in 2002. These contracts primarily provided severity protection for specific product divisions. Because traditional one-year reinsurance coverage had become relatively costly, these contracts were generally entered into in order to secure a more cost-effective reinsurance program. All of these contracts transferred risk and were accounted for as reinsurance. In addition, we maintain a few aggregate excess of loss reinsurance contracts that were principally entered into prior to 2003, such as the National Indemnity Company (NICO) contracts referred to in the section entitled, “Asbestos and Environmental (A&E)”. We have not purchased any other retroactive ceded reinsurance contracts since 1999.

With respect to assumed reinsurance and insurance contracts, products giving rise to judgments regarding risk transfer were primarily sold by our financial solutions business. Although we have significantly curtailed writing financial solutions business, several contracts remain in-force and principally include multi-year retrospectively-rated contracts and loss portfolio transfers. Because transfer of insurance risk is generally a primary client motivation for purchasing these products, relatively few insurance and reinsurance contracts have historically been written for which we concluded that risk transfer criteria had not been met. For certain insurance contracts that have been reported as deposits, the insured desired to self-insure a risk but was required, legally or otherwise, to purchase insurance so that claimants would be protected by a licensed insurance company in the event of non-payment from the insured.

Reinsurance recoverable

Reinsurance recoverable includes balances due to us from reinsurance companies for paid and unpaid losses and loss expenses and is presented net of a provision for uncollectible reinsurance. The provision for uncollectible reinsurance is determined based upon a review of the financial condition of the reinsurers and other factors. Ceded reinsurance contracts do not relieve our primary obligation to our policyholders. Consequently, an exposure exists with respect to reinsurance recoverable to the extent that any reinsurer is unable or unwilling to meet its obligations or disputes the liabilities assumed under the reinsurance contracts. We determine the reinsurance recoverable on unpaid losses and loss expenses using actuarial estimates as well as a determination of our ability to cede unpaid losses and loss expenses under existing reinsurance contracts.

The recognition of a reinsurance recoverable asset requires two key judgments. The first judgment involves our estimation based on the amount of gross reserves and the percentage of that amount which may be ceded to reinsurers. Ceded IBNR, which is a major component of the reinsurance recoverable on unpaid losses and loss expenses, is generally developed as part of our loss reserving process and, consequently, its estimation is subject to similar risks and uncertainties as the estimation of gross IBNR (refer to “Critical Accounting Estimates – Unpaid losses and loss expenses”). The second judgment involves our estimate of the amount of the reinsurance recoverable balance that we may ultimately be unable to recover from reinsurers due to insolvency, contractual dispute, or for other reasons. Estimated uncollectible amounts are reflected in a provision that reduces the reinsurance recoverable asset and, in turn, shareholders' equity. Changes in the provision for uncollectible reinsurance are reflected in net income.

Although the obligation of individual reinsurers to pay their reinsurance obligations is based on specific contract provisions, the collectability of such amounts requires estimation by management. The majority of the recoverable balance will not be due for collection until sometime in the future, and the duration of our recoverables may be longer than the duration of our direct exposures. Over this period of time, economic conditions and operational performance of a particular reinsurer may impact their ability to meet these obligations and while they may continue to acknowledge their contractual obligation to do so, they may not have the financial resources or willingness to fully meet their obligation to us.

To estimate the provision for uncollectible reinsurance, the reinsurance recoverable must first be determined for each reinsurer. This determination is based on a process rather than an estimate, although an element of judgment must be applied. As part of the process, ceded IBNR is allocated to reinsurance contracts because ceded IBNR is not generally calculated on a contract by contract basis. The allocations are generally based on premiums ceded under reinsurance contracts, adjusted for actual loss experience and historical relationships between gross and ceded losses. If actual premium and loss experience vary materially from historical experience, the allocation of reinsurance recoverable by reinsurer will be reviewed and may change. While such change is unlikely to result in a large percentage change in the provision for uncollectible reinsurance, it could, nevertheless, have a material effect on our net income in the period recorded.

Generally, we use a default analysis to estimate uncollectible reinsurance. The primary components of the default analysis are reinsurance recoverable balances by reinsurer, net of collateral, and default factors used to estimate the probability that the reinsurer may be unable to meet its future obligations in full. The definition of collateral for this purpose requires some judgment and is generally limited to assets held in a Chubb-only beneficiary trust, letters of credit, and liabilities held by us with the same legal entity for which we believe there is a right of offset. We do not currently include multi-beneficiary trusts. However, we have several reinsurers that have established multi-beneficiary trusts for which certain of our companies are beneficiaries. The determination of the default factor is principally based on the financial strength rating of the reinsurer and a corresponding default factor applicable to the financial strength rating. Default factors require considerable judgment and are determined using the current financial strength rating, or rating equivalent, of each reinsurer as well as other key considerations and assumptions. Significant considerations and assumptions include, but are not necessarily limited to, the following:

- For reinsurers that maintain a financial strength rating from a major rating agency, and for which recoverable balances are considered representative of the larger population (i.e., default probabilities are consistent with similarly rated reinsurers and payment durations conform to averages), the judgment exercised by management to determine the provision for uncollectible reinsurance of each reinsurer is typically limited because the financial rating is based on a published source and the default factor we apply is based on a historical default factor of a major rating agency applicable to the particular rating class. Default factors applied for financial ratings of AAA, AA, A, BBB, BB, B, and CCC, are 0.8 percent, 1.2 percent, 1.7 percent, 4.9 percent, 19.6 percent, 34.0 percent, and 62.2 percent, respectively. Because our model is predicated on the historical default factors of a major rating agency, we do not generally consider alternative factors. However, when a recoverable is expected to be paid in a brief period of time by a highly-rated reinsurer, such as certain property catastrophe claims, a default factor may not be applied;
- For balances recoverable from reinsurers that are both unrated by a major rating agency and for which management is unable to determine a credible rating equivalent based on a parent or affiliated company, we may determine a rating equivalent based on our analysis of the reinsurer that considers an assessment of the creditworthiness of the particular entity, industry benchmarks, or other factors as considered appropriate. We then apply the applicable default factor for that rating class. For balances recoverable from unrated reinsurers for which our ceded reserve is below a certain threshold, we generally apply a default factor of 34.0 percent;
- For balances recoverable from reinsurers that are either insolvent or under regulatory supervision, we establish a default factor and resulting provision for uncollectible reinsurance based on specific facts and circumstances surrounding each company. Upon initial notification of an insolvency, we generally recognize expense for a substantial portion of all balances outstanding, net of collateral, through a combination of write-offs of recoverable balances and increases to the provision for uncollectible reinsurance. When regulatory action is taken on a reinsurer, we generally recognize a default factor by estimating an expected recovery on all balances outstanding, net of collateral. When sufficient credible information becomes available, we adjust the provision for uncollectible reinsurance by establishing a default factor pursuant to information received; and
- For captives and other recoverables, management determines the provision for uncollectible reinsurance based on the specific facts and circumstances.

The following table summarizes reinsurance recoverables and the provision for uncollectible reinsurance for each type of recoverable balance at December 31, 2016 :

(in millions of U.S. dollars)	Gross Reinsurance Recoverables on Losses and Loss Expenses	Recoverables (net of Usable Collateral)	Provision for Uncollectible Reinsurance
Type			
Reinsurers with credit ratings	$ 10,073	$ 8,944	$ 153
Reinsurers not rated	354	156	53
Reinsurers under supervision and insolvent reinsurers	102	99	45
Captives	2,172	287	16
Other - structured settlements and pools	1,176	1,102	33
Total	**$ 13,877**	**$ 10,588**	**$ 300**

At December 31, 2016 , the use of different assumptions within our approach could have a material effect on the provision for uncollectible reinsurance. To the extent the creditworthiness of our reinsurers were to deteriorate due to an adverse event affecting the reinsurance industry, such as a large number of major catastrophes, actual uncollectible amounts could be significantly greater than our provision for uncollectible reinsurance. Such an event could have a material adverse effect on our financial condition, results of operations, and our liquidity. Given the various considerations used to estimate our uncollectible provision, we cannot precisely quantify the effect a specific industry event may have on the provision for uncollectible reinsurance. However, based on the composition (particularly the average credit quality) of the reinsurance recoverable balance at December 31, 2016 , we estimate that a ratings downgrade of one notch for all rated reinsurers (i.e., from A to A- or A- to BBB+) could increase our provision for uncollectible reinsurance by approximately $68 million or approximately 0.5 percent of the gross reinsurance recoverable balance, assuming no other changes relevant to the calculation. While a ratings downgrade would result in an increase in our provision for uncollectible reinsurance and a charge to earnings in that period, a downgrade in and of itself does not imply that we will be unable to collect all of the ceded reinsurance recoverable from the reinsurers in question. Refer to Note 5 to the Consolidated Financial Statements for additional information.

Other-than-temporary impairments (OTTI)
Each quarter, we review securities in an unrealized loss position (impaired securities), including fixed maturities, securities lending collateral, equity securities, and other investments, to identify impaired securities to be specifically evaluated for a potential OTTI. Because our investment portfolio is the largest component of consolidated assets, OTTI could be material to our financial condition and results of operations. Refer to Note 3 c) to the Consolidated Financial Statements for a description of the OTTI process.

Deferred taxes
Many of our insurance businesses operate in income tax-paying jurisdictions. Our deferred tax assets and liabilities primarily result from temporary differences between the amounts recorded in our consolidated financial statements and the tax basis of our assets and liabilities. We determine deferred tax assets and liabilities separately for each tax-paying component (an individual entity or group of entities that is consolidated for tax purposes) in each tax jurisdiction. The realization of deferred tax assets depends upon the existence of sufficient taxable income within the carryback or carryforward periods under the tax law in the applicable tax jurisdiction.

At December 31, 2016 , our net deferred tax liability was $ 988 million . Refer to Note 8 to the Consolidated Financial Statements for additional information. At each balance sheet date, management assesses the need to establish a valuation allowance that reduces deferred tax assets when it is more likely than not that all, or some portion, of the deferred tax assets will not be realized. The valuation allowance is based on all available information including projections of future taxable income from each tax-paying component in each tax jurisdiction, principally derived from business plans and available tax planning strategies. Projections of future taxable income incorporate several assumptions of future business and operations that are apt to differ from actual experience. The valuation allowance is also based on maintaining our ability and intent to hold our U.S. available for sale fixed maturities to recovery. If our assumptions and estimates that resulted in our forecast of future taxable income for each tax-paying component prove to be incorrect, or future market events occur that prevent our ability to hold our U.S. fixed maturities to recovery, an additional valuation allowance could become necessary, which could have a material adverse effect on our financial condition, results of operations, and liquidity. At December 31, 2016 , the valuation allowance of

$ 78 million reflects management's assessment that it is more likely than not that a portion of the deferred tax asset will not be realized due to the potential inability of certain foreign subsidiaries to generate sufficient taxable income.

Fair value measurements
Accounting guidance defines fair value as the price to sell an asset or transfer a liability (an exit price) in an orderly transaction between market participants and establishes a three-level valuation hierarchy based on the reliability of the inputs. The fair value hierarchy gives the highest priority to quoted prices in active markets (Level 1 inputs) and the lowest priority to unobservable data (Level 3 inputs). Level 2 includes inputs, other than quoted prices within Level 1, that are observable for assets or liabilities either directly or indirectly. Refer to Note 4 and Note 13 to the Consolidated Financial Statements for information on our fair value measurements.

Assumed reinsurance programs involving minimum benefit guarantees under variable annuity contracts
Chubb reinsures various death and living benefit guarantees associated with variable annuities issued primarily in the United States and Japan. We ceased writing this business in 2007. Guarantees which are payable on death are referred to as guaranteed minimum death benefits (GMDB). Guarantees on living benefits (GLB) includes guaranteed minimum income benefits (GMIB) and guaranteed minimum accumulation benefits (GMAB). For further description of this product and related accounting treatment, refer to Note 1 j) to the Consolidated Financial Statements.

Guaranteed living benefits (GLB) derivatives
Our GLB reinsurance is classified as a derivative for accounting purposes and therefore carried at fair value. We believe that the most meaningful presentation of these GLB derivatives is as follows:

- Estimates of the average modeled value of future cash outflows is recorded as incurred losses (i.e., benefit reserves). Cash inflows or revenue are reported as net premiums earned and changes in the benefit reserves are reflected as Policy benefits expense in the Consolidated statements of operations, which is included in underwriting income.
- The incremental difference between the fair value of GLB reinsurance contracts and benefit reserves is reflected in Accounts payable, accrued expenses, and other liabilities in the Consolidated balance sheets and related changes in fair value are reflected in Net realized gains (losses) in the Consolidated statements of operations.

Determination of GLB fair value
The fair value of GLB reinsurance is estimated using an internal valuation model, which includes current market information and estimates of policyholder behavior from the perspective of a theoretical market participant that would assume these liabilities. All of our treaties contain claim limits, which are factored into the valuation model. The fair value depends on a number of factors, including interest rates, equity markets, credit risk, current account value, market volatility, expected annuitization rates and other policyholder behavior, and changes in policyholder mortality. The model and related assumptions are regularly re-evaluated by management and enhanced, as appropriate, based upon additional experience obtained related to policyholder behavior and availability of more timely market information. Due to the inherent uncertainties of the assumptions used in the valuation models to determine the fair value of these derivative products, actual experience may differ materially from the estimates reflected in our Consolidated Financial Statements.

We intend to hold these derivative contracts to maturity (i.e., the expiration of the underlying liabilities through lapse, annuitization, death, or expiration of the reinsurance contract). To partially offset the risk of changes in the fair value of GLB reinsurance contracts, we invest in derivative hedge instruments. At maturity, the cumulative realized gains and losses (excluding cumulative hedge gains or losses) from fair value changes of GLB reinsurance contracts will net to zero because, over time, the insurance liability will be increased or decreased to equal our obligation.

Determination of GLB and Guaranteed minimum death benefits (GMDB) benefit reserves
Management established benefit reserves based on a long-term benefit ratio (or loss ratio) calculated using assumptions reflecting management’s best estimate of the future short-term and long-term performance of the variable annuity line of business. Despite the long-term nature of the risk, the benefit ratio calculation is impacted by short-term market movements that may be judged by management to be transient. Management regularly examines both qualitative and quantitative analysis, including a review of the differential between the benefit ratio used at the most recent valuation date and the benefit ratio calculated on subsequent dates. Management regularly evaluates its estimates and uses judgment to determine the extent to which assumptions underlying the benefit ratio calculation should be adjusted. As part of that evaluation, during the fourth quarter of 2016, management determined that certain assumptions underlying the long-term benefit ratio, primarily long-term interest rates, should be updated based on changes in expected future market conditions. Our current Long term benefit ratio is now 80 percent. This adjustment resulted in a charge to Policy benefits expense of $17 million. Since we carry the overall

GMIB reserves at fair value, there was a realized gain recognized that offset this expense. On an annualized basis, we expect a similar incremental impact to Policy benefits expense of approximately $60 million in 2017 as we apply these updated assumptions to our expected future earned premium with an offsetting impact to realized gains.

For further information on the estimates and assumptions used in determining the fair value of GLB reinsurance, refer to Note 4 to the Consolidated Financial Statements. For a sensitivity discussion of the effect of changes in interest rates, equity indices, and other assumptions on the fair value of GLBs, and the estimated resulting impact on our net income, refer to Item 7A.

Risk Management

We employ a strategy to manage the financial market and policyholder behavior risks embedded in the reinsurance of variable annuity (VA) guarantees. Risk management begins with underwriting a prospective client and guarantee design, with particular focus on protecting our position from policyholder options that, because of anti-selective behavior, could adversely impact our obligation.

A second layer of risk management is the structure of the reinsurance contracts. All VA guarantee reinsurance contracts include some form of annual or aggregate claim limit(s). For example, for 60 percent of the GMDB portfolio (based on guaranteed value), there is an annual claim limit of 2 percent of account value. The different categories of claim limits are as follows:

Reinsurance program covering	% of total guaranteed value (GV)	% of GV that has additional reinsurance coverage	Additional terms
GMDB with an annual claim limit of 2% of account value (AV)	60% of total GMDB	2% for GLB	N/A
GMDB with claim limit(s) that are a function of underlying GV (varies from 0.4% to 2.0% of GV)	30% of total GMDB	80% for GLB	• 55% of GV subject to annual claim deductibles (1) of 0.1% to 0.2% of GV • 40% of GV subject to an aggregate claim limit of approximately $385 million
GMDB and GMAB	5% of total GLB 10% of total GMDB	N/A	• Programs are quota-share (QS) agreements with QS % decreasing as ratio of AV to GV decreases: — QS 100% for ratios between 100% - 75% — QS 60% for ratios between 75% - 45% — QS 30% for ratios less than 45% • 35% of GV subject to a per policy claim deductible of 8.8% of GV for GMAB only (1)
GMIB with an annual claim limit of 10% of GV on over 95% of GV	65% of total GLB	45% for GMDB	• Annual annuitization limit range 17.5% - 30%: — 55% subject to limit of 30% — 45% subject to limit of 20% or under • 43% of GV subject to minimum annuity conversion factors that limits exposure to low interest rates
GMIB with an aggregate claim limit of $2.0 billion	30% of total GLB	35% for GMDB	• Annual annuitization limit of 20% • 65% of GV subject to minimum annuity conversion factors that limit exposure to low interest rates • 40% of GV subject to an aggregate claim deductible of 2% of underlying annuity deposits

(1) Chubb would only pay total annual claims in excess of deductibles.

A third layer of risk management is the hedging strategy which looks to mitigate both long-term economic loss over time as well as dampen income statement volatility. We owned financial market instruments as part of the hedging strategy with a fair value asset (liability) of $1 million and $ (4) million at December 31, 2016 and 2015 , respectively. The instruments are substantially collateralized by our counterparties, on a daily basis.

We also limit the aggregate amount of variable annuity reinsurance guarantee risk we are willing to assume. The last substantive transactions were quoted in late 2007. The aggregate number of policyholders is currently decreasing through policyholder withdrawals, annuitizations, and deaths at a rate of 5 percent to 15 percent per annum.

Note that GLB claims cannot occur for any reinsured policy until it has reached the end of its “waiting period”. As shown in the table below, 62 percent of the policies we reinsure reached the end of their “waiting periods” in 2016 and prior.

Year of first payment eligibility	Percent of living benefit account values
2016 and prior	62%
2017	19%
2018	10%
2019	2%
2020	1%
2021 and after	6%
Total	100%

The following table presents the historical cash flows under these policies for the periods indicated. The amounts represent accrued past premium received and claims paid, split by benefit type.

	2016			2015			2014		
(in millions of U.S. dollars)	**GMDB**	**GLB**	**Total**	GMDB	GLB	Total	GMDB	GLB	Total
Premium received	**$ 55**	**$ 118**	**$ 173**	$ 61	$ 121	$ 182	$ 71	$ 138	$ 209
Less paid claims	**42**	**39**	**81**	28	16	44	39	13	52
Net cash received	**$ 13**	**$ 79**	**$ 92**	$ 33	$ 105	$ 138	$ 32	$ 125	$ 157

Collateral
Chubb holds collateral on behalf of most of its clients in the form of qualified assets in trust or letters of credit, typically in an amount sufficient for the client to obtain statutory reserve credit for the reinsurance. The timing of the calculation and amount of the collateral varies by client according to the particulars of the reinsurance treaty and the statutory reserve guidelines of the client's domicile.

Goodwill impairment assessment
Goodwill, which represents the excess of acquisition cost over the estimated fair value of net assets acquired, was $15.3 billion and $4.8 billion at December 31, 2016 and 2015 , respectively. During 2016 , our goodwill balance increased reflecting the Chubb Corp acquisition. Goodwill is assigned to applicable reporting units of acquired entities at the time of acquisition. Our reporting units are the same as our reportable segments. For goodwill balances by reporting units, including information on the assignment of the goodwill related to the Chubb Corp acquisition by reporting units, refer to Note 6 to the Consolidated Financial Statements.

Goodwill is not amortized but is subject to a periodic evaluation for impairment at least annually, or earlier if there are any indications of possible impairment. Impairment is tested at the reporting unit level. The impairment evaluation first uses a qualitative assessment to determine whether it is more likely than not (i.e., more than a 50 percent probability) that the fair value of a reporting unit is greater than its carrying amount. If a reporting unit fails this qualitative assessment, a quantitative analysis is then used. The quantitative analysis is a two-step process in which an initial assessment for potential impairment is performed and, if a potential impairment is present, the amount of impairment is measured and recorded.

In assessing the fair value of a reporting unit, we make assumptions and estimates about the profitability attributable to our reporting units, including:
- short-term and long-term growth rates; and
- estimated cost of equity and changes in long-term risk-free interest rates.

If our assumptions and estimates made in assessing the fair value of acquired entities change, we could be required to write-down the carrying value of goodwill which could be material to our results of operations in the period the charge is taken.
Based on our impairment testing for 2016 , we determined no impairment was required and none of our reporting units were at risk for impairment.

Consolidated Operating Results – Years Ended December 31, 2016 , 2015 , and 2014

(in millions of U.S. dollars, except for percentages)	2016	2015	2014	% Change 2016 vs. 2015	% Change 2015 vs. 2014
Net premiums written (1)	**$ 28,145**	$ 17,713	$ 17,799	58.9 %	(0.5)%
Net premiums earned (1)	**28,749**	17,213	17,426	67.0 %	(1.2)%
Net investment income	**2,865**	2,194	2,252	30.6 %	(2.6)%
Net realized gains (losses)	**(145)**	(420)	(507)	(65.5)%	(17.2)%
Total revenues	**31,469**	18,987	19,171	65.7 %	(1.0)%
Losses and loss expenses	**16,052**	9,484	9,649	69.3 %	(1.7)%
Policy benefits	**588**	543	517	8.3 %	5.0 %
Policy acquisition costs	**5,904**	2,941	3,075	100.7 %	(4.4)%
Administrative expenses	**3,081**	2,270	2,245	35.7 %	1.1 %
Interest expense	**605**	300	280	101.7 %	7.1 %
Other (income) expense	**(222)**	(51)	(190)	335.3 %	(73.2)%
Amortization of purchased intangibles	**19**	171	108	(88.9)%	58.3 %
Chubb integration expenses	**492**	33	—	NM	NM
Total expenses	**26,519**	15,691	15,684	69.0 %	—
Income before income tax	**4,950**	3,296	3,487	50.2 %	(5.5)%
Income tax expense	**815**	462	634	76.4 %	(27.1)%
Net income	**$ 4,135**	$ 2,834	$ 2,853	45.9 %	(0.7)%

NM – not meaningful

(1) On a constant-dollar basis for the years ended December 31, 2016 and 2015, net premiums written increased $10.8 billion and $860 million, respectively, and net premiums earned increased $11.9 billion and $714 million, respectively. Amounts are calculated by translating prior period results using the same local currency rates as the comparable current period.

Net Premiums Written

2016 vs. 2015

Net premiums written reflect the premiums we retain after purchasing reinsurance protection. Consolidated net premiums written increased $10.4 billion in 2016 , primarily due to the Chubb Corp acquisition, which added about $10.8 billion of growth to premiums. This increase in premiums was partially offset by the adverse impact of foreign exchange of $367 million . On a constant-dollar basis, as if legacy ACE and legacy Chubb were one company in 2015 and since the beginning of 2016 ("As If" basis), net premiums written decreased $843 million in 2016 , primarily driven by merger-related underwriting actions ($650 million), including the purchase of additional reinsurance.

- Net premiums written in our North America Commercial P&C Insurance segment increased $6,025 million in 2016 . On an "As If" basis, net premiums written decreased $355 million in 2016 , principally due to merger-related underwriting actions ($241 million), including the purchase of additional reinsurance. In addition, net premiums decreased due to lower new business written, driven by competitive market conditions and rate declines.

- Net premiums written in our North America Personal P&C Insurance segment increased $2,961 million in 2016 . On an "As If" basis, net premiums written decreased $509 million in 2016 , principally driven by the purchase of additional reinsurance ($273 million) primarily for our homeowners and large limit valuable articles business written in the northeast United States. In addition, we experienced a decline in our Fireman's Fund high net worth personal lines business in 2016 ($298 million), primarily reflecting a benefit in the prior year from a non-recurring unearned premium reserves (UPR) transfer ($252 million) and the conversion to Chubb legal entities in the current year. Excluding these items, net premiums written were up 1.3 percent in 2016 .

- Net premiums written in our Overseas General Insurance segment increased $1,490 million in 2016 , and increased $95 million, on an "As If" constant-dollar basis, primarily driven by growth in personal lines, property and casualty lines (P&C), and A&H lines. This increase was partially offset by declines in our business written by Chubb Global Markets and by merger-related underwriting actions ($119 million), including the purchase of additional reinsurance.

- Net premiums written in our Life Insurance segment increased $ 126 million in 2016 and increased $ 32 million on an "As If" basis. Growth in our international life operations and in our Combined Insurance Supplemental A&H program business was partially offset by the adverse effect of foreign exchange. Our life reinsurance business continues to decline as there is no new life reinsurance business currently being written. On a constant-dollar basis, production, which includes deposits collected on universal life and investment contracts of $1,006 million in 2016 and $997 million in 2015, increased 6.0 percent.

- Net premiums written in our North America Agricultural Insurance segment decreased $18 million in 2016 , primarily due to the revision to the 2016 crop year margin estimate related to the MPCI program, which resulted in lower premium retention under the premium sharing formula with the U.S. government. This decrease was partially offset by lower cessions under existing third-party proportional reinsurance programs.

- Net premiums written in our Global Reinsurance segment decreased $152 million in 2016 and decreased $ 161 million on an "As If" basis, as we maintained underwriting discipline in an environment of declining rates and increasing competition. In addition, the decline in premiums reflects increased cessions of $17 million due to the purchase of additional property catastrophe reinsurance in 2016.

2015 vs. 2014

Consolidated net premiums written decreased $86 million in 2015. On a constant-dollar basis, net premiums written increased $860 million.

- Net premiums written in our North America Commercial P&C Insurance segment increased $30 million in 2015 due to growth in our global risk management lines, professional lines, wholesale casualty business, and small specialty division. These increases were partially offset by declines in our property and casualty businesses reflecting a more competitive market and rate decreases. Net premiums written in 2014 were favorably impacted by lower excess of loss premiums ceded under our 2014 catastrophe reinsurance program ($32 million).

- Net premiums written in our North America Personal P&C Insurance segment increased $614 million in 2015 primarily due to the Fireman's Fund acquisition which added $561 million to premiums (including a non-recurring UPR transfer of $252 million recognized as written premiums at the acquisition date).

- Net premiums written in our Overseas General Insurance segment increased $441 million in constant dollars reflecting organic growth across most operations. Included in the increase in net premiums written were contributions from the acquisition of Itaú Seguros in October 2014 and Samaggi in April 2014 which added $273 million of growth to premiums in constant dollars.

- Net premiums written in our Life Insurance segment increased $71 million in constant dollars due to new business growth in our supplemental A&H businesses and our international life business, primarily in Asia, tempered by a decline in our variable annuity reinsurance business, as there is currently no new business being written.

- Net premiums written in our Global Reinsurance segment decreased $85 million in constant dollars primarily due to lower production from competitive market conditions. The decline was partially offset by new business written, primarily in our U.S. automobile business.

- Net premiums written in our North America Agricultural Insurance segment decreased $244 million in 2015 due to lower commodity base prices and lower premium retention as a result of the premium-sharing formulas with the U.S. government.

Line of Business

The following table presents a breakdown of consolidated net premiums written by line of business for the years indicated:

(in millions of U.S. dollars, except for percentages)	2016	2015	2014	As If 2016	C$ [1] As-If 2015	% Change C$ [1] As-If 2016 vs. 2015
Commercial multiple peril [2]	$ 815	$ —	$ —	$ 895	$ 938	(4.6)%
Commercial casualty	3,401	2,171	2,097	3,519	3,522	(0.1)%
Workers' compensation	2,006	901	941	2,145	2,134	0.5 %
Professional liability	3,576	1,516	1,519	3,712	3,850	(3.6)%
Surety	584	323	295	593	621	(4.5)%
Property and other short-tail lines	3,856	2,884	3,047	3,993	4,267	(6.4)%
International other casualty	1,038	755	804	1,094	997	9.7 %
Total Commercial P&C	15,276	8,550	8,703	15,951	16,329	(2.3)%
Agriculture	1,328	1,346	1,590	1,328	1,346	(1.3)%
Personal automobile - North America	698	219	134	712	740	(3.8)%
Personal automobile - International	673	700	688	673	633	6.3 %
Personal homeowners	3,053	937	506	3,119	3,722	(16.2)%
Personal other	1,400	606	496	1,440	1,255	14.7 %
Total Personal lines	5,824	2,462	1,824	5,944	6,350	(6.4)%
Total Property and Casualty lines	22,428	12,358	12,117	23,223	24,025	(3.3)%
Other Lines						
Global A&H [3]	3,970	3,548	3,735	4,009	3,935	1.9 %
Reinsurance	676	828	935	696	843	(17.5)%
Life	1,071	979	1,012	1,072	1,040	3.1 %
Total consolidated	$ 28,145	$ 17,713	$ 17,799	$ 29,000	$ 29,843	(2.8)%

(1) On a constant-dollar basis. Amounts are calculated by translating prior period results using the same local currency rates as the comparable current period.

(2) Commercial multiple peril represents retail package business (property and general liability).

(3) For purposes of this schedule only, A&H results from our Combined North America and International businesses, normally included in the Life Insurance and Overseas General Insurance segments, respectively, as well as the A&H results of our North America Commercial P&C segment, are included in the Global A&H line item above.

Total commercial P&C increased $6,726 million in 2016 , primarily reflecting the Chubb Corp acquisition. On a constant-dollar “As If” basis, total commercial P&C premiums decreased $378 million (2.3 percent), primarily driven by merger-related underwriting actions ($321 million), including the purchase of additional reinsurance in 2016 .

Total personal lines increased $3,362 million in 2016 , primarily reflecting the Chubb Corp acquisition. On a constant-dollar “As If” basis, total personal lines growth decreased $406 million (6.4 percent), primarily driven by the purchase of additional reinsurance and other merger-related underwriting actions ($277 million), primarily for our homeowners business written in the northeast United States.

Global A&H lines increased $422 million in 2016 , primarily reflecting the Chubb Corp acquisition. On a constant-dollar "As If" basis, Global A&H lines increased $74 million (1.9 percent), growth was partially offset by merger-related underwriting actions ($35 million).

Reinsurance lines decreased $152 million in 2016 , or $147 million (17.4 percent) on a constant dollar "As If" basis, as we maintained underwriting discipline in an environment of declining rates, and due to increased cessions reflecting the purchase of additional property catastrophe reinsurance in 2016 ($17 million).

Net Premiums Earned

2016 vs. 2015

Net premiums earned for short-duration contracts, typically P&C contracts, generally reflect the portion of net premiums written that were recorded as revenues for the period as the exposure periods expire. Net premiums earned for long-duration contracts, typically traditional life contracts, generally are recognized as earned when due from policyholders. Net premiums earned increased $11.5 billion in 2016 , primarily due to the Chubb Corp acquisition which added about $11.8 billion of growth to premiums, partially offset by the adverse impact of foreign currency of $328 million . On a constant-dollar basis, net premiums earned increased $11.9 billion in 2016 .

On an "As If" constant-dollar basis, net premiums earned decreased $135 million in 2016 , primarily in our Global Reinsurance, North America Commercial P&C insurance, North America Agricultural Insurance, and North America Personal P&C Insurance segments due to the same factors driving the decrease in net premiums written, as described above. Net premiums earned in our Overseas General Insurance and Life Insurance segments increased due to the same factors driving the increase in net premiums written, as described above.

2015 vs. 2014

Net premiums earned decreased $213 million in 2015, primarily reflecting the adverse impact of foreign exchange. On a constant-dollar basis, net premiums earned increased $714 million in 2015 due to the same factors driving the increase in net premiums written as described above.

Combined Ratio

In evaluating our segments excluding Life, we use the P&C combined ratio, the loss and loss expense ratio (including the impact of realized gains and losses on crop derivatives for the North America Agricultural Insurance segment), the policy acquisition cost ratio, and the administrative expense ratio. We calculate these ratios by dividing the respective expense amounts by net premiums earned. We do not calculate these ratios for the Life segment as we do not use these measures to monitor or manage that segment. The P&C combined ratio is determined by adding the loss and loss expense ratio, the policy acquisition cost ratio, and the administrative expense ratio. A P&C combined ratio under 100 percent indicates underwriting income, and a combined ratio exceeding 100 percent indicates underwriting loss.

The following table presents the components of the combined ratio, as well as a reconciliation of combined ratio to P&C combined ratio. The P&C combined ratio includes the impact of realized gains and losses on crop derivatives and the one-time pension curtailment benefit. The crop derivatives were purchased to provide economic benefit, in a manner similar to reinsurance protection, in the event that a significant decline in commodity pricing will impact underwriting results. We view gains and losses on these derivatives as part of the results of our underwriting operations. The one-time pension curtailment benefit is related to the amendment of our U.S. pension plans as part of a harmonization effort that moves us toward a more unified retirement savings approach.

	2016	2015	2014
Loss and loss expense ratio	**57.7%**	58.1%	58.7 %
Policy acquisition cost ratio	**20.2%**	16.1%	16.8 %
Administrative expense ratio	**10.4%**	13.1%	12.6 %
Combined ratio	**88.3%**	87.3%	88.1 %
Impact of pension curtailment benefit (1)	**0.4%**	—	—
Impact of (gains) and losses on crop derivatives	**—**	0.1%	(0.4)%
P&C combined ratio	**88.7%**	87.4%	87.7 %

(1) The $113 million pension curtailment benefit comprised $23 million in Losses and loss expenses, and $90 million in Administrative expenses.

The following table presents the pre-tax catastrophe losses, excluding reinstatement premiums, and pre-tax favorable prior period development:

(in millions of U.S dollars)	**2016**	As If 2015	2015	2014
Catastrophe losses, pre-tax	**$ 1,067**	$ 848	$ 321	$ 291
Favorable prior period development, pre-tax	**$ 1,134**	$ 1,170	$ 546	$ 527

Catastrophe losses were primarily from the following events:

- 2016 : severe weather-related events in the U.S., including Hurricane Matthew, severe weather-related events in Europe, a wildfire in Canada, and earthquakes in Ecuador and New Zealand.
- 2015: severe weather-related events in the U.S. and Asia, a chemical storage facility explosion in Tianjin, China, a hailstorm in Australia, and flooding and an earthquake in Chile
- 2014: severe weather-related events in the U.S., Japan, and Australia; flooding and hailstorms in Europe; and a hurricane in Mexico.

Prior period development arises from changes to loss estimates recognized in the current year that relate to loss events that occurred in previous calendar years and excludes the effect of losses from the development of earned premium from previous accident years.

The following table presents the impact of catastrophe losses and related reinstatement premiums and prior period reserve development on our consolidated loss and loss expense ratio. The loss ratio numerator includes losses and loss expenses adjusted to exclude catastrophe losses and PPD. The loss ratio denominator includes Net premiums earned adjusted to exclude the amount of reinstatement premiums (expensed) collected. In periods where there are adjustments on loss sensitive policies, these adjustments are excluded from PPD and net earned premiums when calculating this ratio. We believe that excluding the impact of catastrophe losses and PPD provides a better evaluation of our underwriting performance and enhances the understanding of the trends in our property & casualty business that may be obscured by these items.

	2016	2015	2014
Loss and loss expense ratio, including gains and losses on crop derivatives and excluding pension curtailment benefit	**57.8 %**	58.2 %	58.3 %
Catastrophe losses and related reinstatement premiums	**(4.0)%**	(2.1)%	(1.9)%
Prior period development	**4.3 %**	3.6 %	3.4 %
Loss and loss expense ratio, adjusted	**58.1 %**	59.7 %	59.8 %

2016 vs. 2015

The adjusted loss and loss expense ratio decreased 1.6 percentage points in 2016 , primarily due to the net favorable impact of the Chubb Corp acquisition which experienced a relatively lower loss ratio in our North America P&C businesses but experienced a higher loss ratio in our international business. The current year also included claims handling expense savings realized in connection with the integration of Chubb Corp of $60 million (0.2 percentage points).

On an "As-If" basis, the adjusted loss and loss expense ratio decreased 0.1 percentage points in 2016 .

Policy acquisition costs consist of commissions, premium taxes, and certain underwriting costs directly related to the successful acquisition of a new or renewal insurance contract. Our policy acquisition cost ratio increased 4.1 percentage points in 2016 , primarily due to the addition of the Chubb Corp business which carried a higher acquisition cost ratio (2.1 percentage points) and due to the net unfavorable impact of purchase accounting adjustments (1.4 percentage points) related to the Chubb Corp acquisition in the current year and the Fireman's Fund acquisition in the prior year. In addition, during 2016, we determined that certain underwriting costs that are directly attributable to the successful acquisition of business previously classified as administrative expenses were more appropriately classified as policy acquisition costs. This resulted in a $290 million (1.1 percentage points) increase to policy acquisition costs, with an offsetting decrease to administrative expenses in 2016 .

On an "As If" basis, the policy acquisition cost ratio increased 0.3 percentage points in 2016 , primarily due to the impact of the Fireman’s Fund acquisition in 2015 which favorably impacted the prior year ratio by 0.4 percentage points.

Our administrative expense ratio decreased 2.7 percentage points in 2016 , primarily due to cost savings realized as a result of the Chubb Corp acquisition of $223 million (0.8 percentage points), the $290 million (1.1 percentage points) reclassification of underwriting costs that are directly attributable to the successful acquisition of business, as discussed above, and the one-time pension curtailment benefit of $90 million (0.3 percentage points) related to the amendment of our U.S. pension plan as part of a harmonization effort that moves us toward a more unified retirement savings approach.

On an "As If" basis, our administrative expense ratio decreased 0.5 percentage points in 2016 , primarily due to cost savings realized as a result of the Chubb Corp acquisition and the one-time pension curtailment benefit, as discussed above, partially offset by increased spending to support growth initiatives.

2015 vs. 2014
The adjusted loss and loss expense ratio remained relatively flat in 2015.

Our policy acquisition cost ratio decreased 0.7 percentage points in 2015, due to the Fireman's Fund purchase accounting adjustments, as described above.

Our administrative expense ratio increased 0.5 percentage points in 2015, primarily due to increased spending to support growth, and the integration costs associated with the Fireman's Fund acquisition.

Policy benefits
Policy benefits represent losses on contracts classified as long-duration and generally include accident and supplemental health products, term and whole life products, endowment products, and annuities. Policy benefits also include gains and losses for changes in liabilities associated with our separate account assets that do not qualify for separate account reporting under GAAP. Certain of our long duration contracts are supported by assets that do not qualify for separate account reporting under GAAP. These assets are classified as trading securities and reported in Other investments and the offsetting liabilities are reported in Future policy benefits in the consolidated balance sheets. Changes in fair value of separate account assets that do not qualify for separate account reporting under GAAP are reported in Other income (expense) and the offsetting movements in the liabilities are included in the Policy benefits in the Consolidated statements of operations.

In 2016 , Policy benefits were $588 million , which included $11 million of separate account liabilities losses, compared to $543 million and $ 517 million in 2015 and 2014, respectively, which included gains of $19 million and losses of $ 2 million, respectively, related to separate account liabilities. The offsetting movements of these liabilities are recorded in Other income (expense) on the Consolidated statement of operations. Excluding the separate account gains and losses, Policy benefits were $577 million in 2016 , compared with $562 million and $515 million in 2015 and 2014, respectively. The increase in 2016 is due to the increase in the long-term benefit ratio in our variable annuity reinsurance business.

Integration Savings
The following table presents consolidated integration related savings realized by segment and income statement line item for the year ended December 31, 2016 :

Year Ended December 31, 2016 (in millions of U.S. dollars)	North America Commercial P&C Insurance	North America Personal P&C Insurance	Overseas General Insurance	Global Reinsurance	Life Insurance	Corporate	Consolidated
Losses and loss expenses	$ 34	$ 15	$ 11	$ —	$ —	$ —	$ 60
Policy acquisition costs	19	6	12	—	—	—	37
Administrative expenses	91	38	66	1	2	25	223
Net investment income	2	2	—	—	—	1	5
Total	$ 146	$ 61	$ 89	$ 1	$ 2	$ 26	$ 325

Effective income tax rate
Our effective income tax rate, which we calculate as income tax expense divided by income before income tax, is dependent upon the mix of earnings from different jurisdictions with various tax rates. A change in the geographic mix of earnings would change the effective income tax rate.

In 2016, 2015, and 2014, our effective income tax rate was 16.5 percent, 14.0 percent, and 18.2 percent, respectively. The increase in the effective income tax rate in 2016 compared to 2015 was primarily due to realized losses being generated in lower taxing jurisdictions and realized gains being generated in higher taxing jurisdictions in 2016, compared to net realized losses in both higher and lower taxing jurisdictions in 2015. Additionally, a higher percentage of profit excluding realized gains and losses were generated in higher taxing jurisdictions in 2016, largely driven by earnings generated as a result of the Chubb Corp acquisition. The decrease in the effective income tax rate in 2015 compared to 2014 was primarily due to a $115 million change to deferred tax assets in 2014 that resulted from the decline in the book value of certain foreign subsidiaries, related to unrealized foreign exchange losses.

The lower tax rates attributed to our foreign operations primarily reflect the lower corporate tax rates that prevail outside of the U.S. During 2016, approximately 54 percent of our total pre-tax income was tax effected based on these lower rates compared with 69 percent and 66 percent in 2015 and 2014, respectively. The significant lower taxing jurisdictions outside of the U.S. include the U.K., Switzerland, and Bermuda with effective federal income tax rates in those countries of 20.0 percent, 7.83 percent, and 0.0 percent, respectively. In addition, as part of the Chubb Corp acquisition, we have an intercompany loan that decreased our income tax expense by $87 million in 2016.

Prior Period Development

The following table summarizes (favorable) and adverse prior period development (PPD) by segments. Long-tail lines include lines such as workers' compensation, general liability, and professional liability; while short-tail lines include lines such as most property lines, energy, personal accident, aviation, marine (including associated liability-related exposures) and agriculture.

Years Ended December 31 (in millions of U.S. dollars, except for percentages)	Long-tail	Short-tail	Total	% of beginning net unpaid reserves [1]
2016				
North America Commercial P&C Insurance	**$ (650)**	**$ (128)**	**$ (778)**	**1.6%**
North America Personal P&C Insurance	**13**	**14**	**27**	**0.1%**
North America Agricultural Insurance	**—**	**(72)**	**(72)**	**0.2%**
Overseas General Insurance	**(191)**	**(232)**	**(423)**	**0.9%**
Global Reinsurance	**(77)**	**(1)**	**(78)**	**0.2%**
Corporate	**189**	**—**	**189**	**0.4%**
Total	**$ (716)**	**$ (419)**	**$ (1,135)**	**2.4%**
2015				
North America Commercial P&C Insurance	$ (155)	$ (109)	$ (264)	1.0%
North America Personal P&C Insurance	10	15	25	0.1%
North America Agricultural Insurance	—	(45)	(45)	0.1%
Overseas General Insurance	(166)	(177)	(343)	1.3%
Global Reinsurance	(106)	(13)	(119)	0.4%
Corporate	200	—	200	0.7%
Total	$ (217)	$ (329)	$ (546)	2.0%
2014				
North America Commercial P&C Insurance	$ (281)	$ (97)	$ (378)	1.4%
North America Personal P&C Insurance	9	15	24	0.1%
North America Agricultural Insurance	—	34	34	0.1%
Overseas General Insurance	(181)	(210)	(391)	1.5%
Global Reinsurance	(52)	(11)	(63)	0.2%
Corporate	247	—	247	0.9%
Total	$ (258)	$ (269)	$ (527)	2.0%

(1) Calculated based on the beginning of period consolidated net unpaid losses and loss expenses. For 2016, the percent of beginning net unpaid reserves is calculated inclusive of the net unpaid losses and loss expenses acquired in the Chubb Corp acquisition of $21.4 billion.

For a discussion of significant prior period movements by segment, refer to Note 7 to the Consolidated Financial Statements.

Segment Operating Results – Years Ended December 31, 2016 , 2015 , and 2014

Effective the first quarter of 2016, reflecting our significantly larger and expanded operations, subsequent to the Chubb Corp acquisition, we implemented organizational changes that resulted in new business segments. We operate through six business segments: North America Commercial P&C Insurance, North America Personal P&C Insurance, North America Agricultural Insurance, Overseas General Insurance, Global Reinsurance, and Life Insurance. We have also redefined Corporate to include all run-off asbestos and environmental (A&E) exposures, the results of run-off Brandywine business, the results of Westchester specialty operations for 1996 and prior years and certain other run-off exposures. Prior period amounts contained in this report have been adjusted to conform to the new segment presentation.

North America Commercial P&C Insurance

The North America Commercial P&C Insurance segment comprises operations that provide property and casualty (P&C) insurance and services to large, middle market, and small commercial businesses in the U.S., Canada, and Bermuda. This segment includes our North America Major Accounts and Specialty Insurance (principally large corporate accounts and wholesale business), and the North America Commercial Insurance divisions (principally middle market and small commercial accounts).

				% Change	
(in millions of U.S. dollars, except for percentages)	**2016**	2015	2014	2016 vs. 2015	2015 vs. 2014
Net premiums written	**$ 11,740**	$ 5,715	$ 5,685	105.4 %	0.5 %
Net premiums earned	**12,217**	5,634	5,547	116.9 %	1.6 %
Losses and loss expenses	**7,439**	3,661	3,476	103.2 %	5.3 %
Policy acquisition costs	**2,023**	531	518	281.0 %	2.5 %
Administrative expenses	**1,125**	621	599	81.2 %	3.7 %
Underwriting income	**1,630**	821	954	98.5 %	(13.9)%
Net investment income	**1,860**	1,032	1,060	80.2 %	(2.6)%
Other (income) expense	**(2)**	(7)	(12)	(71.4)%	(41.7)%
Segment income	**$ 3,492**	$ 1,860	$ 2,026	87.7 %	(8.2)%
Loss and loss expense ratio	**60.9%**	65.0%	62.6%		
Policy acquisition cost ratio	**16.6%**	9.4%	9.3%		
Administrative expense ratio	**9.2%**	11.0%	10.9%		
Combined ratio	**86.7%**	85.4%	82.8%		

Premiums
2016 vs. 2015
Net premiums written increased $6,025 million in 2016 primarily due to the Chubb Corp acquisition which added about $5.9 billion in premiums to this segment.

On an "As If" basis, net premiums written declined $355 million in 2016, principally reflecting merger-related underwriting actions ($241 million) including the purchase of additional reinsurance which decreased premiums, and lower new business written, driven by competitive market conditions and rate declines, particularly in our property and financial lines. Partially offsetting the decline was growth in our global risk management and workers' compensation lines reflecting new business and strong renewal retention.

Net premiums earned increased $ 6,583 million in 2016 primarily due to the Chubb Corp acquisition which added about $6.5 billion in earned premiums. On an "As If" basis, net premiums earned decreased $59 million primarily due to the same factors driving the decrease in net premiums written as described above, partially offset by the earning in of prior year premium growth.

2015 vs. 2014
Net premiums written increased $30 million in 2015 due to growth in our global risk management and financial lines reflecting solid renewal retention and new business. Our wholesale casualty business grew and our small specialty division grew due to higher new business reflecting increased submission activity and the introduction of new products, as well as strong premium

renewal retention. These increases were partially offset by declines in our property and casualty businesses reflecting a more competitive market and rate decreases. Net premiums written in 2014 were favorably impacted by lower excess of loss premiums ceded under our 2014 catastrophe reinsurance program ($32 million). Foreign exchange adversely impacted growth by $34 million (0.6 percentage points).

Net premiums earned increased $87 million in 2015 primarily due to the increase in net premiums written as described above.

Combined Ratio
The following table presents the pre-tax catastrophe losses and pre-tax favorable prior period development:

			As If				
(in millions of U.S. dollars)		**2016**		2015		2015	2014
Catastrophe losses, pre-tax	**$**	**448**	$	268	$	85	$ 93
Favorable prior period development, pre-tax	**$**	**778**	$	783	$	264	$ 378

Catastrophe losses were primarily from the following events:
- 2016: severe weather-related events in the U.S., including Hurricane Matthew, and a wildfire in Canada
- 2015: severe-weather related events in the U.S., a Mexican hurricane, and civil unrest in Baltimore, Maryland
- 2014: severe weather-related events in the U.S, Bermuda, and Australia, as well as a hurricane in Mexico

The following table presents the impact of catastrophe losses and related reinstatement premiums and prior period reserve development on our loss and loss expense ratio:

	2016	2015	2014
Loss and loss expense ratio	**60.9 %**	65.0 %	62.6 %
Catastrophe losses and related reinstatement premiums	**(3.7)%**	(1.5)%	(1.6)%
Prior period development	**6.5 %**	4.7 %	6.9 %
Loss and loss expense ratio, adjusted	**63.7 %**	68.2 %	67.9 %

2016 vs. 2015
The adjusted loss and loss expense ratio decreased 4.5 percentage points in 2016, primarily due to the addition of the Chubb Corp business, which experienced a lower loss ratio. On an "As If" basis, the adjusted loss and loss expense ratio increased 0.8 percentage points in 2016, primarily due to lower non-catastrophe losses in the prior year, partially offset by integration related claims handling expense savings realized of $34 million (0.3 percentage points).

The policy acquisition cost ratio increased 7.2 percentage points in 2016, primarily due to the addition of the Chubb Corp business which carried a higher acquisition cost ratio and due to the normal impact of initial year purchase accounting adjustments related to the Chubb Corp acquisition. In addition, during 2016, we determined that certain underwriting costs that are directly attributable to the successful acquisition of business previously classified as administrative expenses were more appropriately classified as policy acquisition costs. Excluding these items, the policy acquisition cost ratio decreased 0.4 percentage points in 2016, primarily due to integration related savings realized.

The normal impact of initial year purchase accounting adjustments related to the Chubb Corp acquisition includes a fair value adjustment for the unearned premiums at the date of the purchase. This adjustment is then amortized into policy acquisition costs. Partially offsetting this is a favorable impact related to the recognition of the acquired unearned premiums without having to recognize the associated policy acquisition costs. The net impact of these purchase accounting adjustments was an increase to policy acquisition costs of $130 million (1.1 percentage points) in 2016, which will not recur in 2017. In addition, the reclassification described above resulted in a $129 million (1.1 percentage points of the ratio) increase to policy acquisition costs in 2016 with an offsetting decrease to administrative expenses.

On an "As If" basis, which excludes purchase accounting adjustments, the policy acquisition cost ratio decreased 0.4 percentage points in 2016, primarily due to integration related savings realized as described above.

The administrative expense ratio decreased 1.8 percentage points in 2016 due to the $129 million reclassification noted above which decreased the administrative expense ratio by 1.1 percentage points, and the inclusion of the Chubb Corp businesses which carried a lower administrative expense ratio, partially offset by increased spending to support growth.

On an "As If" basis, the administrative expense ratio decreased 0.2 percentage points in 2016, as cost savings realized of $91 million (0.7 percentage points) were partially offset by increased spending to support growth.

2015 vs. 2014
The adjusted loss and loss expense ratio increased 0.3 percentage points in 2015 primarily due to lower excess of loss premiums ceded in the prior year from the 2014 catastrophe reinsurance program.

The policy acquisition ratio and the administrative expense ratio both remained relatively flat in 2015.

North America Personal P&C Insurance

The North America Personal P&C Insurance segment is the business written by the North America Personal Risk Services, which comprises Chubb high net worth personal lines business and ACE Private Risk Services, which includes operations in the U.S. and Canada.

							% Change	
(in millions of U.S. dollars, except for percentages)		**2016**		2015		2014	2016 vs. 2015	2015 vs. 2014
Net premiums written	**$**	**4,153**	$	1,192	$	578	248.4 %	106.4 %
Net premiums earned		**4,319**		948		560	355.5 %	69.2 %
Losses and loss expenses		**2,558**		590		368	333.6 %	60.3 %
Policy acquisition costs		**966**		69		116	NM	(40.5)%
Administrative expenses		**363**		123		74	195.1 %	66.2 %
Underwriting income		**432**		166		2	160.2 %	NM
Net investment income		**207**		25		22	NM	13.6 %
Other (income) expense		**6**		2		1	200.0 %	100.0 %
Amortization of purchased intangibles		**19**		78		—	(75.6)%	NM
Segment income	**$**	**614**	$	111	$	23	453.2 %	382.6 %
Loss and loss expense ratio		**59.2%**		62.3%		65.7%		
Policy acquisition cost ratio		**22.4%**		7.3%		20.8%		
Administrative expense ratio		**8.4%**		13.0%		13.2%		
Combined ratio		**90.0%**		82.6%		99.7%		

NM – not meaningful

Premiums
2016 vs. 2015
Net premiums written increased $ 2,961 million in 2016, primarily due to the Chubb Corp acquisition which added about $3.3 billion in premiums to this segment.

On an "As If" basis, net premiums written decreased $509 million due to the purchase of additional reinsurance in 2016 ($273 million), primarily for our homeowners and large limit valuable articles business written in the northeast United States. In addition, we experienced a decline in our Fireman's Fund high net worth personal lines business in 2016 ($298 million) primarily reflecting a benefit in the prior year from a non-recurring unearned premium reserves (UPR) transfer ($252 million), and the conversion to Chubb legal entities in the current year. Excluding these items, net premiums written were up 1.3 percent in 2016, due to growth in our Chubb high net worth business, primarily within our homeowner lines, driven by strong renewal premium retention, rate and exposure increases.

Net premiums earned increased $3,371 million in 2016 primarily due to the Chubb Corp acquisition. On an "As If" basis, net premiums earned decreased slightly in 2016.

2015 vs. 2014
Net premiums written increased $614 million in 2015 primarily due to the Fireman's Fund acquisition which added $561 million to premiums (including a non-recurring UPR transfer of $252 million recognized as written premiums at the acquisition date). Excluding the Fireman's Fund acquisition, net premiums written increased 9.1 percent. Underwriting income in 2015 included a benefit of $100 million related to the initial UPR transfer as unearned premiums at the date of the transfer are

recognized over the remaining coverage period with no associated expense for the historical acquisition costs as these historical acquisition costs are eliminated in purchase accounting.

Net premiums earned increased $388 million in 2015 primarily due to the factors driving the increase in net premiums written as described above.

Combined Ratio
The following table presents the pre-tax catastrophe losses and pre-tax favorable prior period development:

(in millions of U.S. dollars)	2016	As if 2015	2015	2014
Catastrophe losses, pre-tax	**$ 326**	$ 383	$ 63	$ 39
Favorable (unfavorable) prior period development, pre-tax	**$ (27)**	$ 18	$ (25)	$ (24)

Catastrophe losses were primarily from the following events:
- 2016: severe weather-related events in the U.S., including Hurricane Matthew
- 2015: severe weather-related events in the U.S., including the California wildfires
- 2014: severe weather-related events in the U.S.

The following table presents the impact of catastrophe losses and related reinstatement premiums and prior period reserve development on our loss and loss expense ratio:

	2016	2015	2014
Loss and loss expense ratio	**59.2 %**	62.3 %	65.7 %
Catastrophe losses and related reinstatement premiums	**(7.5)%**	(6.7)%	(7.0)%
Prior period development	**(0.7)%**	(2.7)%	(4.2)%
Loss and loss expense ratio, adjusted	**51.0 %**	52.9 %	54.5 %

2016 vs. 2015
The adjusted loss and loss expense ratio decreased 1.9 percentage points in 2016 primarily due to the addition of the Chubb Corp business, which experienced a lower loss ratio. On an "As If" basis, the adjusted loss and loss expense ratio decreased 0.8 percentage points reflecting lower non-catastrophe weather related losses and integration related claims handling expense savings of $15 million (0.3 percentage points).

The policy acquisition cost ratio increased 15.1 percentage points in 2016, primarily due to the net unfavorable impact of purchase accounting adjustments (12.5 percentage points) related to the Chubb Corp acquisition in the current year, which will not recur in 2017, and the Fireman's Fund acquisition in the prior year and due to the addition of the Chubb Corp business which carried a higher acquisition cost ratio (2.7 percentage points).

On an "As If" basis, which excludes purchase accounting adjustments related to the Chubb Corp acquisition, the policy acquisition cost ratio increased 0.9 percentage points in 2016, primarily due to our Fireman's Fund acquisition in the prior year which favorably impacted the prior year policy acquisition cost ratio by $100 million (2.2 percentage points). This increase was partially offset by the favorable impact of the ceded commission benefits related to the additional reinsurance purchased in 2016.

The administrative expense ratio decreased 4.6 percentage points in 2016, primarily due to the Chubb Corp acquisition which carried a lower administrative expense ratio.

On an "As If" basis, the administrative expense ratio remained flat as cost savings realized as a result of the Chubb Corp acquisition of $38 million (0.9 percentage points) were offset by increased spending to support growth.

2015 vs. 2014
The adjusted loss and loss expense ratio decreased 1.6 percentage points in 2015 reflecting the favorable impact of the acquisition of Fireman's Fund personal lines business which carries a lower loss ratio. Excluding the impact of the acquisition, the adjusted loss and loss expense ratio increased 0.3 percentage points .

The policy acquisition cost ratio decreased 13.5 percentage points in 2015 primarily due to the impact of normal initial year purchase accounting adjustments related to our Fireman's Fund acquisition. The administrative expense ratio decreased slightly in 2015.

North America Agricultural Insurance

The North America Agricultural Insurance segment comprises our North American based businesses that provide a variety of coverages in the U.S. and Canada including crop insurance, primarily Multiple Peril Crop Insurance (MPCI) and crop-hail through Rain and Hail Insurance Service, Inc. (Rain and Hail) as well as farm and ranch and specialty P&C commercial insurance products and services through our Chubb Agribusiness unit.

				% Change	
(in millions of U.S. dollars, except for percentages)	**2016**	2015	2014	2016 vs. 2015	2015 vs. 2014
Net premiums written	**$ 1,328**	$ 1,346	$ 1,590	(1.3)%	(15.3)%
Net premiums earned	**1,316**	1,364	1,526	(3.6)%	(10.6)%
Losses and loss expenses [(1)]	**898**	1,097	1,300	(18.1)%	(15.6)%
Policy acquisition costs	**83**	69	81	20.3 %	(14.8)%
Administrative expenses	**(6)**	1	9	NM	(88.9)%
Underwriting income	**341**	197	136	73.1%	44.9%
Net investment income	**20**	23	26	(13.0)%	(11.5)%
Other (income) expense	**1**	1	2	—	(50.0)%
Amortization of purchased intangibles	**29**	30	31	(3.3)%	(3.2)%
Segment income	**$ 331**	$ 189	$ 129	75.1 %	46.5 %
Loss and loss expense ratio	**68.3 %**	80.4%	85.2%		
Policy acquisition cost ratio	**6.3 %**	5.1%	5.3%		
Administrative expense ratio	**(0.5)%**	—%	0.6%		
Combined ratio	**74.1 %**	85.5%	91.1%		

NM – not meaningful

(1) Gains (losses) on crop derivatives were $ (5) million , $(9) million, and $51 million in 2016, 2015, and 2014, respectively. These gains (losses) are included in Net realized gains (losses) in our Consolidated statements of operations but are reclassified to Losses and loss expenses for purposes of presenting North America Agricultural Insurance underwriting income.

Premiums

2016 vs 2015

Net premiums written decreased $18 million in 2016 primarily due to the revision to the 2016 crop year margin estimate related to the MPCI program, which resulted in lower premium retention under the premium sharing formula with the U.S. government. Under the government's crop insurance profit and loss calculation formulas, we retained less premiums in 2016 as losses were lower compared to 2015. This decrease was partially offset by lower cessions under existing third-party proportional reinsurance programs.

Net premiums earned decreased $48 million in 2016 primarily due to the same factors driving the decrease in net premiums written as described above.

Underwriting income increased $144 million primarily due to the favorable revision to the 2016 crop year margin estimate reflecting a combination of better than average yields and less than expected movement in price between base price and harvest price this year.

2015 vs 2014

Net premiums written decreased $244 million in 2015 primarily due to lower commodity base prices used to price the 2015 MPCI policies and lower premium retention as a result of the premium-sharing formulas with the U.S. government. Under the government's crop insurance profit and loss calculation formulas, we retained more premiums in 2014 as losses were higher compared to 2015.

Net premiums earned decreased $162 million in 2015 primarily due to the same factors driving the decrease in net premiums written as described above.

Combined Ratio
The following table presents the pre-tax catastrophe losses and pre-tax favorable prior period development:

(in millions of U.S. dollars)		**2016**		2015		2014
Catastrophe losses, pre-tax	**$**	**19**	$	9	$	13
Favorable (unfavorable) prior period development, pre-tax	**$**	**72**	$	45	$	(34)

Catastrophe losses in 2016, 2015, and 2014 were primarily from our farm, ranch and specialty P&C business. Net favorable (unfavorable) prior period development was $72 million, $45 million, and $(34) million in 2016, 2015, and 2014, respectively. For 2016, the prior period development amount included $99 million of favorable incurred losses due to lower than expected MPCI losses for the 2015 crop year, partially offset by $52 million of unfavorable decrease in net premiums earned related to the government's crop insurance profit and loss calculation formulas. Also included in prior period development, but not impacting the loss and loss expense ratio was a $12 million favorable benefit of ceded profit share commissions earned from third-party reinsurers. For 2015, the prior period development amount included a decrease in incurred losses of $42 million for lower than expected MPCI losses for the 2014 crop year, partially offset by a $6 million decrease in net premiums earned related to the government's crop insurance profit and loss calculation formula. For 2014, the amount includes an increase in incurred losses of $64 million for higher than expected MPCI losses for the 2013 crop year, as well as $26 million of favorable increase in net premiums earned related to the government's crop insurance profit and loss calculation formula.

The following table presents the impact of catastrophe losses and related reinstatement premiums and prior period reserve development on our loss and loss expense ratio:

	2016	2015	2014
Loss and loss expense ratio	**68.3 %**	80.4 %	85.2 %
Catastrophe losses and related reinstatement premiums	**(1.5)%**	(0.7)%	(0.8)%
Prior period development	**5.6 %**	3.1 %	(2.6)%
Loss and loss expense ratio, adjusted	**72.4 %**	82.8 %	81.8 %

2016 vs 2015
T he adjusted loss and loss expense ratio decreased 10.4 percentage points in 20 16 reflecting the revision to the 2016 crop year margin estimate as discussed above.

The policy acquisition cost ratio increased 1 .2 percentage point in 2016, primarily due to the reduction in net premiums earned related to the government's crop insurance profit and loss calculation formula this year of $202 million, compared to a reduction of $30 million in the prior year. Excluding the impact of these reductions in net premiums earned, the policy acquisition ratio increased over prior year by 0.4 percentage points, primarily due to higher agent profit sharing commissions in the current year. In addition, during 2016, we determined that certain underwriting costs that are directly attributable to the successful acquisition of business previously classified as administrative expenses were more appropriately classified as policy acquisition costs. This resulted in a $2 million (0.2 percentage points) increase to policy acquisition costs, with an offsetting decrease to administrative expenses in 2016.

The administrative expense ratio decreased 0.5 percentage points in 2016 primarily due to higher Administrative and Operating (A&O) reimbursements on the MPCI business and the reclassification as noted above.

2015 vs 2014
The adjusted loss and loss expense ratio increased 1.0 percentage point in 2015 principally due to relatively flat unallocated loss adjustment expenses with lower earned premiums.

The policy acquisition cost ratio decreased 0.2 percentage points in 2015 primarily due to higher cede commission on third-party reinsurance and lower agent profit sharing commission.

The administrative expense ratio decreased 0.6 percentage points in 2015 primarily due to higher A&O reimbursements on the MPCI business.

Overseas General Insurance

Overseas General Insurance segment comprises Chubb International and Chubb Global Markets (CGM). Chubb International comprises our commercial P&C traditional and specialty lines serving large corporations, middle market and small customers, A&H and traditional and specialty personal lines business serving local territories outside the U.S., Bermuda, and Canada. CGM, our London-based international commercial P&C excess and surplus lines business, includes Lloyd's of London (Lloyd's) Syndicate 2488. Chubb provides funds at Lloyd's to support underwriting by Syndicate 2488 which is managed by ACE Underwriting Agencies Limited. The reinsurance operations of CGM are included in the Global Reinsurance segment.

				% Change	
(in millions of U.S. dollars, except for percentages)	**2016**	2015	2014	2016 vs. 2015	2015 vs. 2014
Net premiums written (1)	**$ 8,124**	$ 6,634	$ 6,999	22.5 %	(5.2)%
Net premiums earned	**8,132**	6,471	6,805	25.7 %	(4.9)%
Losses and loss expenses	**4,005**	3,052	3,189	31.2 %	(4.3)%
Policy acquisition costs	**2,136**	1,581	1,625	35.1 %	(2.7)%
Administrative expenses	**1,057**	997	1,026	6.0 %	(2.8)%
Underwriting income (2)	**934**	841	965	11.1 %	(12.8)%
Net investment income	**600**	534	545	12.4 %	(2.0)%
Other (income) expense	**(11)**	(17)	(18)	(35.3)%	(5.6)%
Amortization of purchased intangibles	**48**	61	74	(21.3)%	(17.6)%
Segment income	**$ 1,497**	$ 1,331	$ 1,454	12.5 %	(8.5)%
Loss and loss expense ratio	**49.3%**	47.2%	46.9%		
Policy acquisition cost ratio	**26.3%**	24.4%	23.9%		
Administrative expense ratio	**12.9%**	15.4%	15.0%		
Combined ratio	**88.5%**	87.0%	85.8%		

(1) For the years ended December 31, 2016 and 2015, net premiums written increased $1,792 million or 28.3 percent, and $441 million, or 7.1 percent, respectively, on a constant-dollar basis. Amounts are calculated by translating prior period results using the same local currency rates as the comparable current period.

(2) For the years ended December 31, 2016 and 2015, underwriting income increased $115 million or 14.1 percent and decreased $22 million or 2.5 percent, respectively, on a constant-dollar basis. Amounts are calculated by translating prior period results using the same local currency rates as the comparable current period

Premiums

2016 vs. 2015

Net premiums written increased $1,490 million in 2016 , primarily due to the impact of the Chubb Corp acquisition, which added about $1.5 billion of growth in premiums. This increase was partially offset by the adverse impact of foreign exchange which decreased premiums by $302 million in 2016 .

In 2016 , net premiums written increased $95 million, on a constant-dollar "As If" basis, primarily driven by growth in personal lines, property and casualty lines (P&C), and A&H lines, partially offset by declines in our business written by Chubb Global Markets. Personal lines and P&C growth was primarily in Europe and Asia. Growth in personal lines was negatively impacted by our decision to exit the legacy Chubb Brazilian high net worth automobile business due to competitive market conditions. Growth in P&C was partially offset by declines in Latin America, reflecting economic conditions. A&H lines growth was driven by new business written, primarily in Latin America and Asia. Additionally, growth was partially offset by merger-related underwriting actions ($119 million), including the purchase of additional reinsurance.

Net premiums earned increased $1,661 million in 2016 , and increased $81 million on a constant-dollar "As If" basis, primarily due to the same factors driving the movements in net premiums written as described above.

2015 vs. 2014

In 2015, net premiums written decreased $365 million, primarily reflecting the adverse impact of foreign exchange which reduced growth by $807 million. On a constant-dollar basis, net premiums written increased 7.1 percent in 2015, reflecting organic growth across most operations. Growth in our retail operations for personal and P&C product lines was from new business writings. Included in the increase in net premiums written were contributions from the acquisitions of Itaú Seguros in October 2014 and Samaggi in April 2014 which added $273 million of premiums.

Net premiums earned decreased $334 million in 2015, primarily reflecting the adverse impact of foreign exchange. Net premiums earned increased in 2015 on a constant-dollar basis, due to the same factors driving the increase in net premiums written as described above.

Overseas General Insurance conducts business internationally and in most major foreign currencies. The following table presents a regional breakdown of Overseas General Insurance net premiums written:

(in millions of U.S. dollars, except for percentages)	2016	2015	2014	C$ (1) 2015	% Change 2016 vs. 2015	% Change C$ (1) 2016 vs. 2015	% Change 2015 vs. 2014
Region							
Europe	$ 3,227	$ 2,508	$ 2,837	$ 2,406	28.7%	34.1%	(11.6)%
Latin America	1,992	1,767	1,780	1,593	12.7%	25.0%	(0.7)%
Asia	2,537	1,963	1,959	1,961	29.2%	29.4%	0.2 %
Other (2)	368	396	423	372	(7.1)%	(1.1)%	(6.4)%
Net premiums written	$ 8,124	$ 6,634	$ 6,999	$ 6,332	22.5%	28.3%	(5.2)%

	2016 % of Total	2015 % of Total	2014 % of Total
Region			
Europe	40%	38%	41%
Latin America	25%	27%	25%
Asia	31%	30%	28%
Other (2)	4%	5%	6%
Net premiums written	100%	100%	100%

(1) On a constant-dollar basis. Amounts are calculated by translating prior period results using the same local currency rates as the comparable current period.
(2) Comprises Combined International, Eurasia and Africa region, and other international.

Combined Ratio
The following table presents the pre-tax catastrophe losses and pre-tax favorable prior period development:

(in millions of U.S. dollars)	2016	As If 2015	2015	2014
Catastrophe losses, pre-tax	$ 183	$ 162	$ 142	$ 112
Favorable prior period development, pre-tax	$ 423	$ 477	$ 343	$ 391

Catastrophe losses were primarily from the following events:
- 2016 : severe weather related events in Europe, earthquakes in Ecuador and New Zealand, and flooding in the U.K.
- 2015: a chemical storage facility explosion in Tianjin, China, a hailstorm in Australia, flooding and an earthquake in Chile, and severe storms in the U.K. and Asia
- 2014: flooding in Europe, severe storms in Japan, a hurricane in Mexico, and a hailstorm in Australia

The following table presents the impact of catastrophe losses and related reinstatement premiums and prior period reserve development on our loss and loss expense ratio:

	2016	2015	2014
Loss and loss expense ratio	49.3 %	47.2 %	46.9 %
Catastrophe losses and related reinstatement premiums	(2.3)%	(2.2)%	(1.6)%
Prior period development	5.2 %	5.3 %	5.7 %
Loss and loss expense ratio, adjusted	52.2 %	50.3 %	51.0 %

2016 vs. 2015
The adjusted loss and loss expense ratio increased 1.9 percentage points in 2016 , primarily due to the Chubb Corp acquisition which experienced a higher loss ratio.

On an "As If" basis, the adjusted loss and loss expense ratio increased 0.5 percentage points in 2016 , primarily due to a lower level of short-tail large losses in the prior year.

The policy acquisition cost ratio increased 1.9 percentage points in 2016 , primarily because we determined that certain underwriting costs that are directly attributable to the successful acquisition of business previously classified as administrative expenses were more appropriately classified as policy acquisition costs. This resulted in a $144 million (1.8 percentage points) increase to policy acquisition costs, with an offsetting decrease to administrative expenses in 2016 .

On an "As If" basis, which excludes purchase accounting adjustments related to the Chubb Corp acquisition, the policy acquisition cost ratio increased 0.8 percentage points in 2016 , due to a shift in the mix of business away from E&S lines, which carry a lower acquisition cost ratio, towards more personal lines products which carry a higher acquisition cost ratio.

The administrative expense ratio decreased 2.5 percentage points in 2016 , due to the $144 million (1.8 percentage points) reclassification noted above, and cost savings realized as a result of the Chubb Corp acquisition of $66 million (0.8 percentage points).

On an "As If" basis, the administrative expense ratio decreased 1.0 percentage points in 2016 , primarily due to cost savings realized as a result of the Chubb Corp acquisition as noted above.

2015 vs. 2014
The adjusted loss and loss expense ratio decreased 0.7 percentage points in 2015 due to lower non-catastrophe large losses.

The policy acquisition ratio increased 0.5 percentage points in 2015, primarily due to lower ceded commission benefits as a result of the non-renewal of an A&H external quota share treaty, (0.3 percentage points), as well as less favorable normal initial year purchase accounting adjustments than in 2014 (0.3 percentage points).

The administrative expense ratio increased 0.4 percentage points in 2015 primarily due to a higher proportion of expenses incurred in U.S. dollars compared to premiums earned in foreign currencies as well as integration expenses related to our Itaú Seguros acquisition.

Global Reinsurance

The Global Reinsurance segment represents our reinsurance operations comprising Chubb Tempest Re Bermuda, Chubb Tempest Re USA, Chubb Tempest Re International, and Chubb Tempest Re Canada. Global Reinsurance markets its reinsurance products worldwide under the Chubb Tempest Re brand name and provides a broad range of traditional reinsurance coverage to a diverse array of primary P&C companies.

(in millions of U.S. dollars, except for percentages)	2016	2015	2014	% Change 2016 vs. 2015	% Change 2015 vs. 2014
Net premiums written	**$ 676**	$ 828	$ 935	(18.4)%	(11.4)%
Net premiums earned	**710**	849	1,026	(16.5)%	(17.2)%
Losses and loss expenses	**325**	290	431	12.1 %	(32.7)%
Policy acquisition costs	**187**	214	257	(12.6)%	(16.7)%
Administrative expenses	**52**	49	54	6.1 %	(9.3)%
Underwriting income	**146**	296	284	(50.7)%	4.2 %
Net investment income	**263**	300	316	(12.3)%	(5.1)%
Other (income) expense	**(4)**	(6)	(4)	(33.3)%	50.0 %
Segment income	**$ 413**	$ 602	$ 604	(31.4)%	(0.3)%
Loss and loss expense ratio	**45.7%**	34.2%	42.0%		
Policy acquisition cost ratio	**26.3%**	25.2%	25.0%		
Administrative expense ratio	**7.5%**	5.8%	5.3%		
Combined ratio	**79.5%**	65.2%	72.3%		

Premiums

2016 vs. 2015

Net premiums written decreased $ 152 million in 2016 as we maintained underwriting discipline in an environment of declining rates and increasing competition. In addition, the decline in premiums reflects increased cessions of $17 million due to the purchase of additional property catastrophe reinsurance in 2016. On an "As If" basis, net premiums written declined $ 161 million in 2016 due to the same factors as described above.

Net premiums earned decreased $ 139 million in 2016 and $ 165 million on an "As If" basis, primarily due to the same factors driving the decrease in net premiums written as described above.

2015 vs. 2014

Net premiums written decreased $ 107 million in 2015 as we maintained underwriting discipline in an environment of flat to declining rates and increasing competition. The decline was partially offset by new business written, primarily in our U.S. automobile business.

Net premiums earned decreased $ 177 million in 2015 due to the same factors driving the decrease in net premiums written as described above and from the adverse impact of the non-renewal of a workers' compensation treaty in the third quarter of 2014, which resulted in a $39 million decrease in net premiums earned in 2015.

Combined Ratio

The following table presents pre-tax catastrophe losses, excluding reinstatement premiums, and pre-tax favorable prior period development, net of related reinstatement premiums:

(in millions of U.S dollars)		**2016**		As If 2015		2015		2014
Catastrophe losses, pre-tax	**$**	**91**	$	26	$	22	$	34
Favorable prior period development and related reinstatement premiums, pre-tax	**$**	**78**	$	138	$	119	$	63

Catastrophe losses were primarily from the following events:

- 2016 : Fort McMurray wildfire, Hurricane Matthew, and severe weather-related events in Europe, the U.S. and Canada
- 2015 : severe weather-related events in the U.S.
- 2014 : severe storms in Japan, European hailstorms, and severe weather-related events in the U.S.

The following table presents the impact of catastrophe losses and related reinstatement premiums and prior period reserve development and related reinstatement premiums on our loss and loss expense ratio:

		2016		2015		2014
Loss and loss expense ratio, as reported		**45.7 %**		34.2 %		42.0 %
Catastrophe losses and related reinstatement premiums (1)		**(12.5)%**		(2.6)%		(3.2)%
Prior period development and related reinstatement premiums (2)		**11.8 %**		14.3 %		6.7 %
Loss and loss expense ratio, adjusted		**45.0 %**		45.9 %		45.5 %
(1) Catastrophe reinstatement premiums collected - pre-tax	**$**	**7**	**$**	**1**	**$**	**3**
(2) Reinstatement premiums expensed on prior period development - pre-tax	**$**	**5**	**$**	**4**	**$**	**10**

2016 vs. 2015

The adjusted loss and loss expense ratio decreased 0.9 percentage points in 2016 primarily due to a change in the mix of business towards products that have a lower loss ratio. On an "As If" basis, the adjusted loss and loss expense ratio decreased 1.7 percentage points in 2016 due to the change in the mix of business as described above.

The policy acquisition cost ratio increased 1.1 percentage points in 2016 primarily due to a change in the mix of business towards regions and products that have higher acquisition cost ratios, partially offset by the impact of the Chubb Corp acquisition which carries a lower acquisition cost ratio. On an "As If" basis, the policy acquisition cost ratio increased 1.9 percentage points in 2016 , primarily due to the change in the mix of business as described above.

The administrative expense ratio increased 1.7 percentage points in 2016 primarily due to decreases in net premiums earned and the inclusion of the Chubb Corp business. On an "As If" basis, the administrative expense ratio increased 1.2 percentage points in 2016 primarily due to decreases in net premiums earned outpacing the decline in administrative expenses.

2015 vs. 2014

The adjusted loss and loss expense ratio increased 0.4 percentage points in 2015 primarily due to a change in the mix of business towards products that have a higher loss ratio, offset by the non-renewal of a workers' compensation treaty in 2014 , which had a higher loss ratio.

The policy acquisition cost ratio increased 0.2 percentage points in 2015 due to the non-renewal of the workers' compensation treaty in 2014 , noted above, which incurred no acquisition costs.

The administrative expense ratio increased 0.5 percentage points in 2015 primarily from lower net premiums earned including the non-renewal of the workers' compensation treaty noted above, which did not generate any administrative expenses, partially offset by lower administrative expenses incurred in 2015 .

Life Insurance

The Life Insurance segment comprises Chubb's international life operations (Chubb Life), Chubb Tempest Life Re (Chubb Life Re), and the North American supplemental A&H and life business of Combined Insurance. We assess the performance of our life business based on Life Insurance underwriting income, which includes Net investment income and (Gains) losses from fair value changes in separate account assets that do not qualify for separate account reporting under GAAP.

(in millions of U.S. dollars, except for percentages)	2016	2015	2014	% Change 2016 vs. 2015	% Change 2015 vs. 2014
Net premiums written	$ 2,124	$ 1,998	$ 2,012	6.3 %	(0.7)%
Net premiums earned	2,055	1,947	1,962	5.6 %	(0.8)%
Losses and loss expenses	663	601	589	10.3 %	2.0 %
Policy benefits [1]	588	543	517	8.3 %	5.0 %
(Gains) losses from fair value changes in separate account assets [1]	(11)	19	(2)	NM	NM
Policy acquisition costs	509	476	478	6.9 %	(0.4)%
Administrative expenses	307	291	285	5.5 %	2.1 %
Net investment income	283	265	268	6.8 %	(1.1)%
Life Insurance underwriting income	282	282	363	—	(22.3)%
Other (income) expense [1]	16	4	5	300.0 %	(20.0)%
Amortization of purchased intangibles	3	2	3	50.0 %	(33.3)%
Segment income	$ 263	$ 276	$ 355	(4.7)%	(22.3)%

NM – not meaningful

(1) (Gains) losses from fair value changes in separate account assets that do not qualify for separate account reporting under GAAP have been reclassified from Other income (expense) for purposes of presenting Life Insurance underwriting income. The offsetting movement in the separate account liabilities is included in Policy benefits.

Premiums

2016 vs. 2015

Net premiums written increased $ 126 million in 2016 , primarily reflecting the impact of the Chubb Corp acquisition, which added $ 64 million of growth to premiums. In addition, growth in our international life operations, primarily in Asia, and in our Combined Insurance supplemental A&H program business contributed to the increase. The adverse effect of foreign exchange impacted growth in net premiums written by $ 41 million in 2016 . Our life reinsurance business continues to decline as there is no new life reinsurance business currently being written. On an "As If" basis, net premiums written increased $ 32 million in 2016 due to the same factors as described above.

2015 vs. 2014

Net premiums written decreased slightly in 2015 reflecting the adverse impact of foreign exchange of $84 million. On a constant dollar basis, net premiums written increased reflecting growth in our Combined Insurance supplement A&H program business and in our international life operations, primarily in Asia. Our life reinsurance business continued to decline as there is no new life reinsurance business currently being written.

Deposits

The following table presents deposits collected on universal life and investment contracts:

(in millions of U.S. dollars, except for percentages)	2016	2015	2014	% Change 2016 vs. 2015	% Change C$ [1] 2016 vs. 2015	% Change 2015 vs. 2014
Deposits collected on universal life and investment contracts	$ 1,006	$ 1,015	$ 997	(0.9)%	0.9%	1.8%

(1) On a constant-dollar basis. Amounts are calculated by translating prior period results using the same local currency rates as the comparable current period.

Deposits collected on universal life and investment contracts (life deposits) are not reflected as revenues in our Consolidated statements of operations in accordance with GAAP. New life deposits are an important component of production, and although they do not significantly affect current period income from operations they are key to our efforts to grow our business. Life deposits collected decreased slightly in 2016 due to a decline in Korea, partially offset by growth in other Asian markets, primarily in Hong Kong, Vietnam, and Taiwan. Foreign exchange adversely impacted growth by $ 18 million in 2016 .

Life Insurance underwriting income and Other (income) expense

Life Insurance underwriting income remained flat in 2016 compared to 2015 as an increase in the long-term benefit ratio in our variable annuity reinsurance business, which adversely impacted underwriting income by $17 million, was offset by unfavorable loss reserve development in the prior year in our Combined Insurance supplemental A&H program business.

Life Insurance underwriting income decreased in 2015 primarily due to the unfavorable loss reserve development noted above compared to favorable reserve development in 2014. Additionally, 2014 was favorably impacted by a one-time adjustment to certain life products in Asia.

Other expense of $ 16 million in 2016 was related primarily to our share of net losses from our partially-owned life insurance entities. Refer to the Other Income and Expense Items section for further information.

Corporate

Corporate results primarily include the results of our non-insurance companies, income and expenses not attributable to reportable segments and loss and loss expenses of asbestos and environmental (A&E) liabilities and certain other run-off exposures.

Our exposure to A&E claims principally arises out of liabilities acquired when we purchased Westchester Specialty in 1998, CIGNA's P&C business in 1999, and legacy Chubb Corp A&E claims in 2016. Corporate staff expenses and net investment income of Chubb Limited, including the amortization of the fair value adjustment on acquired invested assets and debt, interest expense, amortization of purchased intangibles related to the Chubb Corp acquisition, Chubb integration expenses and other merger related expenses, the one-time pension curtailment benefit related to the harmonization of our U.S. pension plans, and the results of Chubb Group Management and Holdings Ltd, and Chubb INA Holdings Inc. are reported within Corporate.

				% Change	
(in millions of U.S. dollars, except for percentages)	**2016**	2015	2014	2016 vs. 2015	2015 vs. 2014
Losses and loss expenses [(1)]	**$ 169**	$ 202	$ 245	(16.3)%	(17.6)%
Policy acquisition costs	**—**	1	—	NM	NM
Administrative expenses	**183**	188	198	(2.7)%	(5.1)%
Underwriting loss	**352**	391	443	(10.0)%	(11.7)%
Net investment income (loss)	**(368)**	15	15	NM	—
Interest expense	**605**	300	280	101.7 %	7.1 %
Adjusted net realized gains (losses)	**(140)**	(411)	(558)	(65.9)%	(26.3)%
Other (income) expense	**(217)**	(47)	(162)	361.7 %	(71.0)%
Amortization expense (benefit) of purchased intangibles	**(80)**	—	—	NM	—
Chubb integration expenses	**492**	33	—	NM	NM
Income tax expense	**815**	462	634	76.4 %	(27.1)%
Net corporate loss	**$ (2,475)**	$ (1,535)	$ (1,738)	61.2 %	(11.7)%
(1) Losses and loss expenses - As If basis	**$ 169**	$ 293		(42.3)%	

NM – not meaningful

Losses and loss expenses in 2016, 2015, and 2014 were primarily due to unfavorable prior period development related to Brandywine asbestos and environmental exposures, as well as unallocated loss adjustment expenses of the A&E claim operations. Refer to Note 7 of the Consolidated Financial Statements for further information. Additionally, during the fourth quarter of 2016, we amended several of our U.S. retirement programs as part of a harmonization effort that moves us toward a more unified retirement savings approach. This resulted in a one-time pension curtailment benefit of $113 million , $ 23 million of which was related to claims staff and was therefore recorded in losses and loss expenses. Refer to Note 13 to the Consolidated Financial Statements for further discussion of the pension curtailment.

Administrative expenses decreased $ 5 million in 2016 primarily due to the one-time pension curtailment benefit discussed above, of which $90 million was recorded in administrative expenses, partially offset by the addition of Chubb Corp expenses from the Chubb Corp acquisition. On an "As If" basis, administrative expenses decreased $ 131 million, primarily due to the one-time pension curtailment benefit and cost savings of $25 million realized as a result of the Chubb Corp acquisition. Administrative expenses decreased slightly in 2015 .

Net investment income for the year ended December 31, 2016 included amortization of $393 million related to the fair value adjustment on invested assets related to the Chubb Corp acquisition. Excluding the fair value adjustment amortization, net investment income increased by $10 million in 2016 . Net investment income remained flat in 2015 compared to 2014 . Refer to the Net Investment Income section for a discussion on consolidated Net investment income.

Interest expense increased $ 305 million in 2016 primarily driven by the $5.3 billion senior notes issued in November 2015, as well as the $3.3 billion par value of debt assumed in connection with the Chubb Corp acquisition. Interest expense increased $20 million in 2015 primarily due to the $5.3 billion senior notes issued in November 2015.

During 2016, net realized losses of $140 million were primarily related to net losses on our investment portfolio of $156 million, partially offset by realized gains associated with a net decrease in the fair value of GLB liabilities. The decrease was primarily due to higher global equity market levels and the impact of updating our assumptions on policyholder behavior, partially offset by the unfavorable impact of discounting future claims for one less year. Refer to Note 4 of the Consolidated Financial Statements for further information regarding the fair value of GLB liabilities.

During 2015, realized losses of $411 million were primarily associated with a net increase in the fair value of GLB liabilities; this increase was primarily due to the falling equity market levels and the unfavorable impact of discounting future claims for one less year, partially offset by higher interest rates. Additionally, there were realized losses on our investment portfolio of $106 million.

During 2014, realized losses of $558 million were primarily associated with a net increase in the fair value of GLB liabilities; this increase was primarily due to lower interest rates and the unfavorable impact of discounting future claims for one less year, partially offset by a weakening yen and rising U.S. equity levels. Additionally, there were realized losses on our investment portfolio of $134 million.

As part of our loss mitigation strategy for our GLB exposures, we maintain positions in derivative instruments that decrease in fair value when the S&P 500 index increases. During the years ended December 31, 2016 , 2015 , and 2014 , we experienced realized losses of $136 million , $10 million , and $168 million , respectively, related to these derivative instruments. For further discussion of the remaining Net realized gains and (losses), refer to the Net realized and unrealized gains and (losses) section.

Other income of $ 217 million, $47 million, and $162 million for the years ended December 31, 2016 , 2015 , and 2014 , respectively, were related primarily to our share of net income of partially-owned entities. Refer to the Other Income and Expense Items section for further information.

Amortization benefit of purchased intangibles related to the Chubb Corp acquisition was $ 80 million for the year ended December 31, 2016 , reflecting the favorable impact of the amortization of the fair value adjustment on acquired Unpaid losses and loss expenses, offset by the amortization of other intangibles, including agency distribution relationships and internally developed technology, related to the Chubb Corp acquisition. This amortization is considered a corporate cost as it is incurred by the overall company.

Chubb integration expenses were $ 492 million the year ended December 31, 2016 , primarily comprising $181 million of personnel-related expenses, $125 million of consulting fees, $58 million of leases and real estate costs, and $38 million of advisor fees. Chubb integration expenses were $ 33 million for the year ended December 31, 2015 , primarily comprising $16 million of consulting fees, $6 million of legal fees, and $5 million of system integration costs. Chubb integration expenses are one-time in nature and are not related to the on-going business activities of the segments. The Chief Executive Officer does not manage segment results or allocate resources to segments when considering these costs and they are therefore excluded from our definition of segment income.

Non-GAAP Reconciliation

We provide financial measures such as net premiums written and net premiums earned on a constant-dollar basis. We believe it is useful to evaluate the trends in these measures exclusive of the effect of fluctuations in exchange rates between the U.S. dollar and the currencies in which our international business is transacted, as these exchange rates could fluctuate significantly between periods and distort the analysis of trends. The impact is determined by assuming constant foreign exchange rates between periods by translating prior period results using the same local currency exchange rates as the comparable current period.

P&C performance metrics are non-GAAP financial measures and comprise consolidated operating results (including Corporate) and exclude the operating results of the Life Insurance segment. We believe that these measures are useful and meaningful to investors as they are used by management to assess the company's P&C operations which are the most economically similar. We exclude the Life Insurance segment because the results of this business do not always correlate with the results of our P&C operations.

"As If" measures presented throughout this section are prepared exclusive of the impact of the unearned premium reserves intangible amortization and the elimination of the historical policy acquisition costs as a result of purchase accounting related to the Chubb Corp acquisition in order to present the underlying profitability of our insurance business for the entire relevant periods. We believe this measure provides visibility into our results, allows for comparability to our historical results and is consistent with how management evaluates results. We have discussed our results on an "As If" basis for both the 2016 and 2015 periods, which are defined below:

2016 "As If" results: The combined company results do not include the impact of the unearned premium reserves intangible amortization and the elimination of the historical policy acquisition costs as a result of purchase accounting related to the Chubb Corp acquisition. The combined company results for the year ended December 31, 2016 are inclusive of the first 14 days of January 2016 (the Chubb Corp acquisition closed January 14, 2016).

2015 "As If" results: Legacy ACE plus legacy Chubb Corp historical results after accounting policy alignment adjustments, including reclassifying certain legacy Chubb Corp corporate expenses to administrative expenses and redefining legacy Chubb Corp segment underwriting income by allocating the amortization of deferred policy acquisition costs to each segment. 2015 "As If" results exclude purchase accounting adjustments.

The following tables present a reconciliation of 2016 "As If" results to 2016 results, as well as 2015 "As If" results to 2015 results and pro forma results as calculated in accordance with SEC Article 11:

(in millions of U.S. dollars, except percentages)	North America Commercial P&C Insurance	North America Personal P&C Insurance	North America Agricultural Insurance	Overseas General Insurance	Global Reinsurance	Life Insurance	Consolidated
Net premiums written							
2016							
Net premiums written	**$ 11,740**	**$ 4,153**	**$ 1,328**	**$ 8,124**	**$ 676**	**$ 2,124**	**$ 28,145**
14 day stub period	**519**	**100**	**—**	**215**	**20**	**1**	**855**
2016 As If	**$ 12,259**	**$ 4,253**	**$ 1,328**	**$ 8,339**	**$ 696**	**$ 2,125**	**$ 29,000**
2015 As If							
Net premiums written	$ 5,715	$ 1,192	$ 1,346	$ 6,634	$ 828	$ 1,998	$ 17,713
Legacy Chubb	6,899	3,570	—	2,099	29	36	12,633
Accounting policy alignment	—	—	—	18	—	59	77
2015 As If (1)	$ 12,614	$ 4,762	$ 1,346	$ 8,751	$ 857	$ 2,093	$ 30,423
Constant-dollar 2015 As If	$ 12,605	$ 4,756	$ 1,346	$ 8,244	$ 843	$ 2,049	$ 29,843
Constant-dollar change As If	$ (346)	$ (503)	$ (18)	$ 95	$ (147)	$ 76	$ (843)
Constant-dollar percent change As If	(2.8)%	(10.6)%	(1.3)%	1.2%	(17.5)%	3.7%	(2.8)%
Net premiums earned							
2016							
Net premiums earned	**$ 12,217**	**$ 4,319**	**$ 1,316**	**$ 8,132**	**$ 710**	**$ 2,055**	**$ 28,749**
14 day stub period	**208**	**110**	**—**	**71**	**—**	**2**	**391**
2016 As If	**$ 12,425**	**$ 4,429**	**$ 1,316**	**$ 8,203**	**$ 710**	**$ 2,057**	**$ 29,140**
2015 As If							
Net premiums earned	$ 5,634	$ 948	$ 1,364	$ 6,471	$ 849	$ 1,947	$ 17,213
Legacy Chubb	6,850	3,506	—	2,096	26	40	12,518
Accounting policy alignment	—	—	—	(1)	—	56	55
2015 As If (1)	$ 12,484	$ 4,454	$ 1,364	$ 8,566	$ 875	$ 2,043	$ 29,786
Constant-dollar 2015 As If	$ 12,471	$ 4,454	$ 1,364	$ 8,122	$ 863	$ 2,001	$ 29,275
Constant-dollar change As If	$ (46)	$ (25)	$ (48)	$ 81	$ (153)	$ 56	$ (135)
Constant-dollar percent change As If	(0.4)%	(0.6)%	(3.6)%	1.0%	(17.9)%	2.8%	(0.5)%

(1) As If amounts for premium are calculated on the same basis as SEC pro forma.

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(in millions of U.S. dollars)	North America Commercial P&C Insurance	North America Personal P&C Insurance	North America Agricultural Insurance	Overseas General Insurance	Global Reinsurance	Corporate	Total P&C
Loss and loss expenses							
2016							
Loss and loss expenses	**$ 7,439**	**$ 2,558**	**$ 893**	**$ 4,005**	**$ 325**	**$ 169**	**$ 15,389**
14 day stub period	**127**	**53**	**—**	**42**	**—**	**—**	**222**
(Gain) loss on crop derivatives	**—**	**—**	**5**	**—**	**—**	**—**	**5**
Pension curtailment benefit	**—**	**—**	**—**	**—**	**—**	**23**	**23**
2016 As If	**$ 7,566**	**$ 2,611**	**$ 898**	**$ 4,047**	**$ 325**	**$ 192**	**$ 15,639**
2015							
Loss and loss expenses	$ 3,661	$ 590	$ 1,088	$ 3,052	$ 290	$ 202	$ 8,883
Legacy Chubb	3,681	2,079	—	1,064	5	105	6,934
(Gain) loss on crop derivatives	—	—	9	—	—	—	9
Accounting policy alignments	—	—	—	4	—	(14)	(10)
2015 As If [(1)]	$ 7,342	$ 2,669	$ 1,097	$ 4,120	$ 295	$ 293	$ 15,816
Policy acquisition costs							
2016							
Policy acquisition costs	**$ 2,023**	**$ 966**	**$ 83**	**$ 2,136**	**$ 187**	**$ —**	**$ 5,395**
Amortization of acquired UPR intangible asset	**(859)**	**(492)**	**—**	**(208)**	**—**	**—**	**(1,559)**
Elimination of deferred acquisition cost benefit	**729**	**406**	**—**	**238**	**—**	**—**	**1,373**
14 day stub period	**33**	**14**	**—**	**13**	**—**	**—**	**60**
2016 As If	**$ 1,926**	**$ 894**	**$ 83**	**$ 2,179**	**$ 187**	**$ —**	**$ 5,269**
2015							
Policy acquisition costs	$ 531	$ 69	$ 69	$ 1,581	$ 214	$ 1	$ 2,465
Legacy Chubb	1,321	774	—	491	—	—	2,586
Accounting policy alignment	128	15	—	138	—	—	281
2015 As If	$ 1,980	$ 858	$ 69	$ 2,210	$ 214	$ 1	$ 5,332
Amortization of acquired UPR intangible asset	855	490	—	205	—	—	1,550
Elimination of deferred acquisition cost benefit	(709)	(406)	—	(169)	—	—	(1,284)
2015 SEC pro forma	$ 2,126	$ 942	$ 69	$ 2,246	$ 214	$ 1	$ 5,598
Administrative expenses							
2016							
Administrative expenses	**$ 1,125**	**$ 363**	**$ (6)**	**$ 1,057**	**$ 52**	**$ 183**	**$ 2,774**
Pension curtailment benefit	**—**	**—**	**—**	**—**	**—**	**90**	**90**
14 day stub period	**35**	**13**	**—**	**12**	**—**	**3**	**63**
2016 As If	**$ 1,160**	**$ 376**	**$ (6)**	**$ 1,069**	**$ 52**	**$ 276**	**$ 2,927**
2015							
Administrative expenses	$ 621	$ 123	$ 1	$ 997	$ 49	$ 188	$ 1,979
Legacy Chubb	694	271	—	343	6	45	1,359
Accounting policy alignment	(128)	(15)	—	(142)	—	84	(201)
2015 As If [(1)]	$ 1,187	$ 379	$ 1	$ 1,198	$ 55	$ 317	$ 3,137
(Favorable) and unfavorable PPD, pre-tax							
2015							
(Favorable) and unfavorable PPD, pre-tax	$ (264)	$ 25	$ (45)	$ (343)	$ (119)	$ 200	$ (546)
Legacy Chubb	(519)	(43)	—	(134)	(19)	91	(624)
2015 As If [(1)]	$ (783)	$ (18)	$ (45)	$ (477)	$ (138)	$ 291	$ (1,170)
Catastrophe losses, pre-tax							
2015							
Catastrophe losses, pre-tax	$ 85	$ 63	$ 9	$ 142	$ 22	$ —	$ 321
Legacy Chubb	183	320	—	20	4	—	527
2015 As If [(1)]	$ 268	$ 383	$ 9	$ 162	$ 26	$ —	$ 848

[(1)] As If amounts for Loss and loss expenses, Administrative expenses, Prior period development and Catastrophe losses are calculated on the same basis as SEC pro forma.

The P&C combined ratio is a non-GAAP financial measure and includes the impact of realized gains and losses on crop derivatives. These derivatives were purchased to provide economic benefit, in a manner similar to reinsurance protection, in the event that a significant decline in commodity pricing will impact underwriting results. We view gains and losses on these derivatives as part of the results of our underwriting operations. The P&C combined ratio also excludes the one-time pension curtailment benefit recognized in 2016.

Net Investment Income

(in millions of U.S. dollars)	**2016**	2015	2014
Fixed maturities	**$ 2,779**	$ 2,157	$ 2,199
Short-term investments	**93**	49	45
Equity securities	**36**	16	33
Other	**98**	86	94
Gross investment income	**3,006**	2,308	2,371
Investment expenses	**(141)**	(114)	(119)
Net investment income	**$ 2,865**	$ 2,194	$ 2,252

Net investment income is influenced by a number of factors including the amounts and timing of inward and outward cash flows, the level of interest rates, and changes in overall asset allocation. Net investment income increased 30.6 percent in 2016 compared with 2015 primarily due to the Chubb Corp acquisition which added $1.2 billion of net investment income, partially offset by the unfavorable impact of liquidating investments to fund the acquisition, and the unfavorable impact of amortizing the purchase accounting fair value adjustment to investments at the date of acquisition of $393 million. Net investment income decreased 2.6 percent in 2015 compared with 2014 primarily due to the negative impact of foreign exchange of $49 million and lower call activity in our corporate bond portfolio, partially offset by a higher overall invested asset base.

The yield on our fixed maturities was 3.5 percent in 2016 and 4.0 percent in both 2015 and 2014. This compares to the average market yield, which represents the weighted average yield to maturity of our fixed income portfolio based on market prices of the holdings throughout the period, of 2.4 percent for 2016 and 2.8 percent for both 2015 and 2014 .

The 2.5 percent , 1.3 percent , and 1.9 percent yield on short-term investments in 2016, 2015 , and 2014 , respectively, reflects the global nature of our insurance operations. The yield in 2015 is lower compared to both 2016 and 2014 despite a higher average balance in short-term investments, due to investments held in the U.S. in anticipation of the Chubb Corp acquisition, which earned a lower yield in 2015.

For 2016, the increase in net investment income from our equity securities reflects the higher invested assets base as a result of the Chubb Corp acquisition. In 2016, the yield on our equity securities portfolio was 3.7 percent. In 2015 and 2014 , the yield on our equity securities portfolio was 3.1 percent and 4.9 percent, respectively, and reflects the yield on a global high dividend equity portfolio. 2014 also included dividends from an emerging debt portfolio, which was a mutual fund classified as equity. During the third quarter of 2014, however, we elected to exchange our interest in the strategic emerging debt portfolio for direct ownership of certain of the underlying fixed maturities, and the remainder in cash. In 2014, the strategic emerging debt portfolio, prior to the election to exchange our interest, and the preferred equity securities represented 64 percent of the gross equity securities investment income.

The following table shows the return on average invested assets:

(in millions of U.S. dollars, except for percentages)	**2016**	2015	2014
Average invested assets	**$ 96,656**	$ 63,252	$ 60,382
Net investment income	**$ 2,865**	$ 2,194	$ 2,252
Return on average invested assets (1)	**3.4%**	3.5%	3.7%

(1) Excludes $393 million of amortization on the purchase accounting fair value adjustment of acquired invested assets related to the Chubb Corp acquisition in 2016.

Net Realized and Unrealized Gains (Losses)

We take a long-term view with our investment strategy, and our investment managers manage our investment portfolio to maximize total return within certain specific guidelines designed to minimize risk. The majority of our investment portfolio is available for sale and reported at fair value. Our held to maturity investment portfolio is reported at amortized cost.

The effect of market movements on our available for sale investment portfolio impacts Net income (through Net realized gains (losses)) when securities are sold or when we record an Other-than-temporary impairment (OTTI) charge in Net income. For a discussion related to how we assess OTTI for all of our investments, including credit-related OTTI, and the related impact on Net income, refer to Note 3 c) to the Consolidated Financial Statements. Additionally, Net income is impacted through the reporting of changes in the fair value of derivatives, including financial futures, options, swaps, and GLB reinsurance. Changes in unrealized appreciation and depreciation on available for sale securities resulting from the revaluation of securities held, changes in cumulative translation adjustment, and unrealized postretirement benefit obligations liability adjustment, are reported as separate components of Accumulated other comprehensive income in Shareholders' equity in the Consolidated balance sheets.

The following table presents our net realized and unrealized gains (losses):

	Year Ended December 31, 2016			Year Ended December 31, 2015		
(in millions of U.S. dollars)	**Net Realized Gains (Losses)**	**Net Unrealized Gains (Losses)**	**Net Impact**	Net Realized Gains (Losses)	Net Unrealized Gains (Losses)	Net Impact
Fixed maturities	**$ (163)**	**$ 83**	**$ (80)**	$ (180)	$ (1,076)	$ (1,256)
Fixed income derivatives	**(33)**	**—**	**(33)**	32	—	32
Public equity	**44**	**52**	**96**	29	(17)	12
Private equity	**(4)**	**(49)**	**(53)**	13	(46)	(33)
Total investment portfolio (1)	**(156)**	**86**	**(70)**	(106)	(1,139)	(1,245)
Variable annuity reinsurance derivative transactions, net of applicable hedges	**(83)**	**—**	**(83)**	(213)	—	(213)
Other derivatives	**(10)**	**—**	**(10)**	(12)	—	(12)
Foreign exchange	**118**	**(154)**	**(36)**	(80)	(958)	(1,038)
Other	**(14)**	**543**	**529**	(9)	25	16
Net gains (losses) before tax	**(145)**	**475**	**330**	(420)	(2,072)	(2,492)
Income tax expense (benefit)	**66**	**54**	**120**	(10)	(146)	(156)
Net gains (losses)	**$ (211)**	**$ 421**	**$ 210**	$ (410)	$ (1,926)	$ (2,336)

(1) For the year ended December 31, 2016 , other-than-temporary impairments in Net realized gains (losses) include $81 million for fixed maturities, $8 million for public equity, and $14 million for private equity. For the year ended December 31, 2015 , other-than-temporary impairments in Net realized gains (losses) include $103 million for fixed maturities, $7 million for public equity, and $2 million for private equity.

Other Income and Expense Items

Other (income) expense was $(222) million in 2016 compared with $(51) million and $(190) million in 2015 and 2014 , respectively, and were related primarily to our share of net income of partially-owned entities. Refer to Note 14 to the Consolidated Financial Statements for the components of Other (income) expense.

Amortization of purchased intangibles and Other amortization

Amortization expense related to purchased intangibles amounted to $19 million , $ 171 million, and $ 108 million for the years ended December 31, 2016 , 2015 , and 2014 , respectively. Amortization expense of purchased intangibles was low in 2016 reflecting the favorable impact of the amortization benefit of the fair value adjustment on acquired Unpaid losses and loss expenses. In 2017, the amortization is expected to increase to $251 million , primarily reflecting the increase in intangible amortization related to agency distribution relationships and renewal rights.

The following table presents, as of December 31, 2016 , the estimated pre-tax amortization expense (benefit) of purchased intangibles, at current foreign currency exchange rates, for the next five years:

	Associated with the Chubb Corp Acquisition					
For the Years Ending December 31 (in millions of U.S. dollars)	Agency distribution relationships and renewal rights	Internally developed technology	Fair value adjustment to Unpaid losses and loss expense	Total (1)	Other intangible assets (2)	Total Amortization of purchased intangibles
2017	$ 295	$ 32	$ (160)	$ 167	$ 84	$ 251
2018	323	32	(101)	254	74	328
2019	280	—	(62)	218	68	286
2020	239	—	(35)	204	59	263
2021	217	—	(20)	197	52	249
Total	$ 1,354	$ 64	$ (378)	$ 1,040	$ 337	$ 1,377

(1) Recorded in Corporate.

(2) Recorded in applicable segment(s) that acquired the intangible assets.

Amortization of Unearned premium reserves (UPR) intangible assets and Expected future benefit associated with the elimination of historical deferred policy acquisition costs (DAC) asset

As part of purchase accounting, we recognized an intangible asset of $1,559 million, at applicable foreign currency exchange rates, related to the fair value adjustment for the UPR recorded on legacy Chubb Corp books, which was fully amortized into policy acquisition costs in 2016. In addition, as part of purchase accounting, we recognized a benefit of $1,373 million associated with unearned premiums in 2016 with no expense for the historical acquisition costs. This DAC elimination benefit was fully recognized in 2016.

Reduction of deferred tax liability associated with intangible assets related to the Chubb Corp acquisition

At the date of acquisition, we recorded a deferred tax liability of $2,679 million, which assumed an expected 35 percent tax rate, associated with agency distribution relationships and renewal rights, internally developed technology, and UPR intangible assets related to the Chubb Corp acquisition. For example, for 2017, the expected reduction to deferred tax liability of $ 114 million associated with intangible assets in the table below is calculated by applying the 35 percent expected tax rate against the sum of the estimated amortization of $327 million, comprised of agency distribution relationships and renewal rights of $ 295 million and internally developed technology of $ 32 million . At December 31, 2016 , the remaining deferred tax liability associated with these intangibles was $2,076 million.

The following table presents, as of December 31, 2016 , the expected reduction to the deferred tax liability (which reduces as agency distribution relationships and renewal rights, internally developed technology, and UPR intangible assets amortize), at current foreign currency exchange rates, for the next five years:

For the Years Ending December 31 (in millions of U.S. dollars)	Reduction to deferred tax liability associated with intangible assets
2017	$ 114
2018	124
2019	98
2020	84
2021	76
Total	$ 496

Amortization of the fair value of acquired invested assets

In addition to the amortization of purchased intangibles outlined in the table above, at December 31, 2016 we expect amortization of the fair value of acquired invested assets of approximately $ 360 million in 2017, $ 320 million in each 2018 and 2019, and $ 225 million in 2020 at current foreign currency exchange rates. This estimate could vary materially based on current market conditions, bond calls, overall duration of the acquired investment portfolio, and foreign exchange. The amortization of the fair value adjustment on acquired invested assets is recorded as a reduction to Net investment income in the Consolidated statements of operations.

Amortization of the fair value adjustment on assumed long-term debt

The benefit from the amortization of the fair value adjustment on assumed long-term debt was $48 million for the year ended December 31, 2016 . As of December 31, 2016 , we expect a benefit from the amortization of the fair value adjustment on assumed long-term debt over the next five years as follows: $ 49 million in 2017, $ 31 million in 2018, and $ 19 million in each of the years 2019 through 2021. The amortization of the fair value adjustment on assumed long-term debt is recorded as a reduction to Interest expense in the Consolidated statements of operations.

Investments

Our investment portfolio is invested primarily in publicly traded, investment grade, fixed income securities with an average credit quality of A/Aa as rated by the independent investment rating services Standard and Poor's (S&P)/ Moody's Investors Service (Moody's). The portfolio is externally managed by independent, professional investment managers and is broadly diversified across geographies, sectors, and issuers. Other investments principally comprise direct investments, investment funds, and limited partnerships. We hold no collateralized debt obligations or collateralized loan obligations in our investment portfolio, and we provide no credit default protection. We have long-standing global credit limits for our entire portfolio across the organization. Exposures are aggregated, monitored, and actively managed by our Global Credit Committee, comprising senior executives, including our Chief Financial Officer, our Chief Risk Officer, our Chief Investment Officer, and our Treasurer. We also have well-established, strict contractual investment rules requiring managers to maintain highly diversified exposures to individual issuers and closely monitor investment manager compliance with portfolio guidelines.

The average duration of our fixed income securities, including the effect of options and swaps, was 4.2 years and 3.5 years at December 31, 2016 and 2015 , respectively. The increase in duration in 2016 was primarily due to higher interest rates in 2016. We estimate that a 100 basis point (bps) increase in interest rates would reduce the valuation of our fixed income portfolio by approximately $3.9 billion at December 31, 2016 .

The following table shows the fair value and cost/amortized cost of our invested assets:

	December 31, 2016		December 31, 2015	
(in millions of U.S. dollars)	**Fair Value**	**Cost/ Amortized Cost**	Fair Value	Cost/ Amortized Cost
Fixed maturities available for sale	**$ 80,115**	**$ 79,536**	$ 43,587	$ 43,149
Fixed maturities held to maturity	**10,670**	**10,644**	8,552	8,430
Short-term investments	**3,002**	**3,002**	10,446	10,446
	93,787	**93,182**	62,585	62,025
Equity securities	**814**	**706**	497	441
Other investments	**4,519**	**4,270**	3,291	2,993
Total investments	**$ 99,120**	**$ 98,158**	$ 66,373	$ 65,459

The fair value of our total investments increased $32.7 billion during the year ended December 31, 2016 , primarily due to the Chubb Corp acquisition, which added $ 43.0 billion at the date of acquisition, and the investing of operating cash flows, partially offset by investments sold to fund the Chubb Corp acquisition.

The following tables present the market value of our fixed maturities and short-term investments at December 31, 2016 and 2015 . The first table lists investments according to type and the second according to S&P credit rating:

	December 31, 2016		December 31, 2015	
(in millions of U.S. dollars, except for percentages)	Market Value	% of Total	Market Value	% of Total
Treasury	$ 2,832	3%	$ 2,395	4%
Agency	699	1%	878	1%
Corporate and asset-backed securities	26,944	29%	17,985	28%
Mortgage-backed securities	15,435	16%	11,701	19%
Municipal	22,768	24%	4,950	8%
Non-U.S.	22,107	24%	14,230	23%
Short-term investments	3,002	3%	10,446	17%
Total	$ 93,787	100%	$ 62,585	100%
AAA	$ 15,746	17%	$ 14,369	23%
AA	36,235	39%	22,141	36%
A	17,519	19%	10,163	16%
BBB	12,237	13%	8,941	14%
BB	6,993	7%	3,775	6%
B	4,814	5%	3,018	5%
Other	243	—%	178	—%
Total	$ 93,787	100%	$ 62,585	100%

Corporate and asset-backed securities

The following table presents our 10 largest global exposures to corporate bonds by market value at December 31, 2016 :

(in millions of U.S. dollars)	Market Value
JP Morgan Chase & Co	$ 575
Wells Fargo & Co	522
Goldman Sachs Group Inc	435
Anheuser-Busch InBev NV	426
General Electric Co	423
Verizon Communications Inc	381
Morgan Stanley	358
Bank of America Corp	356
AT&T Inc	338
Berkshire Hathaway Inc	324

Mortgage-backed securities

	S&P Credit Rating					Market Value	Amortized Cost
December 31, 2016 (in millions of U.S. dollars)	AAA	AA	A	BBB	BB and below	Total	Total
Agency residential mortgage-backed (RMBS)	$ —	$ 12,530	$ —	$ —	$ —	$ 12,530	$ 12,557
Non-agency RMBS	1	5	60	5	32	103	103
Commercial mortgage-backed	2,763	38	1	—	—	2,802	2,799
Total mortgage-backed securities	$ 2,764	$ 12,573	$ 61	$ 5	$ 32	$ 15,435	$ 15,459

Municipal
As part of our overall investment strategy, we may invest in states, municipalities, and other political subdivisions fixed maturity securities (Municipal). We apply the same investment selection process described previously to our Municipal investments. The portfolio is highly diversified primarily in state general obligation bonds and essential service revenue bonds including education and utilities (water, power, and sewers).

Non-U.S.
Our exposure to the Euro results primarily from ACE European Group which is headquartered in London and offers a broad range of coverages throughout the European Union, Central, and Eastern Europe. Chubb primarily invests in Euro denominated investments to support its local currency insurance obligations and required capital levels. Chubb's local currency investment portfolios have strict contractual investment guidelines requiring managers to maintain a high quality and diversified portfolio to both sector and individual issuers. Investment portfolios are monitored daily to ensure investment manager compliance with portfolio guidelines.

Our non-U.S. investment grade fixed income portfolios are currency-matched with the insurance liabilities of our non-U.S. operations. The average credit quality of our non-U.S. fixed income securities is A and 55 percent of our holdings are rated AAA or guaranteed by governments or quasi-government agencies. Within the context of these investment portfolios, our government and corporate bond holdings are highly diversified across industries and geographies. Issuer limits are based on credit rating (AA— two percent, A— one percent, BBB— 0.5 percent of the total portfolio) and are monitored daily via an internal compliance system. Because of this investment approach, we do not have a direct exposure to troubled sovereign borrowers in Europe. We manage our indirect exposure using the same credit rating based investment approach. Accordingly, we do not believe our indirect exposure is material.

The following table summarizes the market value and amortized cost of our non-U.S. fixed income portfolio by country/sovereign for non-U.S. government securities at December 31, 2016 :

(in millions of U.S. dollars)	Market Value	Amortized Cost
United Kingdom	$ 1,647	$ 1,595
Canada	1,066	1,067
Republic of Korea	1,038	934
Federative Republic of Brazil	860	854
Province of Ontario	567	560
Province of Quebec	442	438
Germany	437	423
United Mexican States	422	430
Kingdom of Thailand	403	384
Australia	334	321
Other Non-U.S. Government Securities [(1)]	3,952	3,861
Total	$ 11,168	$ 10,867

(1) There are no investments in Portugal, Ireland, Italy, Greece or Spain.

The following table summarizes the market value and amortized cost of our non-U.S. fixed income portfolio by country/sovereign for non-U.S. corporate securities at December 31, 2016 :

(in millions of U.S. dollars)	Market Value	Amortized Cost
United Kingdom	$ 2,031	$ 1,960
Canada	1,448	1,427
United States (1)	848	835
France	809	788
Netherlands	765	744
Australia	634	620
Germany	604	585
Japan	393	392
Switzerland	322	316
China	278	275
Other Non-U.S. Corporate Securities	2,807	2,761
Total	$ 10,939	$ 10,703

(1) The countries that are listed in the non-U.S. corporate fixed income portfolio above represent the ultimate parent company's country of risk. Non-U.S. corporate securities could be issued by foreign subsidiaries of U.S. corporations.

Below-investment grade corporate fixed income portfolio

Below-investment grade securities have different characteristics than investment grade corporate debt securities. Risk of loss from default by the borrower is greater with below-investment grade securities. Below-investment grade securities are generally unsecured and are often subordinated to other creditors of the issuer. Also, issuers of below-investment grade securities usually have higher levels of debt and are more sensitive to adverse economic conditions, such as recession or increasing interest rates, than investment grade issuers. At December 31, 2016 , our corporate fixed income investment portfolio included below-investment grade and non-rated securities which, in total, comprised approximately 11 percent of our fixed income portfolio. Our below-investment grade and non-rated portfolio includes over 1,000 issuers, with the greatest single exposure being $169 million.

We manage high-yield bonds as a distinct and separate asset class from investment grade bonds. The allocation to high-yield bonds is explicitly set by internal management and is targeted to securities in the upper tier of credit quality (BB/B). Our minimum rating for initial purchase is BB/B. Eight external investment managers are responsible for high-yield security selection and portfolio construction. Our high-yield managers have a conservative approach to credit selection and very low historical default experience. Holdings are highly diversified across industries and generally subject to a 1.5 percent issuer limit as a percentage of high-yield allocation. We monitor position limits daily through an internal compliance system. Derivative and structured securities (e.g., credit default swaps and collateralized loan obligations) are not permitted in the high-yield portfolio.

Reinsurance Recoverable on Ceded Reinsurance

(in millions of U.S. dollars)	December 31 2016	December 31 2015
Reinsurance recoverable on unpaid losses and loss expenses (1)	$ 12,708	$ 10,741
Reinsurance recoverable on paid losses and loss expenses (1)	869	645
Reinsurance recoverable on losses and loss expenses (1)	$ 13,577	$ 11,386
Reinsurance recoverable on policy benefits (1)	$ 182	$ 187

(1) Net of a provision for uncollectible reinsurance.

We evaluate the financial condition of our reinsurers and potential reinsurers on a regular basis and also monitor concentrations of credit risk with reinsurers. The provision for uncollectible reinsurance is required principally due to the potential failure of reinsurers to indemnify us, primarily because of disputes under reinsurance contracts and insolvencies. The provision for uncollectible reinsurance is based on a default analysis applied to gross reinsurance recoverables, net of approximately $ 3.3 billion and $ 2.6 billion of collateral at December 31, 2016 and 2015 , respectively. The increase in reinsurance recoverable on loss and loss expenses was primarily due to the Chubb Corp acquisition.

Asbestos and Environmental (A&E)

Asbestos and environmental (A&E) reserving considerations
For asbestos, Chubb faces claims relating to policies issued to manufacturers, distributors, installers, and other parties in the chain of commerce for asbestos and products containing asbestos. Claimants will generally allege damages across an extended time period which may coincide with multiple policies covering a wide range of time periods for a single insured.

Environmental claims present exposure for remediation and defense costs associated with the contamination of property as a result of pollution.

The following table presents count information for asbestos claims by causative agent and environmental claims by account, for direct policies only:

	Asbestos (by causative agent)		Environmental (by account)	
	2016	2015	**2016**	2015 (1)
Open at beginning of year	**1,145**	1,127	**1,011**	1,060
Newly reported	**81**	64	**76**	8
Closed or otherwise disposed	**23**	46	**18**	57
Acquired	**563**	—	**326**	—
Open at end of year	**1,766**	1,145	**1,395**	1,011

(1) 2015 was revised to show claim count by account. Previously disclosed by site.

Survival ratios are calculated by dividing the asbestos or environmental loss and allocated loss adjustment expense (ALAE) reserves by the average asbestos or environmental loss and ALAE payments for the three most recent calendar years (3-year survival ratio). The 3-year survival ratios for gross and net Asbestos loss and ALAE reserves were 4.4 years and 5.0 years, respectively. The 3-year survival ratios for gross and net Environmental loss and ALAE reserves were 4.5 years and 4.9 years, respectively. The survival ratios provide only a very rough depiction of reserves and are significantly impacted by a number of factors such as aggressive settlement practices, variations in gross to ceded relationships within the asbestos or environmental claims, and levels of coverage provided. We, therefore, urge caution in using these very simplistic ratios to gauge reserve adequacy.

Catastrophe Management

We actively monitor our catastrophe risk accumulation around the world. The table below presents our modeled annual aggregate pre-tax probable maximum loss (PML), net of reinsurance, for 100-year and 250-year return periods for U.S. hurricane and California earthquake at December 31, 2016 and 2015 . The table also presents Chubb's corresponding share of pre-tax industry PMLs for each of the return periods for U.S. hurricane and California earthquake. For example, according to the model, for the 1-in-100 return period scenario, there is a one percent chance that our losses incurred in any year from U.S. hurricane events could be in excess of $3,071 million (or 6.4 percent of our total shareholders' equity at December 31, 2016). We estimate that at such hypothetical loss levels, Chubb's share of the aggregate industry PML would be approximately 2.1 percent.

	Modeled Annual Aggregate Net PML							
	U.S. Hurricane				California Earthquake			
	December 31 2016			December 31 2015 (1)	**December 31 2016**			December 31 2015 (1)
(in millions of U.S. dollars, except for percentages)	**Chubb**	**% of Total Shareholders' Equity**	**% of Industry**	Chubb	**Chubb**	**% of Total Shareholders' Equity**	**% of Industry**	Chubb
1-in-100	**$ 3,071**	**6.4%**	**2.1%**	$ 1,700	**$ 1,487**	**3.1%**	**3.8%**	$ 718
1-in-250	**$ 5,229**	**10.8%**	**2.5%**	$ 2,346	**$ 1,980**	**4.1%**	**3.3%**	$ 988

(1) Reflects legacy ACE in-force portfolio only (i.e., 2015 information does not include legacy Chubb Corp portfolio)

The above modeled loss information at December 31, 2016 reflects our in-force portfolio at October 1, 2016. The December 31, 2016 modeled loss information reflects the April 1, 2016 reinsurance program as well as inuring reinsurance protection coverages.

The modeling estimates of both Chubb and industry loss levels are inherently uncertain owing to key assumptions. First, while the use of third-party catastrophe modeling packages to simulate potential hurricane and earthquake losses is prevalent within the insurance industry, the models are reliant upon significant meteorology, seismology, and engineering assumptions to estimate hurricane and earthquake losses. In particular, modeled hurricane and earthquake events are not always a representation of actual events and ensuing additional loss potential. Second, there is no universal standard in the preparation of insured data for use in the models and the running of the modeling software. Third, we are reliant upon third-party estimates of industry insured exposures and there is significant variation possible around the relationship between our loss and that of the industry following an event. Fourth, we assume that our reinsurance recoveries following an event are fully collectible. These loss estimates do not represent our potential maximum exposures and it is highly likely that our actual incurred losses would vary materially from the modeled estimates.

Natural Catastrophe Property Reinsurance Program

Chubb's core property catastrophe reinsurance program provides protection against natural catastrophes impacting its primary property operations (i.e., excluding our Global Reinsurance and Life Insurance segments).

We regularly review our reinsurance protection and corresponding property catastrophe exposures. This may or may not lead to the purchase of additional reinsurance prior to a program's renewal date. In addition, prior to each renewal date, we consider how much, if any, coverage we intend to buy and we may make material changes to the current structure in light of various factors, including modeled PML assessment at various return periods, reinsurance pricing, our risk tolerance and exposures, and various other structuring considerations.

Chubb purchased a Global Property Catastrophe Reinsurance Program for our North American and International operations. The program is effective April 1, 2016 through March 31, 2017, and consists of three layers in excess of losses retained by Chubb. In addition, we also purchased terrorism coverage (excluding nuclear, biological, chemical and radiation coverage, with an inclusion of coverage for biological and chemical coverage for personal lines) for the United States from April 1, 2016 through March 31, 2017 with the same limits and retention and percentage placed except that the majority of terrorism coverage is on an aggregate basis above our retentions without a reinstatement.

Loss Location	Layer of Loss	Comments	Notes
United States (excluding Alaska and Hawaii)	$0 million – $1.0 billion	Losses retained by Chubb	(a)
United States (excluding Alaska and Hawaii)	$1.0 billion – $1.25 billion	All natural perils and terrorism	(b)
United States (excluding Alaska and Hawaii)	$1.25 billion – $2.0 billion	All natural perils and terrorism	(c)
United States (excluding Alaska and Hawaii)	$2.0 billion – $3.5 billion	All natural perils and terrorism	(d)
International (including Alaska and Hawaii)	$0 million – $175 million		(a)
International (including Alaska and Hawaii)	$175 million – $925 million	All natural perils and terrorism	(c)
Alaska, Hawaii, and Canada	$925 million – $2.425 billion	All natural perils and terrorism	(d)

(a) Ultimate retention will depend upon the nature of the loss and the interplay between the underlying per risk programs and certain other catastrophe programs purchased by individual business units. These other catastrophe programs have the potential to reduce our effective retention below the stated levels.

(b) These coverages are 20 percent placed with Reinsurers.

(c) These coverages are both part of the same Second layer within the Global Catastrophe Program and are 100 percent placed with Reinsurers. As such, it may be exhausted in one region and not available in the other.

(d) These coverages are both part of the same Third layer within the Global Catastrophe Program and are 100 percent placed with Reinsurers. As such, it may be exhausted in one region and not available in the other.

Chubb also has two series of property catastrophe bonds in place (assumed as part of the Chubb Corp acquisition) that offer additional natural catastrophe protection for certain parts of the portfolio. The geographic scope of this coverage is from Virginia through Maine. The East Lane VI 2014 series currently provides $270 million of coverage as part of a $300 million layer in excess of $3.453 billion retention through March 14, 2018. The East Lane VI 2015 series currently provides $250 million of coverage as part of a $500 million layer in excess of $2.602 billion retention through March 13, 2020.

Political Risk and Credit Insurance

Political risk insurance is a specialized coverage that provides clients with protection against unexpected, catastrophic political or macroeconomic events, primarily in developing markets. We participate in this market through our wholly-owned subsidiary Sovereign Risk Insurance Ltd. (Sovereign), and through a unit of our London-based CGM operation. Chubb is one of the world's leading underwriters of political risk and credit insurance and has a global portfolio spread across more than 150 countries, and is also a member of the Berne Union. Our clients include financial institutions, national export credit agencies, leading multilateral agencies, and multinational corporations. CGM writes political risk and credit insurance business out of underwriting offices in London, United Kingdom; Hamburg, Germany; Sao Paulo, Brazil; Singapore; Tokyo, Japan; and in the U.S. in the following locations: Chicago, Illinois; New York, New York; and Los Angeles, California.

Our political risk insurance provides protection to commercial lenders against defaults on cross border loans, insulates investors against equity losses, and protects exporters against defaults on contracts. Commercial lenders, our largest client segment, are covered for missed scheduled loan repayments due to acts of confiscation, expropriation or nationalization by the host government, currency inconvertibility or exchange transfer restrictions, or war or other acts of political violence. In addition, in the case of loans to government-owned entities or loans that have a government guarantee, political risk policies cover scheduled payments against risks of non-payment or non-honoring of government guarantees. Equity investors and corporations receive similar coverage to that of lenders, except they are protected against financial losses, inability to repatriate dividends, and physical damage to their operations caused by covered events. Our export contracts protection provides coverage for both exporters and their financing banks against the risk of contract frustration due to government actions, including non-payment by government entities.

CGM's credit insurance businesses cover losses due to insolvency, protracted default, and political risk perils including export and license cancellation. Our credit insurance product provides coverage to larger companies that have sophisticated credit risk management systems, with exposure to multiple customers and that have the ability to self-insure losses up to a certain level through excess of loss coverage. It also provides coverage to trade finance banks, exporters, and trading companies, with exposure to trade-related financing instruments.

We have implemented structural features in our policies in order to control potential losses within the political risk and credit insurance businesses. These include basic loss sharing features that include co-insurance and deductibles, and in the case of trade credit, the use of non-qualifying losses that drop smaller exposures deemed too difficult to assess. Ultimate loss severity is also limited by using waiting periods to enable the insurer and insured to agree on recovery strategies, and the subrogation of the rights of the lender/exporter to the insurer following a claim. We have the option to pay claims over the original loan payment schedule, rather than in a lump sum in order to provide insureds and the insurer additional time to remedy problems and work towards full recoveries. It is important to note that political risk and credit policies are named peril conditional contracts, not financial guarantees, and claims are only paid after conditions and warranties are fulfilled. Political risk and credit insurance do not cover currency devaluations, bond defaults, movements in overseas equity markets, transactions deemed illegal, situations where corruption or misrepresentation has occurred, or debt that is not legally enforceable. In addition to assessing and mitigating potential exposure on a policy-by-policy basis, we also have specific risk management measures in place to manage overall exposure and risk. These measures include placing country, credit, and individual transaction limits based on country risk and credit ratings, combined single loss limits on multi-country policies, the use of reinsurance protection, and regular modeling and stress-testing of the portfolio. We have a dedicated Country and Credit Risk management team that are responsible for the portfolio.

Crop Insurance

We are, and have been since the 1980s, one of the leading writers of crop insurance in the U.S. and have conducted that business through a managing general agent subsidiary of Rain and Hail. We provide protection throughout the U.S. on a variety of crops and are therefore geographically diversified, which reduces the risk of exposure to a single event or a heavy accumulation of losses in any one region. Our crop insurance business comprises two components – Multiple Peril Crop Insurance (MPCI) and crop-hail insurance.

The MPCI program is offered in conjunction with the U.S. Department of Agriculture (USDA). The policies cover revenue shortfalls or production losses due to natural causes such as drought, excessive moisture, hail, wind, frost, insects, and disease. Generally, policies have deductibles ranging from 10 percent to 50 percent of the insured's risk. The USDA's Risk Management Agency (RMA) sets the policy terms and conditions, rates and forms, and is also responsible for setting compliance standards. As a participating company, we report all details of policies underwritten to the RMA and are party to a Standard Reinsurance Agreement (SRA). The SRA sets out the relationship between private insurance companies and the Federal Crop Insurance Corporation (FCIC) concerning the terms and conditions regarding the risks each will bear including the pro-rata and state stop-loss provisions which allows companies to limit the exposure of any one state or group of states on their underwriting results. In addition to the pro-rata and excess of loss reinsurance protections inherent in the SRA, we also purchase third-party proportional and stop-loss reinsurance for our MPCI business to reduce our exposure. We may also enter into crop derivative contracts to further manage our risk exposure.

Each year the RMA issues a final SRA for the subsequent reinsurance year. In June 2016 , the RMA released the 2017 SRA which establishes the terms and conditions for the 2017 reinsurance year (i.e., July 1, 2016 through June 30, 2017) that replaced the 2016 SRA. There were no significant changes in the terms and conditions, and therefore the new SRA does not impact Chubb's outlook on the crop program relative to 2017.

On the MPCI business, we recognize net premiums written as soon as estimable, which is generally when we receive acreage reports from the policyholders on the various crops throughout the U.S. This allows us to best determine the premium associated with the liability that is being planted. The MPCI program has specific timeframes as to when producers must report acreage to us and in certain cases, the reporting occurs after the close of the respective reinsurance year. Once the net premium written has been recorded, the premium is then earned over the growing season for the crops. A majority of the crops that are covered in the program are typically subject to the SRA in effect at the beginning of the year. Given the major crops covered in the program, we typically see a substantial written and earned premium impact in the second and third quarters.

The pricing of MPCI premium is determined using a number of factors including commodity prices and related volatility. For instance, in most states the pricing for the MPCI Revenue Product for corn includes a factor that is based on the average price in February of the Chicago Board of Trade December corn futures. To the extent that the corn commodity prices are higher in

February than they were in the previous February, and all other factors are the same, the increase in corn prices will increase the corn premium year over year.

Our crop-hail program is a private offering. Premium is earned on the crop-hail program over the coverage period of the policy. Given the very short nature of the growing season, most crop-hail business is typically written in the second and third quarters with the earned premium also more heavily occurring during this time frame. We use industry data to develop our own rates and forms for the coverage offered. The policy primarily protects farmers against yield reduction caused by hail and/or fire, and related costs such as transit to storage. We offer various deductibles to allow the grower to partially self-insure for a reduced premium cost. We limit our crop-hail exposures through the use of township liability limits and third-party proportional and stop-loss reinsurance on our net retained hail business.

Liquidity

Liquidity is a measure of a company's ability to generate cash flows sufficient to meet short-term and long-term cash requirements. As a holding company, Chubb Limited possesses assets that consist primarily of the stock of its subsidiaries and other investments. In addition to net investment income, Chubb Limited's cash flows depend primarily on dividends or other statutorily permissible payments. Historically, these dividends and other payments have come primarily from Chubb's Bermuda-based operating subsidiaries, which we refer to as our Bermuda subsidiaries. Our consolidated sources of funds consist primarily of net premiums written, fees, net investment income, and proceeds from sales and maturities of investments. Funds are used at our various companies primarily to pay claims, operating expenses, and dividends, to service debt, to purchase investments, and to fund acquisitions.

We anticipate that positive cash flows from operations (underwriting activities and investment income) should be sufficient to cover cash outflows under most loss scenarios for the near term. Should the need arise, we generally have access to capital markets and available credit facilities. Our existing $1.5 billion credit facility has a remaining term expiring in November 2017 and requires that we maintain certain financial covenants, all of which we met at December 31, 2016 . Refer to “Credit Facilities” below for additional information. Our access to funds under the existing credit facility is dependent on the ability of the bank that is a party to the facility to meet its funding commitments. Should our existing credit provider experience financial difficulty, we may be required to replace credit sources, possibly in a difficult market. If we cannot obtain adequate capital or sources of credit on favorable terms, on a timely basis, or at all, our business, operating results, and financial condition could be adversely affected. To date, we have not experienced difficulty accessing our credit facility .

To further ensure the sufficiency of funds to settle unforeseen claims, we hold certain invested assets in cash and short-term investments. In addition, for certain insurance, reinsurance, or deposit contracts that tend to have relatively large and reasonably predictable cash outflows, we attempt to establish dedicated portfolios of assets that are duration-matched with the related liabilities. With respect to the duration of our overall investment portfolio, we manage asset durations to both maximize return given current market conditions and provide sufficient liquidity to cover future loss payments. All things being equal, in a low interest rate environment, the overall duration of our fixed maturities tends to be shorter and in a high interest rate environment, such duration tends to be longer. At December 31, 2016 , the average duration of our fixed maturities (4.2 years) is less than the average expected duration of our insurance liabilities (4.4 years).

Despite our safeguards, if paid losses accelerate beyond our ability to fund such paid losses from current operating cash flows, we might need to either liquidate a portion of our investment portfolio or arrange for financing. Potential events causing such a liquidity strain could include several significant catastrophes occurring in a relatively short period of time, large uncollectible reinsurance recoverables on paid losses (as a result of coverage disputes, reinsurers' credit problems, or decreases in the value of collateral supporting reinsurance recoverables) or increases in collateral postings under our variable annuity reinsurance business. Because each subsidiary focuses on a more limited number of specific product lines than is collectively available from the Chubb Group of Companies, the mix of business tends to be less diverse at the subsidiary level. As a result, the probability of a liquidity strain, as described above, may be greater for individual subsidiaries than when liquidity is assessed on a consolidated basis. If such a liquidity strain were to occur in a subsidiary, we could be required to liquidate a portion of our investments, potentially at distressed prices, as well as be required to contribute capital to the particular subsidiary and/or curtail dividends from the subsidiary to support holding company operations.

The payment of dividends or other statutorily permissible distributions from our operating companies are subject to the laws and regulations applicable to each jurisdiction, as well as the need to maintain capital levels adequate to support the insurance and reinsurance operations, including financial strength ratings issued by independent rating agencies. During 2016 , we were able to meet all of our obligations, including the payments of dividends on our Common Shares, with our net cash flows.

We assess which subsidiaries to draw dividends from based on a number of factors. Considerations such as regulatory and legal restrictions as well as the subsidiary's financial condition are paramount to the dividend decision. Chubb Limited received dividends of $5.0 billion from its Bermuda subsidiaries in 2015, of which $2.7 billion were paid in 2015, while the remaining $2.3 billion were paid during the first quarter of 2016. These dividends were used to finance a portion of the Chubb Corp acquisition by making capital contributions to Chubb INA Holdings Inc. (Chubb INA) and Chubb Group Holdings, both subsidiaries of Chubb Limited. In addition, Chubb Limited received dividends of $ 1.0 billion and $15 million from its Bermuda subsidiaries in 2016 and 2015 , respectively. Chubb Limited received dividends of nil and $261 million from its Switzerland subsidiaries in 2016 and 2015, respectively.

The payment of any dividends from CGM or its subsidiaries is subject to applicable U.K. insurance laws and regulations. In addition, the release of funds by Syndicate 2488 to subsidiaries of CGM is subject to regulations promulgated by the Society of Lloyd's. Chubb Limited received no dividends from CGM in 2016 and 2015 .

The U.S. insurance subsidiaries of Chubb INA may pay dividends, without prior regulatory approval, subject to restrictions set out in state law of the subsidiary's domicile (or, if applicable, commercial domicile). Chubb INA's international subsidiaries are also subject to insurance laws and regulations particular to the countries in which the subsidiaries operate. These laws and regulations sometimes include restrictions that limit the amount of dividends payable without prior approval of regulatory insurance authorities. Chubb Limited received no dividends from Chubb INA in 2016 and 2015 . Debt issued by Chubb INA is serviced by statutorily permissible distributions by Chubb INA's insurance subsidiaries to Chubb INA as well as other group resources. Chubb INA received dividends of $1.8 billion and $833 million from its subsidiaries in 2016 and 2015 , respectively. At December 31, 2016, the amount of dividends available to be paid to Chubb INA in 2017 from its subsidiaries without prior approval of insurance regulatory authorities totals $1.3 billion.

Chubb INA received $1.0 billion in capital contributions from Chubb Limited and $4.2 billion from Chubb Group Holdings during 2016. Chubb INA also received $5.1 billion in capital contributions in 2015, of which $2.8 billion were paid in 2015, while the remaining $2.3 billion were paid in 2016. $5.0 billion of these capital contributions were sourced from the dividends from the Bermuda subsidiaries to fund the Chubb Corp acquisition as noted above.

Cash Flows

Our insurance and reinsurance operations provide liquidity in that premiums are received in advance, sometimes substantially in advance, of the time claims are paid. Generally, cash flows are affected by claim payments that, due to the nature of our operations, may comprise large loss payments on a limited number of claims and which can fluctuate significantly from period to period. The irregular timing of these loss payments can create significant variations in cash flows from operations between periods. Refer to “Contractual Obligations and Commitments” for our estimate of future claim payments by period. Sources of liquidity include cash from operations, routine sales of investments, and financing arrangements. The following is a discussion of our cash flows for 2016 , 2015 , and 2014 .

Operating cash flows reflect Net income for each period, adjusted for non-cash items and changes in working capital.

Operating cash flows were $5.3 billion in 2016 , compared to $3.9 billion and $4.5 billion in 2015 and 2014 , respectively. The increase in operating cash flows of $ 1.4 billion in 2016 compared to 2015 was primarily due to cash flow contributions from legacy Chubb Corp operations, partially offset by integration expenses paid, higher interest paid on long-term debt, and higher taxes paid. The decrease in operating cash flows of $632 million in 2015 compared to 2014 was primarily due to higher net losses paid of $478 million and higher income taxes paid of $120 million.

Cash used for investing was $5.3 billion in 2016 , compared to $6.3 billion and $ 2.5 billion in 2015 and 2014 , respectively. The decrease in cash used for investing of $ 979 million in 2016 compared to 2015 was primarily due to cash paid for the purchase of Chubb Corp of $14.3 billion, which was largely funded by sales in our investment portfolio, including net proceeds in short-term investments. The increase in cash used for investing of $3.8 billion in 2015 compared to 2014 was primarily due to changes in our investment portfolios, principally an increase in short-term investments, to fund the Chubb Corp acquisition. This was offset by a net cash inflow of $264 million related to the purchase of Fireman's Fund high net worth personal lines business (cash paid of $365 million, netted with cash acquired of $629 million).

Cash (used for) from financing was $(742) million in 2016 , compared to $ 3.7 billion in 2015 , and $ (1.8) billion in 2014 . Cash used for financing in 2016 included $ 1.2 billion of dividends paid on Common Shares reflecting our higher outstanding share count following the Chubb Corp acquisition, partially offset by policyholder deposits, net of withdrawals, of $269 million.

Cash from financing in 2015 included $4.9 billion of net proceeds from the issuance of long-term debt (net of repayments) partially offset by $862 million of dividends paid on Common Shares and $758 million of share repurchases. Cash used for financing in 2014 included $1.4 billion of share repurchases and $862 million of dividends paid on Common Shares. Dividends paid on Common Shares in 2015 were flat compared to 2014 as the three percent increase in our quarterly dividend beginning with the payment made in July 2015 was offset by fewer shares outstanding as a result of share repurchases in 2015.

Both internal and external forces influence our financial condition, results of operations, and cash flows. Claim settlements, premium levels, and investment returns may be impacted by changing rates of inflation and other economic conditions. In many cases, significant periods of time, ranging up to several years or more, may lapse between the occurrence of an insured loss, the reporting of the loss to us, and the settlement of the liability for that loss.

In the current low interest rate environment, we use repurchase agreements as a low-cost alternative for short-term funding needs and to address short-term cash timing differences without disrupting our investment portfolio holdings. At December 31, 2016 , there were $1.4 billion in repurchase agreements outstanding with various maturities over the next 8 months.

In addition to cash from operations, routine sales of investments, and financing arrangements, we have agreements with a third-party bank provider which implemented two international multi-currency notional cash pooling programs to enhance cash management efficiency during periods of short-term timing mismatches between expected inflows and outflows of cash by currency. The programs allow us to optimize investment income by avoiding portfolio disruption. In each program, participating Chubb entities establish deposit accounts in different currencies with the bank provider. Each day the credit or debit balances in every account are notionally translated into a single currency (U.S. dollars) and then notionally pooled. The bank extends overdraft credit to all participating Chubb entities as needed, provided that the overall notionally pooled balance of all accounts in each pool at the end of each day is at least zero. Actual cash balances are not physically converted and are not commingled between legal entities. Chubb entities may incur overdraft balances as a means to address short-term liquidity needs. Any overdraft balances incurred under this program by a Chubb entity would be guaranteed by Chubb Limited (up to $300 million in the aggregate). Our syndicated letter of credit facility allows for same day drawings to fund a net pool overdraft should participating Chubb entities withdraw contributed funds from the pool.

Capital Resources
Capital resources consist of funds deployed or available to be deployed to support our business operations.

(in millions of U.S. dollars, except for percentages)		**December 31 2016**		December 31 2015
Short-term debt	**$**	**500**	$	—
Long-term debt		**12,610**		9,389
Total financial debt		**13,110**		9,389
Trust preferred securities		**308**		307
Total shareholders’ equity		**48,275**		29,135
Total capitalization	**$**	**61,693**	$	38,831
Ratio of financial debt to total capitalization		**21.3%**		24.2%
Ratio of financial debt plus trust preferred securities to total capitalization		**21.8%**		25.0%

Repurchase agreements are excluded from the table above and are disclosed separately from short-term debt in the Consolidated balance sheets. The repurchase agreements are collateralized borrowings where we maintain the right and ability to redeem the collateral on short notice, unlike short-term debt which comprises the current maturities of our long-term debt instruments.

Effective January 1, 2016, we retrospectively adopted new accounting guidance that requires debt issuance costs to be recorded as a reduction of the carrying amount of the related debt liability instead of as a deferred charge. Accordingly, we reclassified $60 million of debt issuance costs from Other assets to Long-term debt ($58 million) and Trust preferred securities ($2 million) as of December 31, 2015 to reflect this adoption.

On January 14, 2016, we acquired Chubb Corp for approximately $29.5 billion, comprising $14.3 billion in cash and $15.2 billion in newly-issued stock, based on the Chubb Limited (formerly ACE Limited) closing price on the acquisition date. In addition, we assumed outstanding equity awards to employees and directors with an attributed value of approximately $323 million. The total consideration, including assumption of equity awards, was $29.8 billion. We financed the cash portion of the transaction through a combination of $9.0 billion sourced from various Chubb Limited and Chubb Corp companies plus $5.3 billion of senior notes, which were issued in November 2015. Refer to Note 2 and Note 9 to the Consolidated Financial Statements for additional information on the acquisition and the $5.3 billion of senior notes, respectively.

As part of the acquisition, we assumed Chubb Corp's senior and subordinated debt obligations, totaling $3.3 billion par value (fair valued at $3.8 billion at the acquisition date), which is guaranteed by Chubb Limited. Included in the debt obligations are junior subordinated capital securities of $1.0 billion that bear interest at a fixed rate of 6.375 percent through April 14, 2017 and at a rate equal to the three-month Libor rate plus 2.25 percent thereafter. If the current three-month Libor rate is not substantially higher in early 2017, and the near-term expectations are similar, it is our expectation that these securities would not be redeemed at the reset date. However, our expectations are subject to change depending on market conditions and other factors.

In February 2017, $500 million of 5.7 percent senior notes matured and were fully paid. For a discussion of our debt outstanding, refer to Note 9 to the Consolidated Financial Statements.

We believe our financial strength provides us with the flexibility and capacity to obtain available funds externally through debt or equity financing on both a short-term and long-term basis. Our ability to access the capital markets is dependent on, among other things, market conditions and our perceived financial strength. We have accessed both the debt and equity markets from time to time. We generally maintain the ability to issue certain classes of debt and equity securities via an unlimited SEC shelf registration which is renewed every three years. This allows us capital market access for refinancing as well as for unforeseen or opportunistic capital needs. In October 2015, we filed a new unlimited shelf registration which allows us to issue certain classes of debt and equity. This shelf registration expires in October 2018.

Securities Repurchases

From time to time, we repurchase shares as part of our capital management program. Our Board of Directors has authorized share repurchase programs as follows:

- $2.0 billion of Chubb Common Shares from November 21, 2013 through December 31, 2014
- $1.5 billion of Chubb Common Shares from January 1, 2015 through December 31, 2015
- $1.0 billion of Chubb Common Shares from November 17, 2016 through December 31, 2017

Share repurchases may be made in the open market, in privately negotiated transactions, block trades, accelerated repurchases and/or through option or other forward transactions. We repurchased $734 million and $1,449 million of Common Shares in a series of open market transactions in 2015 and 2014, respectively, under the Board authorized share repurchase programs. There were no share repurchases in 2016. For the period January 1, 2017 through February 24, 2017, we repurchased 419,623 Common Shares for a total of $55 million in a series of open market transactions. At February 24, 2017, $945 million in share repurchase authorization remained through December 31, 2017.

Common Shares

Our Common Shares had a par value of CHF 24.15 each at December 31, 2016 .

As of December 31, 2016 , there were 13,815,148 Common Shares in treasury with a weighted average cost of $107.16 per share.

Under Swiss law, dividends must be stated in Swiss francs though dividend payments are made by Chubb in U.S. dollars.

At our May 2015 annual general meeting, our shareholders approved an annual dividend for the following year of up to $2.68 per share, which was paid in four quarterly installments of $0.67 per share at dates determined by the Board after the annual general meeting by way of a distribution from capital contribution reserves, transferred to free reserves for payment.

At our May 2016 annual general meeting, our shareholders approved an annual dividend for the following year of up to $2.76 per share, expected to be paid in four quarterly installments of $0.69 per share after the annual general meeting by way of a distribution from capital contribution reserves, transferred to free reserves for payment. The Board will determine the record and payment dates at which the annual dividend may be paid, and is authorized to abstain from distributing a dividend at its discretion, until the date of the 2017 annual general meeting. The first three quarterly installments, each of $0.69 per share, have been distributed by the Board as expected.

Dividend distributions on Common Shares amounted to CHF 2.70 ($2.74) per share for the year ended December 31, 2016. Refer to Note 11 to the Consolidated Financial Statements for additional information on our dividends.

Contractual Obligations and Commitments

The following table presents our future payments due by period under contractual obligations at December 31, 2016 :

	Payments Due By Period				
(in millions of U.S. dollars)	Total	2017	2018 and 2019	2020 and 2021	Thereafter
Payment amounts determinable from the respective contracts					
Deposit liabilities [1]	$ 1,559	$ 18	$ 37	$ 37	$ 1,467
Purchase obligations [2]	626	198	205	151	72
Investments, including Limited Partnerships [3]	2,756	1,319	1,031	406	—
Operating leases	797	173	267	171	186
Repurchase agreements	1,403	1,403	—	—	—
Short-term debt	500	500	—	—	—
Long-term debt	12,261	—	1,500	1,311	9,450
Trust preferred securities	309	—	—	—	309
Interest on debt obligations [4]	7,458	565	973	865	5,055
Total obligations in which payment amounts are determinable from the respective contracts	27,669	4,176	4,013	2,941	16,539
Payment amounts not determinable from the respective contracts					
Estimated gross loss payments under insurance and reinsurance contracts	60,571	15,418	16,626	8,641	19,886
Estimated payments for future policy benefits	20,549	905	1,767	1,544	16,333
Total contractual obligations and commitments	$ 108,789	$ 20,499	$ 22,406	$ 13,126	$ 52,758

(1) Refer to Note 1 k) to the Consolidated Financial Statements.

(2) Primarily comprises audit fees and agreements with vendors to purchase system software administration and maintenance services.

(3) Funding commitment primarily related to limited partnerships. The timing of the payments of these commitments is uncertain and may differ from the estimated timing in the table.

(4) Junior subordinated capital securities of $1.0 billion bear interest at a fixed rate of 6.375 percent through April 14, 2017 and at a rate equal to the three-month LIBOR rate plus 2.25 percent thereafter. For purposes of the above table, interest after April 14, 2017 was calculated using the three-month LIBOR rate as of December 31, 2016. The table includes future interest payments through the scheduled maturity date, April 15, 2037. Interest payments for the period from the scheduled maturity date through the final maturity date, March 29, 2067, would increase the contractual obligation by $974 million.

The above table excludes the following items:

- Pension obligations: Minimum funding requirements for our pension obligations are immaterial. Subsequent funding commitments are apt to vary due to many factors and are difficult to estimate at this time. Refer to Note 13 to the Consolidated Financial Statements for additional information.
- Liabilities for unrecognized tax benefits: The liability for unrecognized tax benefits, excluding interest, was $17 million at December 31, 2016 . We recognize accruals for interest and penalties, if any, related to unrecognized tax benefits in Income tax expense in the Consolidated statements of operations. At December 31, 2016 , we had $4 million in liabilities for income tax-related interest and penalties in our Consolidated balance sheets. We are unable to make a reasonably reliable estimate for the timing of cash settlement with respect to these liabilities. Refer to Note 8 to the Consolidated Financial Statements for additional information.

We have no other significant contractual obligations or commitments not reflected in the table above. We do not have any off-balance sheet arrangements that are reasonably likely to have a material effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures, or capital resources.

Estimated gross loss payments under insurance and reinsurance contracts
We are obligated to pay claims under insurance and reinsurance contracts for specified loss events covered under those contracts. Such loss payments represent our most significant future payment obligation as a P&C insurance and reinsurance company. In contrast to other contractual obligations, cash payments are not determinable from the terms specified within the contract. For example, we do not ultimately make a payment to our counterparty for many insurance and reinsurance contracts (i.e., when a loss event has not occurred) and if a payment is to be made, the amount and timing cannot be determined from the contract. In the table above, we estimate payments by period relating to our gross liability for unpaid losses and loss expenses included in the Consolidated balance sheet at December 31, 2016 , and do not take into account reinsurance recoverable. These estimated loss payments are inherently uncertain and the amount and timing of actual loss payments are likely to differ from these estimates and the differences could be material. Given the numerous factors and assumptions involved in both estimates of loss and loss expense reserves and related estimates as to the timing of future loss and loss expense payments in the table above, differences between actual and estimated loss payments will not necessarily indicate a commensurate change in ultimate loss estimates. The liability for Unpaid losses and loss expenses presented in our balance sheet is discounted for certain structured settlements for which the timing and amount of future claim payments are reliably determinable and certain reserves for unsettled claims that are discounted in statutory filings. Accordingly, the estimated amounts in the table exceed the liability for Unpaid losses and loss expenses presented in our balance sheet. Refer to Note 1 h) to the Consolidated Financial Statements for additional information.

Estimated payments for future policy benefits
We establish reserves for future policy benefits for life, long-term health, and annuity contracts. The amounts in the table are gross of fees or premiums due from the underlying contracts. The liability for Future policy benefits for life, long-term health, and annuity contracts presented in our balance sheet is discounted and reflected net of fees or premiums due from the underlying contracts. Accordingly, the estimated amounts in the table exceed the liability for Future policy benefits presented in our balance sheet. Payment amounts related to these reserves must be estimated and are not determinable from the contract. Due to the uncertainty with respect to the timing and amount of these payments, actual results could materially differ from the estimates in the table.

Credit Facilities

As our Bermuda subsidiaries are non-admitted insurers and reinsurers in the U.S., the terms of certain U.S. insurance and reinsurance contracts require them to provide collateral, which can be in the form of letters of credit (LOCs). LOCs may also be used for general corporate purposes.

We have a $1.5 billion unsecured operational LOC facility guaranteed by Chubb Limited which expires in November 2017. We are allowed to use up to $ 300 million of this LOC facility as an unsecured revolving credit facility. At December 31, 2016 , outstanding LOCs issued under this facility were $ 443 million .

It is anticipated that our $1.5 billion unsecured operational LOC facility will be renewed on expiration but such renewal is subject to the availability of credit from banks utilized by Chubb. In the event that such credit support is insufficient, we could be required to provide alternative security to clients. This could take the form of additional insurance trusts supported by our investment portfolio or funds withheld using our cash resources. The value of LOCs required is driven by, among other things, statutory liabilities reported by variable annuity guarantee reinsurance clients, loss development of existing reserves, the payment pattern of such reserves, the expansion of business, and loss experience of such business.

The facility noted above requires that we maintain certain covenants, all of which have been met at December 31, 2016 . These covenants include:

(i) Maintenance of a minimum consolidated net worth in an amount not less than the “Minimum Amount”. For the purpose of this calculation, the Minimum Amount is an amount equal to the sum of the base amount (currently $20.4 billion) plus 25 percent of consolidated net income for each fiscal quarter, ending after the date on which the current base amount became effective, plus 50 percent of any increase in consolidated net worth during the same period, attributable to the issuance of Common and Preferred Shares. The Minimum Amount is subject to an annual reset provision.

(ii) Maintenance of a maximum debt to total capitalization ratio of not greater than 0.35 to 1. Under this covenant, debt does not include repurchase agreements, trust preferred securities or mezzanine equity, except where the ratio of the sum of trust preferred securities and mezzanine equity to total capitalization is greater than 15 percent. In this circumstance, the amount greater than 15 percent would be included in the debt to total capitalization ratio. This covenant also excludes the purchase accounting fair value adjustment of the debt acquired through the Chubb Corp acquisition.

At December 31, 2016 , (a) the minimum consolidated net worth requirement under the covenant described in (i) above was $29.0 billion and our actual consolidated net worth as calculated under that covenant was $47.2 billion and (b) our ratio of debt to total capitalization, as calculated under the covenant which excludes the fair value adjustment of debt acquired through the Chubb Corp acquisition, was .207 to 1, which is below the maximum debt to total capitalization ratio of 0.35 to 1 as described in (ii) above.

Our failure to comply with the covenants under any credit facility would, subject to grace periods in the case of certain covenants, result in an event of default. This could require us to repay any outstanding borrowings or to cash collateralize LOCs under such facility. Our failure to repay material financial obligations, as well as our failure with respect to certain other events expressly identified, would result in an event of default under the facility.

Ratings

Chubb Limited and its subsidiaries are assigned credit and financial strength (insurance) ratings from internationally recognized rating agencies, including S&P, A.M. Best, Moody's, and Fitch. The ratings issued on our companies by these agencies are announced publicly and are available directly from the agencies. Our Internet site (investors.chubb.com, under Shareholder Resources/Rating Agency Ratings) also contains some information about our ratings, but such information on our website is not incorporated by reference into this report.

Financial strength ratings reflect the rating agencies' opinions of a company's claims paying ability. Independent ratings are one of the important factors that establish our competitive position in the insurance markets. The rating agencies consider many factors in determining the financial strength rating of an insurance company, including the relative level of statutory surplus necessary to support the business operations of the company. These ratings are based upon factors relevant to policyholders, agents, and intermediaries and are not directed toward the protection of investors. Such ratings are not recommendations to buy, sell, or hold securities.

Credit ratings assess a company's ability to make timely payments of principal and interest on its debt.

It is possible that, in the future, one or more of the rating agencies may reduce our existing ratings. If one or more of our ratings were downgraded, we could incur higher borrowing costs, and our ability to access the capital markets could be impacted. In addition, our insurance and reinsurance operations could be adversely impacted by a downgrade in our financial strength ratings, including a possible reduction in demand for our products in certain markets. Also, we have insurance and reinsurance contracts which contain rating triggers. In the event the S&P or A.M. Best financial strength ratings of Chubb fall, we may be faced with the cancellation of premium or be required to post collateral on our underlying obligation associated with this premium. We estimate that at December 31, 2016 , a one-notch downgrade of our S&P or A.M. Best financial strength ratings would result in an immaterial loss of premium or requirement for collateral to be posted.

ITEM 7A. Quantitative and Qualitative Disclosures about Market Risk

Market Sensitive Instruments and Risk Management

Market risk represents the potential for loss due to adverse changes in the fair value of financial instruments. We are exposed to potential losses from various market risks including changes in interest rates, equity prices, and foreign currency exchange rates. Further, through writing the GLB and GMDB products, we are exposed to volatility in the equity and credit markets, as well as interest rates. Our investment portfolio consists primarily of fixed income securities, denominated in both U.S. dollars and foreign currencies, which are sensitive to changes in interest rates and foreign currency exchange rates. The majority of our fixed income portfolio is classified as available for sale. The effect of market movements on our available for sale investment portfolio impacts Net income (through Net realized gains (losses)) when securities are sold or when we record an OTTI charge in Net income. Changes in interest rates and foreign currency exchange rates will have an immediate effect on Shareholders' equity and Comprehensive income and in certain instances, Net income. From time to time, we also use derivative instruments such as futures, options, swaps, and foreign currency forward contracts to manage the duration of our investment portfolio and foreign currency exposures and also to obtain exposure to a particular financial market. At December 31, 2016 and 2015 , our notional exposure to derivative instruments was $6.2 billion and $3.1 billion, respectively. These instruments are recognized as assets or liabilities in our consolidated financial statements and are sensitive to changes in interest rates, foreign currency exchange rates, and equity security prices. As part of our investing activities, we from time to time purchase to be announced mortgage backed securities (TBAs). Changes in the fair value of TBAs are included in Net realized gains (losses) and therefore, have an immediate effect on both our Net income and Shareholders' equity.

We seek to mitigate market risk using a number of techniques, including maintaining and managing the assets and liabilities of our international operations consistent with the foreign currencies of the underlying insurance and reinsurance businesses, thereby limiting exchange rate risk to net assets denominated in foreign currencies.

The following is a discussion of our primary market risk exposures at December 31, 2016 . Our policies to address these risks in 2016 were not materially different from 2015 . We do not currently anticipate significant changes in our primary market risk exposures or in how those exposures are managed in future reporting periods based upon what is known or expected to be in effect in future reporting periods.

Interest rate risk – fixed income portfolio and debt obligations

Our fixed income portfolio and debt obligations have exposure to interest rate risk. Changes in investment values attributable to interest rate changes are mitigated by corresponding and partially offsetting changes in the economic value of our insurance reserves and debt obligations. We monitor this exposure through periodic reviews of our asset and liability positions.

The following table presents the impact at December 31, 2016 and 2015 , on the fair value of our fixed income portfolio of a hypothetical increase in interest rates of 100 bps applied instantly across the U.S. yield curve (an immediate time horizon was used as this presents the worst case scenario):

(in billions of U.S. dollars, except for percentages)		2016		2015
Fair value of fixed income portfolio	$	**93.8**	$	62.6
Pre-tax impact of 100 bps increase in interest rates:				
Decrease in dollars	$	**3.9**	$	2.2
As a percentage of total fixed income portfolio at fair value		**4.2%**		3.5%

Changes in interest rates will have an immediate effect on Comprehensive income and Shareholders' equity but will not ordinarily have an immediate effect on Net income. Variations in market interest rates could produce significant changes in the timing of prepayments due to available prepayment options. For these reasons, actual results could differ from those reflected in the tables.

Although our debt and trust preferred securities (collectively referred to as debt obligations) are reported at amortized cost and not adjusted for fair value changes, changes in interest rates could have a material impact on their fair value, albeit there would be no impact on our consolidated financial statements.

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The following table presents the impact at December 31, 2016 and 2015 , on the fair value of our debt obligations of a hypothetical decrease in interest rates of 100 bps applied instantly across the U.S. yield curve (an immediate time horizon was used as this presents the worst case scenario):

(in millions of U.S. dollars, except for percentages)	2016	2015
Fair value of debt obligations, including repurchase agreements	$ 15,360	$ 11,528
Impact of 100 bps decrease in interest rates:		
Increase in dollars	$ 1,154	$ 921
As a percentage of total debt obligations at fair value	7.5%	8.0%

Foreign currency management
As a global company, Chubb entities transact business in multiple currencies. Our policy is to generally match assets, liabilities and required capital for each individual jurisdiction in local currency, which would include the use of derivatives. We do not hedge our net asset non-U.S. dollar capital positions; however, we do consider hedging for planned cross border transactions.

The following table summarizes the net assets in non-U.S. currencies at December 31, 2016 and 2015 :

	2016		2015		
(in millions of U.S. dollars, except for percentages)	Value of Net Assets	Exchange rate per USD	Value of Net Assets	Exchange rate per USD	2016 vs. 2015 % change in exchange rate per USD
British pound sterling (GBP)	$ 2,643	1.2340	$ 1,200	1.4736	(16.3)%
Canadian dollar (CAD)	2,508	0.7440	507	0.7226	3.0 %
Euro (EUR)	1,871	1.0517	749	1.0862	(3.2)%
Australian dollar (AUD)	1,327	0.7208	373	0.7286	(1.1)%
Brazilian real (BRL)	1,194	0.3072	682	0.2525	21.7 %
Mexican peso (MXN)	687	0.0483	683	0.0581	(16.9)%
Thai baht (THB)	429	0.0279	377	0.0278	0.4 %
Japanese yen (JPY)	391	0.0086	493	0.0083	3.6 %
Hong Kong dollar (HKD)	370	0.1289	82	0.1290	(0.1)%
Korean won (KRW) (x100)	316	0.0829	613	0.0851	(2.6)%
Other foreign currencies	1,191	various	1,107	various	NM
Value of net assets denominated in foreign currencies	$ 12,927		$ 6,866		
As a percentage of total net assets	26.8%		23.6%		
Pre-tax decrease to Shareholders' equity of a hypothetical 10 percent strengthening of the U.S. dollar	$ 1,175		$ 624		

(1) At December 31, 2016 , net assets denominated in foreign currencies comprised approximately 40 percent tangible assets and 60 percent intangible assets, primarily goodwill. The increase in foreign denominated net assets is due to the Chubb Corp acquisition.

Reinsurance of GMDB and GLB guarantees
Chubb views its variable annuity reinsurance business as having a similar risk profile to that of catastrophe reinsurance with the probability of long-term economic loss relatively small, at the time of pricing. Adverse changes in market factors and policyholder behavior will have an impact on both life underwriting income and net income. When evaluating these risks, we expect to be compensated for taking both the risk of a cumulative long-term economic net loss, as well as the short-term accounting variations caused by these market movements. Therefore, we evaluate this business in terms of its long-term economic risk and reward.

Net income is directly impacted by changes in benefit reserves calculated in connection with reinsurance of variable annuity guarantees, primarily GMDB and GLB. In addition, net income is directly impacted by changes in the fair value of the GLB liability (FVL), which is classified as a derivative for accounting purposes. The FVL established for a GLB reinsurance contract represents the difference between the fair value of the contract and the benefit reserves. Benefit reserves and FVL calculations are directly affected by market factors, including equity levels, interest rate levels, credit risk, and implied volatilities, as well as policyholder behaviors, such as annuitization and lapse rates.

The tables below are estimates of the sensitivities to instantaneous changes in economic inputs (e.g., equity shock, interest rate shock etc.) or actuarial assumptions at December 31, 2016 of the FVL and of the fair value of specific derivative instruments held (hedge value) to partially offset the risk in the variable annuity guarantee reinsurance portfolio. The following assumptions should be considered when using the below tables:

- No changes to the benefit ratio used to establish benefit reserves at December 31, 2016 .
- Equity shocks impact all global equity markets equally
  - Our liabilities are sensitive to global equity markets in the following proportions: 70 percent— 80 percent U.S. equity, 10 percent— 20 percent international equity ex-Japan, up to 10 percent Japan equity.
  - Our current hedge portfolio is sensitive to global equity markets in the following proportions: 100 percent U.S. equity.
  - We would suggest using the S&P 500 index as a proxy for U.S. equity, the MSCI EAFE index as a proxy for international equity, and the TOPIX as a proxy for Japan equity.
- Interest rate shocks assume a parallel shift in the U.S. yield curve
  - Our liabilities are also sensitive to global interest rates at various points on the yield curve, mainly the U.S. Treasury curve in the following proportions: up to 10 percent short-term rates (maturing in less than 5 years), 15 percent— 25 percent medium-term rates (maturing between 5 years and 10 years, inclusive), and 70 percent— 80 percent long-term rates (maturing beyond 10 years).
  - A change in AA-rated credit spreads (AA-rated credit spreads are a proxy for both our own credit spreads and the credit spreads of the ceding insurers) impacts the rate used to discount cash flows in the fair value model.
- The hedge sensitivity is from December 31, 2016 market levels.
- The sensitivities are not directly additive because changes in one factor will affect the sensitivity to changes in other factors. The sensitivities do not scale linearly and may be proportionally greater for larger movements in the market factors. The sensitivities may also vary due to foreign exchange rate fluctuations. The calculation of the FVL is based on internal models that include assumptions regarding future policyholder behavior, including lapse, annuitization, and asset allocation. These assumptions impact both the absolute level of the FVL as well as the sensitivities to changes in market factors shown below. Actual sensitivity of our net income may differ from those disclosed in the tables below due to differences between short-term market movements and management judgment regarding the long-term assumptions implicit in our benefit ratios. Furthermore, the sensitivities below could vary by multiples of the sensitivities in the tables below.
- In addition, the tables below do not reflect the expected quarterly run rate of net income generated by the variable annuity guarantee reinsurance portfolio if markets remain unchanged during the period. All else equal, if markets remain unchanged during the period, the Gross FVL will increase, resulting in a realized loss. The realized loss occurs primarily because, during the period, we will collect premium on the full population while only 62 percent of that population has become eligible to annuitize and generate a claim (since approximately 38 percent of policies are not eligible to annuitize until after December 31, 2016). This increases the Gross FVL because future premiums are lower by the amount collected in the quarter, and also because future claims are discounted for a shorter period. We refer to this increase in Gross FVL as "timing effect". The unfavorable impact of timing effect on our Gross FVL in a quarter is not reflected in the sensitivity tables below. For this reason, when using the tables below to estimate the sensitivity of Gross FVL in the first quarter 2017 to various changes, it is necessary to assume an additional $5 million to $45 million increase in Gross FVL and realized losses. However, the impact to Net income is substantially mitigated because the majority of this realized loss is offset by the positive quarterly run rate of Life Insurance underwriting income generated by the variable annuity guarantee reinsurance portfolio if markets remain unchanged during the period. Note that both the timing effect and the quarterly run rate of Life underwriting income change over time as the book ages.

Interest Rate Shock

(in millions of U.S. dollars)		Worldwide Equity Shock +10%	Flat	-10 %	-20 %	-30 %	-40 %
+100 bps	(Increase)/decrease in Gross FVL	$ 410	$ 264	$ 38	$ (242)	$ (577)	$ (958)
	Increase/(decrease) in hedge value	(132)	—	132	263	395	526
	Increase/(decrease) in net income	$ 278	$ 264	$ 170	$ 21	$ (182)	$ (432)
Flat	(Increase)/decrease in Gross FVL	$ 207	$ —	$ (260)	$ (576)	$ (943)	$ (1,347)
	Increase/(decrease) in hedge value	(132)	—	132	263	395	526
	Increase/(decrease) in net income	$ 75	$ —	$ (128)	$ (313)	$ (548)	$ (821)
-100 bps	(Increase)/decrease in Gross FVL	$ (78)	$ (318)	$ (613)	$ (960)	$ (1,352)	$ (1,768)
	Increase/(decrease) in hedge value	(132)	—	132	263	395	526
	Increase/(decrease) in net income	$ (210)	$ (318)	$ (481)	$ (697)	$ (957)	$ (1,242)

Sensitivities to Other Economic Variables

(in millions of U.S. dollars)	AA-rated Credit Spreads +100 bps	-100 bps	Interest Rate Volatility +2 %	-2 %	Equity Volatility +2 %	-2 %
(Increase)/decrease in Gross FVL	$ 65	$ (73)	$ (1)	$ 1	$ (9)	$ 8
Increase/(decrease) in hedge value	—	—	—	—	—	—
Increase/(decrease) in net income	$ 65	$ (73)	$ (1)	$ 1	$ (9)	$ 8

Sensitivities to Actuarial Assumptions

(in millions of U.S. dollars)	Mortality +20 %	+10 %	-10 %	-20 %
(Increase)/decrease in Gross FVL	$ 33	$ 17	$ (17)	$ (35)
Increase/(decrease) in hedge value	—	—	—	—
Increase/(decrease) in net income	$ 33	$ 17	$ (17)	$ (35)

(in millions of U.S. dollars)	Lapses +50 %	+25 %	-25 %	-50 %
(Increase)/decrease in Gross FVL	$ 144	$ 76	$ (84)	$ (178)
Increase/(decrease) in hedge value	—	—	—	—
Increase/(decrease) in net income	$ 144	$ 76	$ (84)	$ (178)

(in millions of U.S. dollars)	Annuitization +50 %	+25 %	-25 %	-50 %
(Increase)/decrease in Gross FVL	$ (452)	$ (246)	$ 287	$ 514
Increase/(decrease) in hedge value	—	—	—	—
Increase/(decrease) in net income	$ (452)	$ (246)	$ 287	$ 514

Variable Annuity Net Amount at Risk

All our VA reinsurance treaties include annual or aggregate claim limits and many include an aggregate deductible which limit the net amount at risk under these programs. The tables below present the net amount at risk at December 31, 2016 following an immediate change in equity market levels, assuming all global equity markets are impacted equally. For further information on the net amount at risk, refer to Note 5 c) to the Consolidated Financial Statements.

a) Reinsurance covering the GMDB risk only

(in millions of U.S. dollars)	Equity Shock +20%	Flat	-20 %	-40 %	-60 %	-80 %
GMDB net amount at risk	$ 305	$ 341	$ 725	$ 1,089	$ 1,071	$ 910
Claims at 100% immediate mortality	196	202	226	235	233	219

The treaty claim limits function as a ceiling as equity markets fall. As the shocks in the table above become incrementally more negative, the impact on the NAR and claims at 100 percent mortality begin to drop due to the specific nature of these claim

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limits, many of which are annual claim limits calculated as a percentage of the reinsured account value. There is also some impact due to a small portion of the GMDB reinsurance under which claims are positively correlated to equity markets (claims decrease as equity markets fall).

b) Reinsurance covering the GLB risk only

	Equity Shock					
(in millions of U.S. dollars)	+20%	Flat	-20 %	-40 %	-60 %	-80 %
GLB net amount at risk	$ 444	$ 800	$ 1,400	$ 2,227	$ 2,722	$ 2,968

The treaty claim limits cause the net amount at risk to increase at a declining rate as equity markets fall.

c) Reinsurance covering both the GMDB and GLB risks on the same underlying policyholders

	Equity Shock					
(in millions of U.S. dollars)	+20%	Flat	-20 %	-40 %	-60 %	-80 %
GMDB net amount at risk	$ 69	$ 88	$ 110	$ 127	$ 139	$ 145
GLB net amount at risk	287	464	772	1,228	1,661	2,026
Claims at 100% immediate mortality	19	22	206	370	469	561

The treaty limits control the increase in the GMDB net amount at risk as equity markets fall. The GMDB net amount at risk continues to grow as equity markets fall because most of these reinsurance treaties do not have annual claim limits calculated as a percentage of the underlying account value. The treaty limits cause the GLB net amount at risk to increase at a declining rate as equity markets fall.

ITEM 8. Financial Statements and Supplementary Data

The financial statements and supplementary data are included in this Form 10-K commencing on page F-1.

ITEM 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

ITEM 9A. Controls and Procedures

Chubb’s management, with the participation of Chubb’s Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of Chubb’s disclosure controls and procedures as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Securities Exchange Act of 1934 as of December 31, 2016 . Based upon that evaluation, which excluded the acquisition of The Chubb Corporation discussed below, Chubb’s Chief Executive Officer and Chief Financial Officer concluded that Chubb’s disclosure controls and procedures are effective in allowing information required to be disclosed in reports filed under the Securities and Exchange Act of 1934 to be recorded, processed, summarized, and reported within time periods specified in the rules and forms of the SEC, and that such information is accumulated and communicated to Chubb’s management, including its Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

During the first quarter 2016, we acquired all of the outstanding shares of The Chubb Corporation (legacy Chubb Corp). For the year ended December 31, 2016, legacy Chubb Corp represented approximately 39 percent of consolidated revenues, and approximately 42 percent of consolidated net income. At December 31, 2016, legacy Chubb Corp represented approximately 27 percent of consolidated assets. We currently exclude, and are in the process of working to incorporate, legacy Chubb Corp in our evaluation of internal controls over financial reporting and related disclosure controls and procedures.

Other than working to incorporate legacy Chubb Corp as mentioned above, there has been no change in Chubb’s internal controls over financial reporting during the three months ended December 31, 2016 that has materially affected, or is reasonably likely to materially affect, Chubb’s internal controls over financial reporting. Chubb's management report on internal control over financial reporting is included on page F-3 and PricewaterhouseCoopers LLP's audit report is included on page F-4.

ITEM 9B. Other Information

None.

PART III

ITEM 10. Directors, Executive Officers and Corporate Governance

Information pertaining to this item is incorporated by reference to the sections entitled "Agenda Item 5 - Election of the Board of Directors", "Corporate Governance - Director Nomination Process and Annual Board Skills Review", "Corporate Governance - The Committees of the Board - Audit Committee", and "Corporate Governance - Did Our Officers and Directors Comply with Section 16(a) Beneficial Ownership Reporting in 2016 ?" of the definitive proxy statement for the 2017 Annual General Meeting of Shareholders which will be filed with the SEC not later than 120 days after the close of the fiscal year pursuant to regulation 14A. Also incorporated herein by reference is the text under the caption "Executive Officers of the Registrant" appearing at the end of Part I Item 1 of the Annual Report on Form 10-K.

Code of Ethics
Chubb has adopted a Code of Conduct, which sets forth standards by which all Chubb employees, officers, and directors must abide as they work for Chubb. Chubb has posted this Code of Conduct on its Internet site (investors.chubb.com, under Corporate Governance/Highlights and Governance Documents/The Chubb Code of Conduct). Chubb intends to disclose on its Internet site any amendments to, or waivers from, its Code of Conduct that are required to be publicly disclosed pursuant to the rules of the SEC or the New York Stock Exchange.

ITEM 11. Executive Compensation

This item is incorporated by reference to the sections entitled "Executive Compensation", "Compensation Committee Report" and "Director Compensation" of the definitive proxy statement for the 2017 Annual General Meeting of Shareholders which will be filed with the SEC not later than 120 days after the close of the fiscal year pursuant to Regulation 14A.

ITEM 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

This item is incorporated by reference to the sections entitled "Information About our Share Ownership" and "Agenda Item 9 - Approval of Amended and Restated Chubb Limited Employee Stock Purchase Plan - Authorized Securities under Equity Compensation Plans" of the definitive proxy statement for the 2017 Annual General Meeting of Shareholders which will be filed with the SEC not later than 120 days after the close of the fiscal year pursuant to Regulation 14A.

ITEM 13. Certain Relationships and Related Transactions and Director Independence

This item is incorporated by reference to the sections entitled "Corporate Governance - What Is Our Related Party Transactions Approval Policy and What Procedures Do We Use to Implement It?", "Corporate Governance - What Related Person Transactions Do We Have?", and "Corporate Governance - The Board of Directors - Director Independence and Other Information" of the definitive proxy statement for the 2017 Annual General Meeting of Shareholders which will be filed with the SEC not later than 120 days after the close of the fiscal year pursuant to Regulation 14A.

ITEM 14. Principal Accounting Fees and Services

This item is incorporated by reference to the section entitled "Agenda Item 4 – 4.2 - Election of Auditors - Ratification of appointment of PricewaterhouseCoopers LLP (United States) as independent registered public accounting firm for purposes of U.S. securities law reporting" of the definitive proxy statement for the 2017 Annual General Meeting of Shareholders which will be filed with the SEC not later than 120 days after the close of the fiscal year pursuant to Regulation 14A.

PART IV

ITEM 15. Exhibits, Financial Statement Schedules

(a) Financial Statements, Schedules, and Exhibits

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Other schedules have been omitted as they are not applicable to Chubb, or the required information has been included in the Consolidated Financial Statements and related notes.

3. Exhibits

		Incorporated by Reference			
Exhibit Number	Exhibit Description	Form	Original Number	Date Filed	Filed Herewith
2.1	Agreement and Plan of Merger, by and among ACE Limited, William Investment Holdings Corporation and The Chubb Corporation, dated as of June 30, 2015	8-K	2.1	July 7, 2015	
3.1	Articles of Association of the Company, as amended and restated	8-K	3.1	May 20, 2016	
3.2	Organizational Regulations of the Company as amended	8-K	3.1	November 21, 2016	
4.1	Articles of Association of the Company, as amended and restated	8-K	4.1	May 20, 2016	
4.2	Organizational Regulations of the Company as amended	8-K	3.1	November 21, 2016	
4.3	Specimen share certificate representing Common Shares	8-K	4.3	July 18, 2008	
4.4	Form of 2.6 percent Senior Notes due 2015	8-K	4.1	November 23, 2010	
4.5	Indenture, dated March 15, 2002, between ACE Limited and Bank One Trust Company, N.A.	8-K	4.1	March 22, 2002	
4.6	Senior Indenture, dated August 1, 1999, among ACE INA Holdings, Inc., ACE Limited and Bank of New York Mellon Trust Company, N.A. (as successor), as trustee	S-3 ASR	4.4	December 10, 2014	

Exhibit Number	Exhibit Description	Incorporated by Reference Form	Original Number	Date Filed	Filed Herewith
4.7	Indenture, dated November 30, 1999, among ACE INA Holdings, Inc. and Bank One Trust Company, N.A., as trustee	10-K	10.38	March 29, 2000	
4.8	Indenture, dated December 1, 1999, among ACE INA Holdings, Inc., ACE Limited and Bank One Trust Company, National Association, as trustee	10-K	10.41	March 29, 2000	
4.9	Amended and Restated Trust Agreement, dated March 31, 2000, among ACE INA Holdings, Inc., Bank One Trust Company, National Association, as property trustee, Bank One Delaware Inc., as Delaware trustee and the administrative trustees named therein	10-K	4.17	March 16, 2006	
4.10	Common Securities Guarantee Agreement, dated March 31, 2000	10-K	4.18	March 16, 2006	
4.11	Capital Securities Guarantee Agreement, dated March 31, 2000	10-K	4.19	March 16, 2006	
4.12	Form of 2.70 percent Senior Notes due 2023	8-K	4.1	March 13, 2013	
4.13	Form of 4.15 percent Senior Notes due 2043	8-K	4.2	March 13, 2013	
4.14	First Supplemental Indenture dated as of March 13, 2013 to the Indenture dated as of August 1, 1999 among ACE INA Holdings, Inc., as Issuer, ACE Limited, as Guarantor, and The Bank of New York Mellon Trust Company, N.A., as Successor Trustee	8-K	4.3	March 13, 2013	
4.15	Form of 3.35 percent Senior Notes due 2024	8-K	4.1	May 27, 2014	
4.16	Form of 3.150 percent Senior Notes due 2025	8-K	4.1	March 16, 2015	
4.17	Form of 2.30 percent Senior Notes due 2020	8-K	4.1	November 3, 2015	
4.18	Form of 2.875 percent Senior Notes due 2022	8-K	4.2	November 3, 2015	
4.19	Form of 3.35 percent Senior Notes due 2026	8-K	4.3	November 3, 2015	
4.20	Form of 4.35 percent Senior Notes due 2045	8-K	4.4	November 3, 2015	
4.21	First Supplemental Indenture to the Chubb Corp Senior Indenture dated as of January 15, 2016 to the Indenture dated as of October 25, 1989 among ACE INA Holdings, Inc., as Successor Issuer, ACE Limited, as Guarantor, and The Bank of New York Mellon Trust Company, N.A., as Trustee	8-K	4.1	January 15, 2016	
4.22	Second Supplemental Indenture to the Chubb Corp Junior Subordinated Indenture dated as of January 15, 2016 to the Indenture dated as of March 29, 2007 among ACE INA Holdings, Inc., as Successor Issuer, ACE Limited, as Guarantor, and The Bank of New York Mellon Trust Company, N.A., as Trustee	8-K	4.2	January 15, 2016	
4.23	Chubb Corp Senior Indenture (incorporated by reference to Exhibit 4(a) to Chubb Corp's Registration Statement on Form S-3 filed on October 27, 1989) (File No. 33-31796)	S-3	4(a)	October 27, 1989	
4.24	Chubb Corp Junior Subordinated Indenture (incorporated by reference to Exhibit 4.1 to Chubb Corp's Current Report on Form 8-K filed on March 30, 2007) (File No. 001-08661)	8-K	4.1	March 30, 2007	

Exhibit Number	Exhibit Description	Incorporated by Reference Form	Original Number	Date Filed	Filed Herewith
4.25	First Supplemental Indenture to the Chubb Corp Junior Subordinated Indenture dated as of March 29, 2007 between the Chubb Corporation and The Bank of New York Trust Company, N.A., as Trustee (incorporated by reference to Exhibit 4.2 to Chubb Corp's Current Report on Form 8-K filed on March 30, 2007) (File No. 001-08661)	8-K	4.2	March 30, 2007	
4.26	Form of 5.75 percent Chubb Corp Senior Notes due 2018 (incorporated by reference to Exhibit 4.1 to Chubb Corp's Current Report on Form 8-K filed on May 6, 2008) (File No. 001-08661)	8-K	4.1	May 6, 2008	
4.27	Form of 6.60 percent Chubb Corp Debentures due 2018 (incorporated by reference to Exhibit 4(a) to Chubb Corp's Registration Statement on Form S-3 filed on October 27, 1989) (File No. 33-31796)	S-3	4(a)	October 27, 1989	
4.28	Form of 6.80 percent Chubb Corp Debentures due 2031 (incorporated by reference to Exhibit 4(a) to Chubb Corp's Registration Statement on Form S-3 filed on October 27, 1989) (File No. 33-31796)	S-3	4(a)	October 27, 1989	
4.29	Form of 6.00 percent Chubb Corp Senior Notes due 2037 (incorporated by reference to Exhibit 4.1 to Chubb Corp's Current Report on Form 8-K filed on May 11, 2007) (File No. 001-08661)	8-K	4.1	May 11, 2007	
4.30	Form of 6.50 percent Chubb Corp Senior Notes due 2038 (incorporated by reference to Exhibit 4.2 to Chubb Corp's Current Report on Form 8-K filed on May 6, 2008) (File No. 001-08661)	8-K	4.2	May 6, 2008	
4.31	Form of debenture for the 6.375 percent Chubb Corp DISCs (incorporated by reference to Exhibit 4.3 to Chubb Corp's Current Report on Form 8-K filed on March 30, 2007) (File No. 001-08661)	8-K	4.3	March 30, 2007	
4.32	Procedures regarding the registration of shareholders in the share register of Chubb Limited				X
10.1*	Form of Indemnification Agreement between the Company and the directors of the Company, dated August 13, 2015	10-K	10.1	February 26, 2016	
10.2	Credit Agreement for $1,000,000,000 Senior Unsecured Letter of Credit Facility, dated as of November 6, 2012, among ACE Limited, and certain subsidiaries and Wells Fargo Bank, National Association as Administrative Agent, the Swingline Bank and an Issuing Bank	10-K	10.13	February 28, 2013	
10.3*	Employment Terms dated October 29, 2001, between ACE Limited and Evan Greenberg	10-K	10.64	March 27, 2003	
10.4*	Employment Terms dated November 2, 2001, between ACE Limited and Philip V. Bancroft	10-K	10.65	March 27, 2003	
10.5*	Executive Severance Agreement between ACE Limited and Philip Bancroft, effective January 2, 2002	10-Q	10.1	May 10, 2004	
10.6*	Letter Regarding Executive Severance between ACE Limited and Philip V. Bancroft	10-K	10.17	February 25, 2011	
10.7*	Employment Terms dated April 10, 2006, between ACE and John Keogh	10-K	10.29	February 29, 2008	

Exhibit Number	Exhibit Description	Incorporated by Reference Form	Original Number	Date Filed	Filed Herewith
10.8*	Executive Severance Agreement between ACE and John Keogh	10-K	10.30	February 29, 2008	
10.9*	ACE Limited Executive Severance Plan as amended effective May 18, 2011	10-K	10.21	February 24, 2012	
10.10*	Form of employment agreement between the Company (or subsidiaries of the Company) and executive officers of the Company to allocate a percentage of aggregate salary to the Company (or subsidiaries of the Company)	8-K	10.1	July 16, 2008	
10.11*	Description of Executive Officer Cash Compensation for 2011	10-Q	10.1	November 3, 2011	
10.12*	Outside Directors Compensation Parameters				X
10.13*	ACE Limited Annual Performance Incentive Plan	S-1	10.13	January 21, 1993	
10.14*	ACE Limited Elective Deferred Compensation Plan (as amended and restated effective January 1, 2005)	10-K	10.24	March 16, 2006	
10.15*	ACE USA Officer Deferred Compensation Plan (as amended through January 1, 2001)	10-K	10.25	March 16, 2006	
10.16*	ACE USA Officer Deferred Compensation Plan (as amended and restated effective January 1, 2011)	10-Q	10.7	October 30, 2013	
10.17*	ACE USA Officer Deferred Compensation Plan (as amended and restated effective January 1, 2009)	10-K	10.36	February 27, 2009	
10.18*	First Amendment to the Amended and Restated ACE USA Officers Deferred Compensation Plan	10-K	10.28	February 25, 2010	
10.19*	Form of Swiss Mandatory Retirement Benefit Agreement (for Swiss-employed named executive officers)	10-Q	10.2	May 7, 2010	
10.20*	ACE Limited Supplemental Retirement Plan (as amended and restated effective July 1, 2001)	10-Q	10.1	November 14, 2001	
10.21*	ACE Limited Supplemental Retirement Plan (as amended and restated effective January 1, 2011)	10-Q	10.6	October 30, 2013	
10.22*	Amendments to the ACE Limited Supplemental Retirement Plan and the ACE Limited Elective Deferred Compensation Plan	10-K	10.38	February 29, 2008	
10.23*	ACE Limited Elective Deferred Compensation Plan (as amended and restated effective January 1, 2009)	10-K	10.39	February 27, 2009	
10.24*	ACE Limited Elective Deferred Compensation Plan (as amended and restated effective January 1, 2011)	10-Q	10.5	October 30, 2013	
10.25*	Deferred Compensation Plan amendments, effective January 1, 2009	10-K	10.40	February 27, 2009	
10.26*	Amendment to the ACE Limited Supplemental Retirement Plan	10-K	10.39	February 29, 2008	
10.27*	Amendment and restated ACE Limited Supplemental Retirement Plan, effective January 1, 2009	10-K	10.42	February 27, 2009	
10.28*	ACE USA Supplemental Employee Retirement Savings Plan	10-Q	10.6	May 15, 2000	

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Exhibit Number	Exhibit Description	Incorporated by Reference Form	Original Number	Date Filed	Filed Herewith
10.29*	ACE USA Supplemental Employee Retirement Savings Plan (as amended through the Second Amendment)	10-K	10.30	March 1, 2007	
10.30*	ACE USA Supplemental Employee Retirement Savings Plan (as amended through the Third Amendment)	10-K	10.31	March 1, 2007	
10.31*	ACE USA Supplemental Employee Retirement Savings Plan (as amended and restated)	10-K	10.46	February 27, 2009	
10.32*	First Amendment to the Amended and Restated ACE USA Supplemental Employee Retirement Savings Plan	10-K	10.39	February 25, 2010	
10.33*	The ACE Limited 1995 Outside Directors Plan (as amended through the Seventh Amendment)	10-Q	10.1	August 14, 2003	
10.34*	ACE Limited 1998 Long-Term Incentive Plan (as amended through the Fourth Amendment)	10-K	10.34	March 1, 2007	
10.35*	ACE Limited 2004 Long-Term Incentive Plan (as amended through the Fifth Amendment)	8-K	10	May 21, 2010	
10.36*	ACE Limited 2004 Long-Term Incentive Plan (as amended through the Sixth Amendment)	8-K	10.1	May 20, 2013	
10.37*	ACE Limited Rules of the Approved U.K. Stock Option Program	10-Q	10.2	February 13, 1998	
10.38*	Form of Restricted Stock Award Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-K	10.54	February 27, 2009	
10.39*	Form of Restricted Stock Award Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-K	10.55	February 27, 2009	
10.40*	Director Restricted Stock Award Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-Q	10.1	November 9, 2009	
10.41*	Form of Restricted Stock Unit Award Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-Q	10.1	May 8, 2008	
10.42*	Form of Restricted Stock Unit Award Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-Q	10.2	May 8, 2008	
10.43*	Form of Restricted Stock Unit Award Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-K	10.60	February 27, 2009	
10.44*	Form of Restricted Stock Unit Award Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-Q	10.2	October 30, 2013	
10.45*	Form of Restricted Stock Unit Award Terms under the ACE Limited 2004 Long-Term Incentive Plan for Chief Executive Officer, Chief Financial Officer and the General Counsel	10-K	10.56	February 28, 2014	
10.46*	Form of Incentive Stock Option Terms under the ACE Limited 2004 Long-Term Incentive Plan	8-K	10.4	September 13, 2004	
10.47*	Form of Incentive Stock Option Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-Q	10.4	May 8, 2008	
10.48*	Form of Incentive Stock Option Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-K	10.63	February 27, 2009	

Exhibit Number	Exhibit Description	Incorporated by Reference Form	Original Number	Date Filed	Filed Herewith
10.49*	Form of Incentive Stock Option Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-Q	10.3	October 30, 2013	
10.50*	Form of Non-Qualified Stock Option Terms under the ACE Limited 2004 Long-Term Incentive Plan	8-K	10.5	September 13, 2004	
10.51*	Form of Non-Qualified Stock Option Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-Q	10.3	May 8, 2008	
10.52*	Form of Non-Qualified Stock Option Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-Q	10.4	October 30, 2013	
10.53*	Form of Performance Based Restricted Stock Award Terms under the ACE Limited 2004 Long-Term Incentive Plan, as updated through May 4, 2006	10-Q	10.3	May 5, 2006	
10.54*	Revised Form of Performance Based Restricted Stock Award Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-Q	10.2	November 8, 2006	
10.55*	Revised Form of Performance Based Restricted Stock Award Terms under The ACE Limited 2004 Long-Term Incentive Plan	10-K	10.65	February 25, 2011	
10.56*	Form of Performance Based Restricted Stock Award Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-K	10.67	February 28, 2014	
10.57*	Form of Performance Based Restricted Stock Award Terms under the ACE Limited 2004 Long-Term Incentive Plan for Chief Executive Officer, Chief Financial Officer and the General Counsel	10-K	10.68	February 28, 2014	
10.58*	Form of Restricted Stock Unit Award Terms (for outside directors) under the ACE Limited 2004 Long-Term Incentive Plan	10-Q	10.2	November 7, 2007	
10.59*	Form of Restricted Stock Unit Award Terms (for outside directors) under the ACE Limited 2004 Long-Term Incentive Plan	10-Q	10.2	August 7, 2009	
10.60*	Form of Incentive Stock Option Terms under the ACE Limited 2004 Long-Term Incentive Plan for Messrs. Greenberg and Cusumano	10-Q	10.1	August 4, 2011	
10.61*	Form of Non-Qualified Stock Option Terms under the ACE Limited 2004 Long-Term Incentive Plan for Messrs. Greenberg and Cusumano	10-Q	10.2	August 4, 2011	
10.62*	Form of Restricted Stock Award Terms under the ACE Limited 2004 Long-Term Incentive Plan for Messrs. Greenberg and Cusumano	10-Q	10.3	August 4, 2011	
10.63*	ACE Limited Employee Stock Purchase Plan, as amended	8-K	10.1	May 22, 2012	
10.64*	Form of Performance Based Restricted Stock Award Terms under the ACE Limited 2004 Long-Term Incentive Plan for Messrs. Greenberg and Cusumano	10-K	10.72	February 24, 2012	
10.65*	Separation and Release Agreement between the Company and Robert Cusumano, dated July 24, 2013	10-Q	10.8	October 30, 2013	
10.66*	Form of Restricted Stock Award Terms under the ACE Limited 2004 Long-Term Incentive Plan for Swiss Executive Management	10-K	10.68	February 27, 2015	

Exhibit Number	Exhibit Description	Incorporated by Reference Form	Original Number	Date Filed	Filed Herewith
10.67*	Form of Performance Based Restricted Stock Award Terms under the ACE Limited 2004 Long-Term Incentive Plan for Swiss Executive Management	10-K	10.69	February 27, 2015	
10.68*	Form of Restricted Stock Unit Award Terms under the ACE Limited 2004 Long-Term Incentive Plan for Swiss Executive Management	10-K	10.70	February 27, 2015	
10.69*	Form of Incentive Stock Option Terms under the ACE Limited 2004 Long-Term Incentive Plan for Swiss Executive Management	10-K	10.71	February 27, 2015	
10.70*	Form of Non-Qualified Stock Option Terms under the ACE Limited 2004 Long-Term Incentive Plan for Swiss Executive Management	10-K	10.72	February 27, 2015	
10.71*	Form of Executive Management Non-Competition Agreement	8-K	10.1	May 22, 2015	
10.72	Commitment Increase Agreement to increase the credit capacity under the Credit Agreement originally entered into on November 6, 2012 to $1,500,000,000 under the Senior Unsecured Letter of Credit Facility, dated as of December 11, 2015, among ACE Limited, and certain subsidiaries, and Wells Fargo Bank, National Association as Administrative Agent, the Swingline Bank and an Issuing Bank	10-K	10.72	February 26, 2016	
10.73*	Form of Performance Based Restricted Stock Award Terms under the ACE Limited 2004 Long-Term Incentive Plan	10-K	10.73	February 26, 2016	
10.74*	Form of Performance Based Restricted Stock Award Terms under the ACE Limited 2004 Long-Term Incentive Plan for Special Award for Messrs. Greenberg and Keogh	10-K	10.74	February 26, 2016	
10.75*	Chubb Limited 2016 Long-Term Incentive Plan	S-8	4.4	May 26, 2016	
10.76*	Form of Incentive Stock Option Terms under the Chubb Limited 2016 Long-Term Incentive Plan	10-Q	10.2	August 5, 2016	
10.77*	Form of Restricted Stock Award Terms under the Chubb Limited 2016 Long-Term Incentive Plan	10-Q	10.3	August 5, 2016	
10.78*	Form of Restricted Stock Unit Award Terms under the Chubb Limited 2016 Long-Term Incentive Plan	10-Q	10.4	August 5, 2016	
10.79*	Form of Non-Qualified Stock Option Terms under the Chubb Limited 2016 Long-Term Incentive Plan	10-Q	10.5	August 5, 2016	
10.80*	Form of Incentive Stock Option Terms under the Chubb Limited 2016 Long-Term Incentive Plan for Swiss Executive Management	10-Q	10.6	August 5, 2016	
10.81*	Form of Restricted Stock Award Terms under the Chubb Limited 2016 Long-Term Incentive Plan for Swiss Executive Management	10-Q	10.7	August 5, 2016	
10.82*	Form of Restricted Stock Unit Award Terms under the Chubb Limited 206 Long-Term Incentive Plan for Swiss Executive Management	10-Q	10.8	August 5, 2016	
10.83*	Form of Non-Qualified Stock Option Terms under the Chubb Limited 2016 Long-Term Incentive Plan for Swiss Executive Management	10-Q	10.9	August 5, 2016	

Exhibit Number	Exhibit Description	Incorporated by Reference Form	Original Number	Date Filed	Filed Herewith
10.84*	Form of Performance Based Restricted Stock Award Terms under the Chubb Limited 2016 Long-Term Incentive Plan for Swiss Executive Management				X
10.85*	Form of Performance Based Restricted Stock Award Terms under the Chubb Limited 2016 Long-Term Incentive Plan				X
12.1	Ratio of earnings to fixed charges				X
18.1	Preferability Letter of Independent Registered Public Accounting Firm	10-Q	18.1	October 29, 2014	
21.1	Subsidiaries of the Company				X
23.1	Consent of Independent Registered Public Accounting Firm				X
31.1	Certification Pursuant to Section 302 of The Sarbanes-Oxley Act of 2002				X
31.2	Certification Pursuant to Section 302 of The Sarbanes-Oxley Act of 2002				X
32.1	Certification Pursuant to 18 U.S.C. Section 1350, As Adopted Pursuant to Section 906 of The Sarbanes-Oxley Act of 2002				X
32.2	Certification Pursuant to 18 U.S.C. Section 1350, As Adopted Pursuant to Section 906 of The Sarbanes-Oxley Act of 2002				X
101	The following financial information from Chubb Limited's Annual Report on Form 10-K for the year ended December 31, 2016, formatted in XBRL: (i) Consolidated Balance Sheets at December 31, 2016 and 2015; (ii) Consolidated Statements of Operations and Comprehensive Income for the years ended December 31, 2016, 2015, and 2014; (iii) Consolidated Statements of Shareholders' Equity for the years ended December 31, 2016, 2015, and 2014; (iv) Consolidated Statements of Cash Flows for the years ended December 31, 2016, 2015, and 2014; and (v) Notes to the Consolidated Financial Statements				X

* Management Contract or Compensation Plan

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

CHUBB LIMITED

By: /s/ Philip V. Bancroft

Philip V. Bancroft
Executive Vice President and Chief Financial Officer

February 27, 2017

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Evan G. Greenberg **Evan G. Greenberg**	Chairman, President, Chief Executive Officer, and Director	February 27, 2017
/s/ Philip V. Bancroft **Philip V. Bancroft**	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 27, 2017
/s/ Paul B. Medini **Paul B. Medini**	Chief Accounting Officer (Principal Accounting Officer)	February 27, 2017
/s/ Michael G. Atieh **Michael G. Atieh**	Director	February 27, 2017
/s/ Sheila P. Burke **Sheila P. Burke**	Director	February 27, 2017
/s/ James I. Cash **James I. Cash**	Director	February 27, 2017
/s/ Mary A. Cirillo **Mary A. Cirillo**	Director	February 27, 2017
/s/ Michael P. Connors **Michael P. Connors**	Director	February 27, 2017

Signature	Title	Date
/s/ John Edwardson **John Edwardson**	Director	February 27, 2017
/s/ Robert M. Hernandez **Robert M. Hernandez**	Director	February 27, 2017
/s/ Leo F. Mullin **Leo F. Mullin**	Director	February 27, 2017
/s/ Kimberly Ross **Kimberly Ross**	Director	February 27, 2017
/s/ Robert Scully **Robert Scully**	Director	February 27, 2017
/s/ Eugene B. Shanks, Jr. **Eugene B. Shanks, Jr.**	Director	February 27, 2017
/s/ Theodore E. Shasta **Theodore E. Shasta**	Director	February 27, 2017
/s/ David Sidwell **David Sidwell**	Director	February 27, 2017
/s/ Olivier Steimer **Olivier Steimer**	Director	February 27, 2017
/s/ James M. Zimmerman **James M. Zimmerman**	Director	February 27, 2017

CHUBB LIMITED AND SUBSIDIARIES

CONSOLIDATED FINANCIAL STATEMENTS

DECEMBER 31, 2016

Chubb Limited
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MANAGEMENT'S RESPONSIBILITY FOR FINANCIAL STATEMENTS AND INTERNAL CONTROL OVER FINANCIAL REPORTING

Financial Statements

The consolidated financial statements of Chubb Limited (Chubb) were prepared by management, which is responsible for their reliability and objectivity. The statements have been prepared in conformity with accounting principles generally accepted in the United States of America and, as such, include amounts based on informed estimates and judgments of management. Financial information elsewhere in this annual report is consistent with that in the consolidated financial statements.

The Board of Directors (Board), operating through its Audit Committee, which is composed entirely of directors who are not officers or employees of Chubb, provides oversight of the financial reporting process and safeguarding of assets against unauthorized acquisition, use or disposition. The Audit Committee annually recommends the appointment of an independent registered public accounting firm and submits its recommendation to the Board for approval.

The Audit Committee meets with management, the independent registered public accountants and the internal auditor; approves the overall scope of audit work and related fee arrangements; and reviews audit reports and findings. In addition, the independent registered public accountants and the internal auditor meet separately with the Audit Committee, without management representatives present, to discuss the results of their audits; the adequacy of Chubb's internal control; the quality of its financial reporting; and the safeguarding of assets against unauthorized acquisition, use or disposition.

The consolidated financial statements have been audited by an independent registered public accounting firm, PricewaterhouseCoopers LLP, which has been given unrestricted access to all financial records and related data, including minutes of all meetings of the Board and committees of the Board. Chubb believes that all representations made to our independent registered public accountants during their audits were valid and appropriate.

Internal Control over Financial Reporting

The management of Chubb is responsible for establishing and maintaining adequate internal control over financial reporting. Pursuant to the rules and regulations of the Securities and Exchange Commission, internal control over financial reporting is a process designed by, or under the supervision of our Chief Executive Officer and Chief Financial Officer to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our consolidated financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America.

As of December 31, 2016 , management has evaluated the effectiveness of Chubb's internal control over financial reporting based on the criteria for effective internal control over financial reporting established in “Internal Control - Integrated Framework,” issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013. Based on this evaluation, we have concluded that Chubb's internal control over financial reporting was effective as of December 31, 2016 .

In conducting our evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2016, we have excluded the acquisition of The Chubb Corporation (legacy Chubb Corp) as permitted by the guidance issued by the Office of the Chief Accountant of the Securities and Exchange Commission (not to extend one year beyond the date of acquisition or one annual reporting period). The acquisition was completed on January 14, 2016. As of and for the year ended December 31, 2016, legacy Chubb Corp's assets represented 27 percent of consolidated assets, revenues represented 39 percent of consolidated revenues, and net income represented 42 percent of consolidated net income. See Note 2 for further discussion of this acquisition and its impact on Chubb's Consolidated financial statements.

PricewaterhouseCoopers LLP, the independent registered public accounting firm that audited the consolidated financial statements of Chubb included in this Annual Report, has issued a report on the effectiveness of Chubb's internal controls over financial reporting as of December 31, 2016 . The report, which expresses an unqualified opinion on the effectiveness of Chubb's internal control over financial reporting as of December 31, 2016 , is included in this Item under “Report of Independent Registered Public Accounting Firm” and follows this statement.

/s/ Evan G. Greenberg	/s/ Philip V. Bancroft
Evan G. Greenberg	Philip V. Bancroft
Chairman, President and Chief Executive Officer	Executive Vice President and Chief Financial Officer

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Chubb Limited:

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of operations and comprehensive income, shareholders' equity, and cash flows present fairly, in all material respects, the financial position of Chubb Limited and its subsidiaries (the "Company") at December 31, 2016 and December 31, 2015 , and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2016 in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedules listed in the index appearing under Item 15(a)(2) present fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016 , based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements and financial statement schedules, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in Internal Control over Financial Reporting, appearing in Management's Responsibility for Financial Statements and Internal Control over Financial Reporting. Our responsibility is to express opinions on these financial statements, on the financial statement schedules, and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

As described in Management's Report on Internal Control over Financial Reporting, management has excluded The Chubb Corporation (“legacy Chubb Corp”) from its assessment of internal control over financial reporting as of December 31, 2016 because it was acquired by the Company in a purchase business combination during 2016. We have also excluded legacy Chubb Corp from our audit of internal control over financial reporting. Legacy Chubb Corp's total assets, total revenues, and net income represent approximately 27 percent, 39 percent, and 42 percent, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2016.

/s/ PricewaterhouseCoopers LLP

PricewaterhouseCoopers LLP
Philadelphia, Pennsylvania
February 28, 2017

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CONSOLIDATED BALANCE SHEETS
Chubb Limited and Subsidiaries

(in millions of U.S. dollars, except share and per share data)	**December 31 2016**	December 31 2015
Assets		
Investments		
Fixed maturities available for sale, at fair value (amortized cost – $79,536 and $43,149) (includes hybrid financial instruments of $2 and $31)	**$ 80,115**	$ 43,587
Fixed maturities held to maturity, at amortized cost (fair value – $10,670 and $8,552)	**10,644**	8,430
Equity securities, at fair value (cost – $706 and $441)	**814**	497
Short-term investments, at fair value and amortized cost	**3,002**	10,446
Other investments (cost – $4,270 and $2,993)	**4,519**	3,291
Total investments	**99,094**	66,251
Cash	**985**	1,775
Securities lending collateral	**1,092**	1,046
Accrued investment income	**918**	513
Insurance and reinsurance balances receivable	**8,970**	5,323
Reinsurance recoverable on losses and loss expenses	**13,577**	11,386
Reinsurance recoverable on policy benefits	**182**	187
Deferred policy acquisition costs	**4,314**	2,873
Value of business acquired	**355**	395
Goodwill	**15,332**	4,796
Other intangible assets	**6,763**	887
Prepaid reinsurance premiums	**2,448**	2,082
Deferred tax assets	**—**	318
Investments in partially-owned insurance companies	**666**	653
Other assets	**5,090**	3,821
Total assets	**$ 159,786**	$ 102,306
Liabilities		
Unpaid losses and loss expenses	**$ 60,540**	$ 37,303
Unearned premiums	**14,779**	8,439
Future policy benefits	**5,036**	4,807
Insurance and reinsurance balances payable	**5,637**	4,270
Securities lending payable	**1,093**	1,047
Accounts payable, accrued expenses, and other liabilities	**8,617**	6,205
Deferred tax liabilities	**988**	—
Repurchase agreements	**1,403**	1,404
Short-term debt	**500**	—
Long-term debt	**12,610**	9,389
Trust preferred securities	**308**	307
Total liabilities	**111,511**	73,171
Commitments and contingencies		
Shareholders' equity		
Common Shares (CHF 24.15 par value; 479,783,864 and 342,832,412 shares issued; 465,968,716 and 324,563,441 shares outstanding)	**11,121**	7,833
Common Shares in treasury (13,815,148 and 18,268,971 shares)	**(1,480)**	(1,922)
Additional paid-in capital	**15,335**	4,481
Retained earnings	**23,613**	19,478
Accumulated other comprehensive income (loss) (AOCI)	**(314)**	(735)
Total shareholders' equity	**48,275**	29,135
Total liabilities and shareholders' equity	**$ 159,786**	$ 102,306

See accompanying notes to the consolidated financial statements

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CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME

Chubb Limited and Subsidiaries

For the years ended December 31, 2016, 2015 and 2014 (in millions of U.S. dollars, except per share data)		2016		2015		2014
Revenues						
Net premiums written	**$**	**28,145**	$	17,713	$	17,799
Decrease (increase) in unearned premiums		**604**		(500)		(373)
Net premiums earned		**28,749**		17,213		17,426
Net investment income		**2,865**		2,194		2,252
Net realized gains (losses):						
Other-than-temporary impairment (OTTI) losses gross		**(111)**		(151)		(75)
Portion of OTTI losses recognized in other comprehensive income (OCI)		**8**		39		7
Net OTTI losses recognized in income		**(103)**		(112)		(68)
Net realized gains (losses) excluding OTTI losses		**(42)**		(308)		(439)
Total net realized gains (losses) (includes $(119) , $(151) , and $(24) reclassified from AOCI)		**(145)**		(420)		(507)
Total revenues		**31,469**		18,987		19,171
Expenses						
Losses and loss expenses		**16,052**		9,484		9,649
Policy benefits		**588**		543		517
Policy acquisition costs		**5,904**		2,941		3,075
Administrative expenses		**3,081**		2,270		2,245
Interest expense		**605**		300		280
Other (income) expense		**(222)**		(51)		(190)
Amortization of purchased intangibles		**19**		171		108
Chubb integration expenses		**492**		33		—
Total expenses		**26,519**		15,691		15,684
Income before income tax		**4,950**		3,296		3,487
Income tax expense (includes $28 , $(2) , and $9 on reclassified unrealized gains and losses)		**815**		462		634
Net income	**$**	**4,135**	$	2,834	$	2,853
Other comprehensive income (loss)						
Unrealized appreciation (depreciation)	**$**	**(35)**	$	(1,280)	$	820
Reclassification adjustment for net realized (gains) losses included in net income		**119**		151		24
		84		(1,129)		844
Change in:						
Cumulative foreign currency translation adjustment		**(154)**		(958)		(632)
Postretirement benefit liability adjustment		**545**		15		2
Other comprehensive income (loss), before income tax		**475**		(2,072)		214
Income tax (expense) benefit related to OCI items		**(54)**		146		(175)
Other comprehensive income (loss)		**421**		(1,926)		39
Comprehensive income	**$**	**4,556**	$	908	$	2,892
Earnings per share						
Basic earnings per share	**$**	**8.94**	$	8.71	$	8.50
Diluted earnings per share	**$**	**8.87**	$	8.62	$	8.42

See accompanying notes to the consolidated financial statements

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CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

Chubb Limited and Subsidiaries

For the years ended December 31, 2016, 2015 and 2014 (in millions of U.S. dollars)	**2016**	2015	2014
Common Shares			
Balance – beginning of year	**$ 7,833**	$ 8,055	$ 8,899
Shares issued for Chubb Corp acquisition	**3,288**	—	—
Dividends declared on Common Shares – par value reduction	**—**	(222)	(844)
Balance – end of year	**11,121**	7,833	8,055
Common Shares in treasury			
Balance – beginning of year	**(1,922)**	(1,448)	(255)
Common Shares repurchased	**—**	(734)	(1,449)
Net shares redeemed under employee share-based compensation plans	**442**	260	256
Balance – end of year	**(1,480)**	(1,922)	(1,448)
Additional paid-in capital			
Balance – beginning of year	**4,481**	5,145	5,238
Shares issued for Chubb Corp acquisition	**11,916**	—	—
Equity awards assumed in Chubb Corp acquisition	**323**	—	—
Net shares redeemed under employee share-based compensation plans	**(382)**	(160)	(167)
Exercise of stock options	**(64)**	(61)	(58)
Share-based compensation expense and other	**313**	184	185
Funding of dividends declared to Retained earnings	**(1,284)**	(653)	(81)
Tax benefit on share-based compensation expense	**32**	26	28
Balance – end of year	**15,335**	4,481	5,145
Retained earnings			
Balance – beginning of year	**19,478**	16,644	13,791
Net income	**4,135**	2,834	2,853
Funding of dividends declared from Additional paid-in capital	**1,284**	653	81
Dividends declared on Common Shares	**(1,284)**	(653)	(81)
Balance – end of year	**23,613**	19,478	16,644
Accumulated other comprehensive income (loss)			
Net unrealized appreciation on investments			
Balance – beginning of year	**874**	1,851	1,174
Change in year, before reclassification from AOCI, net of income tax benefit (expense) of $72 , $154 , and $(176)	**37**	(1,126)	644
Amounts reclassified from AOCI, net of income tax benefit (expense) of $28 , $(2) , and $9	**147**	149	33
Change in year, net of income tax benefit (expense) of $100 , $152 , and $(167)	**184**	(977)	677
Balance – end of year	**1,058**	874	1,851
Cumulative foreign currency translation adjustment			
Balance – beginning of year	**(1,539)**	(581)	63
Change in year, net of income tax benefit (expense) of $30 , nil, and $(12)	**(124)**	(958)	(644)
Balance – end of year	**(1,663)**	(1,539)	(581)
Postretirement benefit liability adjustment			
Balance – beginning of year	**(70)**	(79)	(85)
Change in year, net of income tax benefit (expense) of $(184) , $(6) , and $4	**361**	9	6
Balance – end of year	**291**	(70)	(79)
Accumulated other comprehensive income (loss)	**(314)**	(735)	1,191
Total shareholders' equity	**$ 48,275**	$ 29,135	$ 29,587

See accompanying notes to the consolidated financial statements

CONSOLIDATED STATEMENTS OF CASH FLOWS

Chubb Limited and Subsidiaries

For the years ended December 31, 2016, 2015, and 2014

(in millions of U.S. dollars)	**2016**	2015	2014
Cash flows from operating activities			
Net income	**$ 4,135**	$ 2,834	$ 2,853
Adjustments to reconcile net income to net cash flows from operating activities			
Net realized (gains) losses	**145**	420	507
Amortization of premiums/discounts on fixed maturities	**737**	158	188
Amortization of UPR related to the Chubb Corp acquisition	**1,559**	—	—
Deferred income taxes	**96**	113	145
Unpaid losses and loss expenses	**332**	(375)	317
Unearned premiums	**(680)**	335	441
Future policy benefits	**188**	216	236
Insurance and reinsurance balances payable	**848**	268	376
Accounts payable, accrued expenses, and other liabilities	**(97)**	179	13
Income taxes payable	**147**	(148)	103
Insurance and reinsurance balances receivable	**(616)**	(53)	(469)
Reinsurance recoverable on losses and loss expenses	**(365)**	218	119
Reinsurance recoverable on policy benefits	**7**	33	4
Deferred policy acquisition costs	**(1,449)**	(435)	(397)
Prepaid reinsurance premiums	**18**	(212)	(89)
Other	**287**	313	149
Net cash flows from operating activities	**5,292**	3,864	4,496
Cash flows from investing activities			
Purchases of fixed maturities available for sale	**(30,759)**	(16,040)	(15,553)
Purchases of to be announced mortgage-backed securities	**(56)**	(31)	—
Purchases of fixed maturities held to maturity	**(282)**	(62)	(267)
Purchases of equity securities	**(146)**	(158)	(251)
Sales of fixed maturities available for sale	**16,621**	10,783	7,482
Sales of to be announced mortgage-backed securities	**56**	31	—
Sales of equity securities	**1,000**	183	670
Maturities and redemptions of fixed maturities available for sale	**9,349**	6,567	6,413
Maturities and redemptions of fixed maturities held to maturity	**958**	669	875
Net change in short-term investments	**12,350**	(8,216)	(603)
Net derivative instruments settlements	**(168)**	(21)	(230)
Acquisition of subsidiaries (net of cash acquired of $71 , $629 , and $20)	**(14,248)**	264	(766)
Other	**10**	(263)	(274)
Net cash flows used for investing activities	**(5,315)**	(6,294)	(2,504)
Cash flows from financing activities			
Dividends paid on Common Shares	**(1,173)**	(862)	(862)
Common Shares repurchased	**—**	(758)	(1,429)
Proceeds from issuance of long-term debt	**—**	6,090	699
Proceeds from issuance of repurchase agreements	**2,310**	2,029	1,978
Repayment of long-term debt	**—**	(1,150)	(501)
Repayment of repurchase agreements	**(2,311)**	(2,027)	(1,977)
Proceeds from share-based compensation plans, including windfall tax benefits	**167**	131	127
Policyholder contract deposits	**522**	503	366
Policyholder contract withdrawals	**(253)**	(221)	(172)
Other	**(4)**	(40)	(6)
Net cash flows (used for) from financing activities	**(742)**	3,695	(1,777)
Effect of foreign currency rate changes on cash and cash equivalents	**(25)**	(145)	(139)
Net (decrease) increase in cash	**(790)**	1,120	76

Cash – beginning of year		**1,775**		655		579
Cash – end of year	**$**	**985**	$	1,775	$	655
Supplemental cash flow information						
Taxes paid	**$**	**662**	$	469	$	349
Interest paid	**$**	**642**	$	259	$	264

See accompanying notes to the consolidated financial statements

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
Chubb Limited and Subsidiaries

1 . Summary of significant accounting policies

a) Basis of presentation

On January 14, 2016, we completed the acquisition of The Chubb Corporation (Chubb Corp), creating a global leader in property and casualty (P&C) insurance. We have changed our name from ACE Limited to Chubb Limited and plan to adopt the Chubb name globally, although some subsidiaries may continue to use ACE as a part of their name.

Chubb Limited is a holding company incorporated in Zurich, Switzerland. Chubb Limited, through its subsidiaries, provides a broad range of insurance and reinsurance products to insureds worldwide. Effective the first quarter of 2016, our results are reported through the following business segments: North America Commercial P&C Insurance, North America Personal P&C Insurance, North America Agricultural Insurance, Overseas General Insurance, Global Reinsurance, and Life Insurance. This reflects our significantly larger and expanded operations subsequent to our acquisition of Chubb Corp. We have also redefined Corporate to include all run-off asbestos and environmental (A&E) exposures, the results of our run-off Brandywine business, the results of Westchester specialty operations for 1996 and prior years, and certain run-off exposures. Prior period amounts of Chubb Limited (i.e., excluding the historical results of Chubb Corp) contained in this report have been adjusted to conform to the new segment presentation. The results of operations and cash flows of Chubb Corp are included from the acquisition date forward (i.e., after January 14, 2016). Refer to Note 15 for additional information.

The accompanying consolidated financial statements, which include the accounts of Chubb Limited and its subsidiaries (collectively, Chubb, we, us, or our), have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP) and, in the opinion of management, reflect all adjustments (consisting of normally recurring accruals) necessary for a fair statement of the results and financial position for such periods. All significant intercompany accounts and transactions, including internal reinsurance transactions, have been eliminated.

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Amounts included in the Consolidated financial statements reflect our best estimates and assumptions; actual amounts could differ materially from these estimates. Chubb's principal estimates include:

- unpaid loss and loss expense reserves, including long-tail asbestos and environmental (A&E) reserves;
- future policy benefits reserves;
- the valuation of value of business acquired (VOBA) and amortization of deferred policy acquisition costs and VOBA;
- reinsurance recoverable, including a provision for uncollectible reinsurance;
- the assessment of risk transfer for certain structured insurance and reinsurance contracts;
- the valuation of the investment portfolio and assessment of OTTI;
- the valuation of deferred tax assets;
- the valuation of derivative instruments related to guaranteed living benefits (GLB);
- the valuation and amortization of purchased intangibles; and
- the assessment of goodwill for impairment.

b) Premiums

Premiums are generally recorded as written upon inception of the policy. For multi-year policies for which premiums written are payable in annual installments, only the current annual premium is included as written at policy inception due to the ability of the insured/reinsured to commute or cancel coverage within the policy term. The remaining annual premiums are recorded as written at each successive anniversary date within the multi-year term.

For P&C insurance and reinsurance products, premiums written are primarily earned on a pro-rata basis over the policy terms to which they relate. Unearned premiums represent the portion of premiums written applicable to the unexpired portion of the policies in force. For retrospectively-rated policies, written premiums are adjusted to reflect expected ultimate premiums consistent with changes to incurred losses, or other measures of exposure as stated in the policy, and earned over the policy coverage period. For retrospectively-rated multi-year policies, premiums recognized in the current period are computed, using a with-and-without method, as the difference between the ceding enterprise's total contract costs before and after the experience under the contract at the reporting date. Accordingly, for retrospectively-rated multi-year policies, additional premiums are generally written and earned when losses are incurred.

Mandatory reinstatement premiums assessed on reinsurance policies are earned in the period of the loss event that gave rise to the reinstatement premiums. All remaining unearned premiums are recognized over the remaining coverage period.

Premiums from long-duration contracts such as certain traditional term life, whole life, endowment, and long-duration personal accident and health (A&H) policies are generally recognized as revenue when due from policyholders. Traditional life policies include those contracts with fixed and guaranteed premiums and benefits. Benefits and expenses are matched with income to result in the recognition of profit over the life of the contracts.

Retroactive loss portfolio transfer (LPT) contracts in which the insured loss events occurred prior to contract inception are evaluated to determine whether they meet criteria for reinsurance accounting. If reinsurance accounting is appropriate, written premiums are fully earned and corresponding losses and loss expenses recognized at contract inception. These contracts can cause significant variances in gross premiums written, net premiums written, net premiums earned, and net incurred losses in the years in which they are written. Reinsurance contracts sold not meeting criteria for reinsurance accounting are recorded using the deposit method as described below in Note 1 k).

Reinsurance premiums assumed are based on information provided by ceding companies supplemented by our own estimates of premium when we have not received ceding company reports. Estimates are reviewed and adjustments are recorded in the period in which they are determined. Premiums are earned over the coverage terms of the related reinsurance contracts and range from one to three years.

c) Deferred policy acquisition costs and value of business acquired
Policy acquisition costs consist of commissions (direct and ceded), premium taxes, and certain underwriting costs related directly to the successful acquisition of new or renewal insurance contracts. A VOBA intangible asset is established upon the acquisition of blocks of long-duration contracts in a business combination and represents the present value of estimated net cash flows for the contracts in force at the acquisition date. Acquisition costs and VOBA, collectively policy acquisition costs, are deferred and amortized. Amortization is recorded in Policy acquisition costs in the Consolidated statements of operations. Policy acquisition costs on P&C contracts are generally amortized ratably over the period in which premiums are earned. Policy acquisition costs on traditional long-duration contracts are amortized over the estimated life of the contracts, generally in proportion to premium revenue recognized based upon the same assumptions used in estimating the liability for future policy benefits. For non-traditional long-duration contracts, we amortize policy acquisition costs over the expected life of the contracts in proportion to expected gross profits. The effect of changes in estimates of expected gross profits is reflected in the period the estimates are revised. Policy acquisition costs are reviewed to determine if they are recoverable from future income, including investment income. Unrecoverable policy acquisition costs are expensed in the period identified.

Advertising costs are expensed as incurred except for direct-response campaigns that qualify for cost deferral, principally related to long-duration A&H business produced by the Overseas General Insurance segment, which are deferred and recognized as a component of Policy acquisition costs . For individual direct-response marketing campaigns that we can demonstrate have specifically resulted in incremental sales to customers and such sales have probable future economic benefits, incremental costs directly related to the marketing campaigns are capitalized as Deferred policy acquisition costs. Deferred policy acquisition costs, including deferred marketing costs, are reviewed regularly for recoverability from future income, including investment income, and amortized in proportion to premium revenue recognized, primarily over a ten -year period, the expected economic future benefit period based upon the same assumptions used in estimating the liability for future policy benefits. The expected future benefit period is evaluated periodically based on historical results and adjusted prospectively. The amount of deferred marketing costs reported in Deferred policy acquisition costs in the Consolidated balance sheets was $ 256 million and $ 250 million at December 31, 2016 and 2015 , respectively. Amortization expense for deferred marketing costs was $ 92 million, $ 78 million, and $ 99 million for the years ended December 31, 2016 , 2015 , and 2014 , respectively.

d) Reinsurance
Chubb assumes and cedes reinsurance with other insurance companies to provide greater diversification of business and minimize the net loss potential arising from large risks. Ceded reinsurance contracts do not relieve Chubb of its primary obligation to policyholders.

For both ceded and assumed reinsurance, risk transfer requirements must be met in order to account for a contract as reinsurance, principally resulting in the recognition of cash flows under the contract as premiums and losses. To meet risk transfer requirements, a reinsurance contract must include insurance risk, consisting of both underwriting and timing risk, and a reasonable possibility of a significant loss for the assuming entity. To assess risk transfer for certain contracts, Chubb generally develops expected discounted cash flow analyses at contract inception. Deposit accounting is used for contracts that do not meet risk transfer requirements. Deposit accounting requires that consideration received or paid be recorded in the balance sheet as opposed to recording premiums written or losses incurred in the statement of operations. Non-refundable fees on deposit contracts are earned based on the terms of the contract described below in Note 1 k).

Reinsurance recoverable includes balances due from reinsurance companies for paid and unpaid losses and loss expenses and policy benefits that will be recovered from reinsurers, based on contracts in force. The method for determining the reinsurance recoverable on unpaid losses and loss expenses incurred but not reported (IBNR) involves actuarial estimates consistent with those used to establish the associated liability for unpaid losses and loss expenses as well as a determination of Chubb's ability to cede unpaid losses and loss expenses under the terms of the reinsurance agreement.

Reinsurance recoverable is presented net of a provision for uncollectible reinsurance determined based upon a review of the financial condition of reinsurers and other factors. The provision for uncollectible reinsurance is based on an estimate of the reinsurance recoverable balance that will ultimately be unrecoverable due to reinsurer insolvency, a contractual dispute, or any other reason. The valuation of this provision includes several judgments including certain aspects of the allocation of reinsurance recoverable on IBNR claims by reinsurer and a default analysis to estimate uncollectible reinsurance. The primary components of the default analysis are reinsurance recoverable balances by reinsurer, net of collateral, and default factors used to determine the portion of a reinsurer's balance deemed uncollectible. The definition of collateral for this purpose requires some judgment and is generally limited to assets held in a Chubb-only beneficiary trust, letters of credit, and liabilities held with the same legal entity for which Chubb believes there is a contractual right of offset. The determination of the default factor is principally based on the financial strength rating of the reinsurer. Default factors require considerable judgment and are determined using the current financial strength rating, or rating equivalent, of each reinsurer as well as other key considerations and assumptions. The more significant considerations include, but are not necessarily limited to, the following:

- For reinsurers that maintain a financial strength rating from a major rating agency, and for which recoverable balances are considered representative of the larger population (i.e., default probabilities are consistent with similarly rated reinsurers and payment durations conform to averages), the financial rating is based on a published source and the default factor is based on published default statistics of a major rating agency applicable to the reinsurer's particular rating class. When a recoverable is expected to be paid in a brief period of time by a highly rated reinsurer, such as certain property catastrophe claims, a default factor may not be applied;
- For balances recoverable from reinsurers that are both unrated by a major rating agency and for which management is unable to determine a credible rating equivalent based on a parent, affiliate, or peer company, we determine a rating equivalent based on an analysis of the reinsurer that considers an assessment of the creditworthiness of the particular entity, industry benchmarks, or other factors as considered appropriate. We then apply the applicable default factor for that rating class. For balances recoverable from unrated reinsurers for which the ceded reserve is below a certain threshold, we generally apply a default factor of 34 percent, consistent with published statistics of a major rating agency;
- For balances recoverable from reinsurers that are either insolvent or under regulatory supervision, we establish a default factor and resulting provision for uncollectible reinsurance based on reinsurer-specific facts and circumstances. Upon initial notification of an insolvency, we generally recognize an expense for a substantial portion of all balances outstanding, net of collateral, through a combination of write-offs of recoverable balances and increases to the provision for uncollectible reinsurance. When regulatory action is taken on a reinsurer, we generally recognize a default factor by estimating an expected recovery on all balances outstanding, net of collateral. When sufficient credible information becomes available, we adjust the provision for uncollectible reinsurance by establishing a default factor pursuant to information received; and
- For other recoverables, management determines the provision for uncollectible reinsurance based on the specific facts and circumstances.

The methods used to determine the reinsurance recoverable balance and related provision for uncollectible reinsurance are regularly reviewed and updated, and any resulting adjustments are reflected in earnings in the period identified.

Prepaid reinsurance premiums represent the portion of premiums ceded to reinsurers applicable to the unexpired coverage terms of the reinsurance contracts in-force.

The value of reinsurance business assumed of $ 20 million and $ 21 million at December 31, 2016 and 2015 , respectively, included in Other assets in the accompanying Consolidated balance sheets, represents the excess of estimated ultimate value of the liabilities assumed under retroactive reinsurance contracts over consideration received. The value of reinsurance business assumed is amortized and recorded to Losses and loss expenses based on the payment pattern of the losses assumed and ranges between 9 and 40 years. The unamortized value is reviewed regularly to determine if it is recoverable based upon the terms of the contract, estimated losses and loss expenses, and anticipated investment income. Unrecoverable amounts are expensed in the period identified.

e) Investments
Fixed maturities are classified as either available for sale or held to maturity. The available for sale portfolio is reported at fair value. The held to maturity portfolio includes securities for which we have the ability and intent to hold to maturity or redemption and is reported at amortized cost. Equity securities are classified as available for sale and are recorded at fair value. Short-term investments comprise securities due to mature within one year of the date of purchase and are recorded at fair value which typically approximates cost. Short-term investments include certain cash and cash equivalents, which are part of investment portfolios under the management of external investment managers.

Other investments principally comprise life insurance policies, policy loans, trading securities, other direct equity investments, investment funds, and limited partnerships.

- Life insurance policies are carried at policy cash surrender value and income is recorded in Other income (expense).
- Policy loans are carried at outstanding balance and interest income is recorded to Net investment income.
- Trading securities are recorded on a trade date basis and carried at fair value. Unrealized gains and losses on trading securities are reflected in Other (income) expense.
- Other investments over which Chubb can exercise significant influence are accounted for using the equity method and income is recorded in Other (income) expense.
- All other investments over which Chubb cannot exercise significant influence are carried at fair value with changes in fair value recognized through OCI. For these investments, investment income is recognized in Net investment income and realized gains are recognized as related distributions are received.
- Partially-owned investment companies comprise entities in which we hold an ownership interest in excess of three percent. These investments as well as Chubb's investments in investment funds where our ownership interest is in excess of three percent are accounted for under the equity method because Chubb exerts significant influence. These investments apply investment company accounting to determine operating results, and Chubb retains the investment company accounting in applying the equity method. This means that investment income, realized gains or losses, and unrealized gains or losses are included in the portion of equity earnings reflected in Other (income) expense. As a result of the timing of the receipt of valuation data from the investment managers, these investments are generally reported on a three month lag.

Investments in partially-owned insurance companies primarily represent direct investments in which Chubb has significant influence and, as such, meet the requirements for equity accounting. We report our share of the net income or loss of the partially-owned insurance companies in Other (income) expense.

Realized gains or losses on sales of investments are determined on a first-in, first-out basis. Unrealized appreciation (depreciation) on investments is included as a separate component of AOCI in Shareholders' equity. We regularly review our investments for OTTI. Refer to Note 3 for additional information.

With respect to securities where the decline in value is determined to be temporary and the security's value is not written down, a subsequent decision may be made to sell that security and realize a loss. Subsequent decisions on security sales are the result of changing or unforeseen facts and circumstances (i.e., arising from a large insured loss such as a catastrophe), deterioration of the creditworthiness of the issuer or its industry, or changes in regulatory requirements. We believe that subsequent decisions to sell such securities are consistent with the classification of the majority of the portfolio as available for sale.

We use derivative instruments including futures, options, swaps, and foreign currency forward contracts for the purpose of managing certain investment portfolio risks and exposures. Refer to Note 10 for additional information. Derivatives are reported at fair value and are recorded in the accompanying Consolidated balance sheets in either Accounts payable, accrued expenses, and other liabilities or Other assets with changes in fair value included in Net realized gains (losses) in the Consolidated statements of operations. Collateral held by brokers equal to a percentage of the total value of open futures contracts is included in the investment portfolio.

Net investment income includes interest and dividend income and amortization of fixed maturity market premiums and discounts and is net of investment management and custody fees. In addition, net investment income includes the amortization of the fair value adjustment related to the acquired invested assets of Chubb Corp. An adjustment of $1,652 million related to the fair value of Chubb Corp's fixed maturities securities was recorded (fair value adjustment) at the date of acquisition. At December 31, 2016, the remaining balance of this fair value adjustment was $1,226 million which is expected to amortize over the next four years; however, the estimate could vary materially based on current market conditions, bond calls, and the duration of the acquired investment portfolio. In addition, sales of these acquired fixed maturities would also reduce the fair value adjustment balance. For mortgage-backed securities, and any other holdings for which there is a prepayment risk, prepayment assumptions are evaluated and revised as necessary. Any adjustments required due to the resultant change in effective yields and maturities are recognized prospectively. Prepayment fees or call premiums that are only payable when a security is called prior to its maturity are earned when received and reflected in Net investment income.

Chubb participates in a securities lending program operated by a third-party banking institution whereby certain assets are loaned to qualified borrowers and from which we earn an incremental return. Borrowers provide collateral, in the form of either cash or approved securities, of 102 percent of the fair value of the loaned securities. Each security loan is deemed to be an overnight transaction. Cash collateral is invested in a collateral pool which is managed by the banking institution. The collateral pool is subject to written investment guidelines with key objectives which include the safeguard of principal and adequate liquidity to meet anticipated redemptions. The fair value of the loaned securities is monitored on a daily basis, with additional collateral obtained or refunded as the fair value of the loaned securities changes. The collateral is held by the third-party banking institution, and the collateral can only be accessed in the event that the institution borrowing the securities is in default under the lending agreement. As a result of these restrictions, we consider our securities lending activities to be non-cash investing and financing activities. An indemnification agreement with the lending agent protects us in the event a borrower becomes insolvent or fails to return any of the securities on loan. The fair value of the securities on loan is included in fixed maturities and equity securities. The securities lending collateral is reported as a separate line in the Consolidated balance sheets with a related liability reflecting our obligation to return the collateral plus interest.

Similar to securities lending arrangements, securities sold under repurchase agreements, whereby Chubb sells securities and repurchases them at a future date for a predetermined price, are accounted for as collateralized investments and borrowings and are recorded at the contractual repurchase amounts plus accrued interest. Assets to be repurchased are the same, or substantially the same, as the assets transferred and the transferor, through right of substitution, maintains the right and ability to redeem the collateral on short notice. The fair value of the underlying securities is included in fixed maturities and equity securities. In contrast to securities lending programs, the use of cash received is not restricted. We report the obligation to return the cash as Repurchase agreements in the Consolidated balance sheets.

Refer to Note 4 for a discussion on the determination of fair value for Chubb's various investment securities.

f) Cash
Cash includes cash on hand and deposits with an original maturity of three months or less at time of purchase. Cash held by external money managers is included in Short-term investments.

We have agreements with a third-party bank provider which implemented two international multi-currency notional cash pooling programs. In each program, participating Chubb entities establish deposit accounts in different currencies with the bank provider and each day the credit or debit balances in every account are notionally translated into a single currency (U.S. dollars) and then notionally pooled. The bank extends overdraft credit to any participating Chubb entity as needed, provided that the overall notionally-pooled balance of all accounts in each pool at the end of each day is at least zero. Actual cash balances are not physically converted and are not commingled between legal entities. Any overdraft balances incurred under this program by a Chubb entity would be guaranteed by Chubb Limited (up to $ 300 million in the aggregate). Our syndicated letter of credit facility allows for same day drawings to fund a net pool overdraft should participating Chubb entities overdraw contributed funds from the pool.

g) Goodwill and Other intangible assets
Goodwill represents the excess of the cost of acquisitions over the fair value of net assets acquired and is not amortized. Goodwill is assigned at acquisition to the applicable reporting unit of the acquired entities giving rise to the goodwill. Goodwill impairment tests are performed annually or more frequently if circumstances indicate a possible impairment. For goodwill

impairment testing, we use a qualitative assessment to determine whether it is more likely than not (i.e., more than a 50 percent probability) that the fair value of a reporting unit is greater than its carrying amount. If our assessment indicates less than a 50 percent probability that fair value exceeds carrying value, we quantitatively estimate a reporting unit's fair value. Goodwill recorded in connection with investments in partially-owned insurance companies is recorded in Investments in partially-owned insurance companies and is also measured for impairment annually.

Indefinite lived intangible assets are not subject to amortization. Finite lived intangible assets are amortized over their useful lives, generally ranging from 1 to 30 years. Intangible assets are regularly reviewed for indicators of impairment. Impairment is recognized if the carrying amount is not recoverable from its undiscounted cash flows and is measured as the difference between the carrying amount and fair value.

h) Unpaid losses and loss expenses
A liability is established for the estimated unpaid losses and loss expenses under the terms of, and with respect to, Chubb's policies and agreements. Similar to premiums that are recognized as revenues over the coverage period of the policy, a liability for unpaid losses and loss expenses is recognized as expense when insured events occur over the coverage period of the policy. This liability includes a provision for both reported claims (case reserves) and incurred but not reported claims (IBNR reserves). IBNR reserve estimates are generally calculated by first projecting the ultimate cost of all losses that have occurred (expected losses), and then subtracting paid losses, case reserves, and loss expenses. The methods of determining such estimates and establishing the resulting liability are reviewed regularly and any adjustments are reflected in operations in the period in which they become known. Future developments may result in losses and loss expenses materially greater or less than recorded amounts.

Except for net loss and loss expense reserves of $ 38 million net of discount, held at December 31, 2016 , representing certain structured settlements for which the timing and amount of future claim payments are reliably determinable and $ 50 million, net of discount, of certain reserves for unsettled claims that are discounted in statutory filings, Chubb does not discount its P&C loss reserves. This compares with reserves of $ 42 million for certain structured settlements and $ 50 million of certain reserves for unsettled claims at December 31, 2015 . Structured settlements represent contracts purchased from life insurance companies primarily to settle workers' compensation claims, where payments to the claimant by the life insurance company are expected to be made in the form of an annuity. Chubb retains the liability to the claimant in the event that the life insurance company fails to pay. At December 31, 2016 , the liability due to claimants was $ 595 million, net of discount, and reinsurance recoverables due from the life insurance companies was $ 557 million, net of discount. For structured settlement contracts where payments are guaranteed regardless of claimant life expectancy, the amounts recoverable from the life insurance companies at December 31, 2016 are included in Other assets in the Consolidated balance sheets, as they do not meet the requirements for reinsurance accounting.

Included in Unpaid losses and loss expenses are liabilities for asbestos and environmental (A&E) claims and expenses. These unpaid losses and loss expenses are principally related to claims arising from remediation costs associated with hazardous waste sites and bodily-injury claims related to asbestos products and environmental hazards. The estimation of these liabilities is particularly sensitive to changes in the legal environment including specific settlements that may be used as precedents to settle future claims. However, Chubb does not anticipate future changes in laws and regulations in setting its A&E reserve levels.

Also included in Unpaid losses and loss expenses is an adjustment of $ 715 million related to Chubb Corp to adjust the carrying value of Chubb Corp's historical unpaid losses and loss expenses to fair value at the acquisition date. The estimated fair value consists of the present value of the expected net unpaid loss and loss adjustment expense payments adjusted for an estimated risk margin. The estimated cash flows are discounted at a risk free rate. The estimated risk margin varies based on the inherent risks associated with each type of reserve. The fair value is amortized through Amortization of purchased intangibles on the consolidated statements of operations over a range of 5 to 17 years, based on the estimated payout patterns of unpaid loss and loss expenses at the acquisition date. At December 31, 2016, the remaining balance of the fair value adjustment is $470 million .

Prior period development arises from changes to loss estimates recognized in the current year that relate to loss reserves first reported in previous calendar years and excludes the effect of losses from the development of earned premiums from previous accident years.

For purposes of analysis and disclosure, management views prior period development to be changes in the nominal value of loss estimates from period to period, net of premium and profit commission adjustments on loss sensitive contracts. Prior period development generally excludes changes in loss estimates that do not arise from the emergence of claims, such as those related to uncollectible reinsurance, interest, unallocated loss adjustment expenses, or foreign currency. Accordingly, specific items excluded from prior period development include the following: gains/losses related to foreign currency remeasurement; losses recognized from the early termination or commutation of reinsurance agreements that principally relate to the time value of money; changes in the value of reinsurance business assumed reflected in losses incurred but principally related to the time value of money; and losses that arise from changes in estimates of earned premiums from prior accident years. Except for foreign currency remeasurement, which is included in Net realized gains (losses), these items are included in current year losses.

i) Future policy benefits

The valuation of long-duration contract reserves requires management to make estimates and assumptions regarding expenses, mortality, persistency, and investment yields. Estimates are primarily based on historical experience and information provided by ceding companies and include a margin for adverse deviation. Interest rates used in calculating reserves range from less than 1.0 percent to 8.0 percent and less than 1.0 percent to 7.2 percent at December 31, 2016 and 2015 , respectively. Actual results could differ materially from these estimates. Management monitors actual experience and where circumstances warrant, will revise assumptions and the related reserve estimates. Revisions are recorded in the period they are determined.

Certain of our long-duration contracts are supported by assets that do not qualify for separate account reporting under GAAP. These assets are classified as trading securities and reported in Other investments and the offsetting liabilities are reported in Future policy benefits in the Consolidated balance sheets. Changes in the fair value of separate account assets that do not qualify for separate account reporting under GAAP are reported in Other income (expense) and the offsetting movements in the liabilities are included in Policy benefits in the Consolidated statements of operations.

j) Assumed reinsurance programs involving minimum benefit guarantees under variable annuity contracts

Chubb reinsures various death and living benefit guarantees associated with variable annuities issued primarily in the United States and Japan. We generally receive a monthly premium during the accumulation phase of the covered annuities (in-force) based on a percentage of either the underlying accumulated account values or the underlying accumulated guaranteed values. Depending on an annuitant's age, the accumulation phase can last many years. To limit our exposure under these programs, all reinsurance treaties include annual or aggregate claim limits and many include an aggregate deductible.

The guarantees which are payable on death, referred to as guaranteed minimum death benefits (GMDB), principally cover shortfalls between accumulated account value at the time of an annuitant's death and either i) an annuitant's total deposits; ii) an annuitant's total deposits plus a minimum annual return; or iii) the highest accumulated account value attained at any policy anniversary date. In addition, a death benefit may be based on a formula specified in the variable annuity contract that uses a percentage of the growth of the underlying contract value. Liabilities for GMDBs are based on cumulative assessments or premiums to date multiplied by a benefit ratio that is determined by estimating the present value of benefit payments and related adjustment expenses divided by the present value of cumulative assessment or expected premiums during the contract period.

Under reinsurance programs covering GLBs, we assume the risk of guaranteed minimum income benefits (GMIB) and guaranteed minimum accumulation benefits (GMAB) associated with variable annuity contracts. The GMIB risk is triggered if, at the time the contract holder elects to convert the accumulated account value to a periodic payment stream (annuitize), the accumulated account value is not sufficient to provide a guaranteed minimum level of monthly income. The GMAB risk is triggered if, at contract maturity, the contract holder's account value is less than a guaranteed minimum value. Our GLB reinsurance products meet the definition of a derivative for accounting purposes and is carried at fair value with changes in fair value recognized in income. Refer to Notes 5 c) and 10 a) for additional information.

k) Deposit assets and liabilities

Deposit assets arise from ceded reinsurance contracts purchased that do not transfer significant underwriting or timing risk. Deposit liabilities include reinsurance deposit liabilities and contract holder deposit funds. The reinsurance deposit liabilities arise from contracts sold for which there is not a significant transfer of risk. Contract holder deposit funds represent a liability for investment contracts sold that do not meet the definition of an insurance contract, and certain of these contracts are sold with a guaranteed rate of return. Under deposit accounting, consideration received or paid is recorded as a deposit asset or liability in the balance sheet as opposed to recording premiums and losses in the statement of operations.

Interest income on deposit assets, representing the consideration received or to be received in excess of cash payments related to the deposit contract, is earned based on an effective yield calculation. The calculation of the effective yield is based on the amount and timing of actual cash flows at the balance sheet date and the estimated amount and timing of future cash flows.

The effective yield is recalculated periodically to reflect revised estimates of cash flows. When a change in the actual or estimated cash flows occurs, the resulting change to the carrying amount of the deposit asset is reported as income or expense. Deposit assets of $ 93 million and $ 86 million at December 31, 2016 and 2015 , respectively, are reflected in Other assets in the Consolidated balance sheets and the accretion of deposit assets related to interest pursuant to the effective yield calculation is reflected in Net investment income in the Consolidated statements of operations.

Deposit liabilities include reinsurance deposit liabilities of $ 108 million and $ 110 million and contract holder deposit funds of $ 1.5 billion and $ 1.1 billion at December 31, 2016 and 2015 , respectively. Deposit liabilities are reflected in Accounts payable, accrued expenses, and other liabilities in the Consolidated balance sheets. At contract inception, the deposit liability equals net cash received. An accretion rate is established based on actuarial estimates whereby the deposit liability is increased to the estimated amount payable over the contract term. The deposit accretion rate is the rate of return required to fund expected future payment obligations. We periodically reassess the estimated ultimate liability and related expected rate of return. Changes to the deposit liability are generally reflected through Interest expense to reflect the cumulative effect of the period the contract has been in force, and by an adjustment to the future accretion rate of the liability over the remaining estimated contract term.

The liability for contract holder deposit funds equals accumulated policy account values, which consist of the deposit payments plus credited interest less withdrawals and amounts assessed through the end of the period.

l) Property and Equipment
Property and equipment used in operations, including certain costs incurred to develop or obtain computer software for internal use, are capitalized and carried at cost less accumulated depreciation. Depreciation is calculated using the straight-line method over the estimated useful lives of the assets. Property and equipment are included in Other assets in the Consolidated balance sheets and totaled $ 1.2 billion and $ 938 million at December 31, 2016 and 2015, respectively.

m) Foreign currency remeasurement and translation
The functional currency for each of our foreign operations is generally the currency of the local operating environment. Transactions in currencies other than a foreign operation's functional currency are remeasured into the functional currency and the resulting foreign exchange gains and losses are reflected in Net realized gains (losses) in the Consolidated statements of operations. Functional currency assets and liabilities are translated into the reporting currency, U.S. dollars, using period end exchange rates and the related translation adjustments are recorded as a separate component of AOCI. Functional statement of operations amounts expressed in functional currencies are translated using average exchange rates.

n) Administrative expenses
Administrative expenses generally include all operating costs other than policy acquisition costs. The North America Commercial P&C Insurance segment manages and uses an in-house third-party claims administrator, ESIS Inc. (ESIS). ESIS performs claims management and risk control services for domestic and international organizations that self-insure P&C exposures as well as internal P&C exposures. The net operating results of ESIS are included within Administrative expenses in the Consolidated statements of operations and were $ 32 million, $ 30 million, and $ 27 million for the years ended December 31, 2016 , 2015 , and 2014 , respectively.

o) Income taxes
Income taxes have been recorded related to those operations subject to income taxes. Deferred tax assets and liabilities result from temporary differences between the amounts recorded in the Consolidated financial statements and the tax basis of our assets and liabilities. Refer to Note 8 for additional information. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. A valuation allowance against deferred tax assets is recorded if it is more likely than not that all, or some portion, of the benefits related to deferred tax assets will not be realized. The valuation allowance assessment considers tax planning strategies, where applicable.

We recognize uncertain tax positions deemed more likely than not of being sustained upon examination. Recognized income tax positions are measured at the largest amount that is greater than 50 percent likely of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs.

p) Earnings per share
Basic earnings per share is calculated using the weighted-average shares outstanding including participating securities with non-forfeitable rights to dividends such as unvested restricted stock. All potentially dilutive securities including stock options are excluded from the basic earnings per share calculation. In calculating diluted earnings per share, the weighted-average shares

outstanding is increased to include all potentially dilutive securities. Basic and diluted earnings per share are calculated by dividing net income by the applicable weighted-average number of shares outstanding during the year.

q) Cash flow information
Premiums received and losses paid associated with the GLB reinsurance products, which as discussed previously meet the definition of a derivative instrument for accounting purposes, are included within Cash flows from operating activities. Cash flows, such as settlements and collateral requirements, associated with GLB and all other derivative instruments are included on a net basis within Cash flows from investing activities. Purchases, sales, and maturities of short-term investments are recorded on a net basis within Cash flows from investing activities.

r) Derivatives
Chubb recognizes all derivatives at fair value in the Consolidated balance sheets and participates in derivative instruments in two principal ways:

(i) To sell protection to customers as an insurance or reinsurance contract that meets the definition of a derivative for accounting purposes . For 2016 and 2015 , the reinsurance of GLBs was our primary product falling into this category; and

(ii) To mitigate financial risks, principally arising from investment holdings, products sold, or assets and liabilities held in foreign currencies. For these instruments, changes in assets or liabilities measured at fair value are recorded as realized gains or losses in the Consolidated statements of operations.

We did not designate any derivatives as accounting hedges during 2016 , 2015 , or 2014 .

s) Share-based compensation
Chubb measures and records compensation cost for all share-based payment awards at grant-date fair value. Compensation costs are recognized for share-based payment awards with only service conditions that have graded vesting schedules on a straight-line basis over the requisite service period for each separately vesting portion of the award as if the award was, in substance, multiple awards. Refer to Note 12 for additional information.

t) Chubb integration expenses
Direct costs related to the Chubb Corp acquisition are expensed as incurred. Chubb integration expenses were $ 492 million for the year ended December 31, 2016, and include all internal and external costs directly related to the integration activities of the Chubb Corp acquisition, consisting primarily of personnel-related expenses, including severance and employee retention and relocation; consulting fees; and advisor fees. Chubb integration expenses were $ 33 million for the year ended December 31, 2015, consisting primarily of consulting and legal fees.

u) New accounting pronouncements
Adopted in 2016
Presentation of Debt Issuance Costs
In April 2015, the Financial Accounting Standard Board (FASB) issued new guidance related to the accounting for debt issuance costs. The new guidance requires presentation of debt issuance costs in the Consolidated balance sheets as a reduction of the carrying amount of the related debt liability instead of as a deferred charge. Previously this cost was recorded in Other assets. We retrospectively adopted this guidance effective January 1, 2016 and reclassified $ 60 million of debt issuance costs from Other assets to Long-term debt ($ 58 million) and Trust preferred securities ($ 2 million) as of December 31, 2015.

Short-Duration Contracts
In May 2015, the FASB issued guidance that requires additional disclosures for short-duration insurance contracts. We adopted this disclosure as of December 31, 2016 , and have included in Note 7, new disclosures that provide more information about initial claim estimates and subsequent adjustments to those estimates, the methodologies and judgments used to estimate claims, and the timing, frequency, and severity of claims. This guidance requires a change in disclosure only and adoption of this guidance did not have an impact on our financial condition or results of operations.

Adopted in 2015
Business Combinations – Simplifying the Accounting for Measurement-Period Adjustments
In September 2015, the Financial Accounting Standards Board (FASB) issued guidance to simplify the accounting for adjustments made to provisional valuation amounts recognized in a business combination. The guidance requires that the acquirer must recognize adjustments to provisional valuation amounts that are identified during the measurement period in the

reporting period in which the adjustment amounts are determined. The guidance eliminates the requirement to retrospectively account for such adjustments. Previously, the accounting for measurement-period adjustments required the acquirer to retrospectively adjust the provisional amounts recognized at the acquisition date with a corresponding adjustment to goodwill. We early adopted this guidance effective July 1, 2015. The adoption of this guidance did not have an impact on our financial condition or results of operations.

Disclosures for investments in certain entities that calculate net asset value (NAV)
In May 2015, the FASB issued guidance that eliminated the requirement for investments measured at fair value using NAV as a practical expedient to be categorized within the fair value hierarchy. We adopted this guidance early, effective July 1, 2015 and have retrospectively revised prior year fair value hierarchy disclosures contained in this report to conform to the current period presentation. Refer to Note 4 Fair Value Measurement for further information. This guidance requires a change in disclosure only and adoption of this guidance did not have an impact on our financial condition or results of operations.

Adopted in 2017
Stock Compensation (adopted prospectively effective January 1, 2017)
In March 2016, the FASB issued guidance which requires recognition of the excess tax benefits or deficiencies of awards through net income rather than through additional paid in capital. Additionally, the guidance allows for an election to account for forfeitures related to share-based payments either as they occur or through an estimation method. We adopted this guidance effective January 1, 2017 and are recognizing the excess tax benefits (deficiencies) within our results of operations. The calculation of the excess tax benefits and deficiencies is based on the difference between the market value of a stock award at the date of vesting, or at the time of exercise for a stock option, compared to the grant date fair value recognized as compensation expense in the consolidated statements of operations. The impact of adoption cannot be estimated at this time. However, based on excess tax benefits recognized in prior years, we do not expect adoption of this guidance to have a material impact on our financial condition and results of operations. Additionally, we elected to retain our current accounting for compensation expense using a forfeiture estimation process.

Accounting guidance not yet adopted
Revenue from Contracts with Customers
In May 2014, the FASB issued an accounting standard that supersedes most existing revenue recognition guidance. The standard excludes from its scope the accounting for insurance contracts, leases, financial instruments, and certain other agreements that are governed under other GAAP guidance, but could affect the revenue recognition for certain of our claims management and risk control services. The updated guidance requires an entity to recognize revenue as performance obligations are met, in order to reflect the transfer of promised goods or services to customers in an amount that reflects the consideration the entity is entitled to receive for those goods or services. The standard is effective for us in the first quarter of 2018 with early adoption permitted. The adoption of this guidance is not expected to have a material impact on our financial condition or results of operations given that the majority of our business is outside the scope of this guidance.

Financial Instruments – Recognition and Measurement of Financial Assets and Financial Liabilities
In January 2016, the FASB issued guidance that affects the recognition, measurement, presentation, and disclosure of financial instruments. The guidance requires equity investments to be measured at fair value with changes in fair value recognized through net income (other than those accounted for under equity method of accounting or those that result in consolidation of the investee) and an assessment of a valuation allowance on deferred tax assets related to unrealized losses of available for sale (AFS) debt securities in combination with other deferred tax assets. The standard is effective for us in the first quarter of 2018. We are in the process of evaluating the effect the updated guidance will have on our financial condition or results of operations.

Financial Instruments – Credit Losses: Measurement of Credit Losses on Financial Instruments
In June 2016, the FASB issued guidance on the accounting for credit losses of financial instruments that are measured at amortized cost, including held to maturity securities and reinsurance recoverables, by applying an approach based on the current expected credit losses (CECL). The estimate of expected credit losses should consider historical information, current information, as well as reasonable and supportable forecasts, including estimates of prepayments. The allowance for credit losses is a valuation account that is deducted from the amortized cost basis of the financial asset in order to present the net carrying value at the amount expected to be collected on the financial asset on the Consolidated balance sheet.

The guidance also amends the current debt security other-than-temporary impairment model by requiring an estimate of the expected credit loss (ECL) only when the fair value is below the amortized cost of the asset. The length of time the fair value of an AFS debt security has been below the amortized cost will no longer impact the determination of whether a potential credit loss exists. The AFS debt security model will also require the use of a valuation allowance as compared to the current practice of writing down the asset.

The standard is effective for us in the first quarter of 2020 with early adoption permitted in the first quarter of 2019. We will be able to assess the effect of adopting this guidance on our financial condition and results of operations closer to the date of adoption.

Statement of Cash Flows
In August 2016, the FASB issued guidance clarifying the classification of certain cash receipts and cash payments within the statement of cash flows, including distributions received from equity method investments. The guidance requires entities to make an accounting policy election to present cash flows received either in operating cash flows or investing cash flows based on cumulative equity-method earnings or on the nature of the distributions. The updated guidance is effective for us in the first quarter of 2018 with early adoption permitted. The updated guidance should be applied retrospectively, unless it is impracticable to do so, at which point the guidance should be applied prospectively. We are in the process of evaluating the effect the updated guidance will have on our statements of cash flows.

Goodwill Impairment
In January 2017, the FASB issued updated guidance on goodwill impairment testing that eliminates Step 2 of the goodwill impairment test requiring entities to calculate the implied fair value of goodwill through a hypothetical purchase price allocation. Under the updated guidance, impairment will now be recognized as the amount by which a reporting unit’s carrying value exceeds its fair value. The standard is effective for us in the first quarter of 2020 on a prospective basis with early adoption permitted. We do not expect the adoption of this guidance to have a material effect on our financial condition and results of operations.

2 . Acquisitions

The Chubb Corporation
On January 14, 2016, we completed the acquisition of Chubb Corp, a leading provider of middle-market commercial, specialty, surety, and personal insurance for $ 29.5 billion , comprising $ 14.3 billion in cash and $ 15.2 billion in newly-issued stock, based on the Chubb Limited (formerly ACE Limited) closing price on the acquisition date. In addition, we assumed outstanding equity awards to employees and directors with an attributed value of $ 323 million . The total consideration, including the assumption of equity awards, was $29.8 billion . We recognized goodwill of $ 10.5 billion , attributable to expected growth and profitability, none of which is expected to be deductible for income tax purposes. We financed the cash portion of the transaction through a combination of $ 9.0 billion sourced from various Chubb Limited and Chubb Corp companies plus $ 5.3 billion of senior notes, which were issued in November 2015. Refer to Note 9 for additional information on the senior notes.

Upon completion of the merger, each Chubb Corp common share (other than shares held by certain legacy Chubb Corp employee benefit plans) was canceled and converted, in accordance with the procedures set forth in the merger agreement, into the right to receive (i) 0.6019 of a Chubb Limited common share and (ii) $62.93 in cash. In addition, replacement equity awards were issued by Chubb Limited to the holders of Chubb Corp's outstanding equity awards (stock options, restricted stock units, deferred stock units, deferred unit obligations, and performance units).

We believe the Chubb Corp acquisition is highly complementary to our existing business lines, distribution channels, customer segments, and underwriting skills. Chubb Corp has a substantial presence in the U.S. with a broad variety of coverages serving large corporate and upper middle market accounts, middle market and small commercial accounts, and personal lines. Together we are one of the largest commercial insurers in the U.S. Internationally, where legacy ACE is a truly global insurer with extensive presence in 54 countries, Chubb Corp's operations in 25 markets added to our presence and capabilities and positioned us to better pursue important market opportunities globally. The combined company is a leader in a number of global specialty and traditional products such as professional lines, risk management, workers' compensation, accident and health (A&H), and other property and general casualty lines.

The table below details the purchase consideration and allocation of assets acquired and liabilities assumed:

(in millions, except per share data)		
Purchase consideration		
Chubb Limited common shares		
Chubb Corp common shares outstanding		228
Per share exchange ratio		0.6019
Common shares issued by Chubb Limited		137
Common share price of Chubb Limited at January 14, 2016	$	111.02
Fair value of common shares issued by Chubb Limited to common shareholders of Chubb Corp	$	15,204
Cash consideration		
Chubb Corp common shares outstanding		228
Agreed cash price per share paid to common shareholders of Chubb Corp	$	62.93
Cash consideration paid by Chubb Limited to common shareholders of Chubb Corp	$	14,319
Stock-based awards		
Fair value of equity awards issued (1)	$	323
Fair value of purchase consideration	$	29,846
Assets acquired and (liabilities) assumed		
Cash	$	71
Investments		42,967
Accrued investment income		359
Insurance and reinsurance balances receivable		3,095
Reinsurance recoverable on losses and loss expenses		1,676
Indefinite lived intangible assets		2,860
Finite lived intangible assets		4,795
Prepaid reinsurance premiums		280
Other assets		853
Unpaid losses and loss expenses		(22,923)
Unearned premiums		(7,011)
Insurance and reinsurance balances payable		(603)
Accounts payable, accrued expenses, and other liabilities		(2,030)
Deferred tax liabilities		(1,292)
Long-term debt		(3,765)
Total identifiable net assets acquired		19,332
Goodwill		10,514
Purchase price	$	29,846

(1) The fair value of the replacement equity awards was $525 million , of which $323 million was attributed to service periods prior to the acquisition and was included in the purchase consideration. Refer to Note 12 for further information on these replacement equity awards.

Refer to Note 6 for additional information on goodwill and intangible assets acquired.

The following table summarizes the results of the acquired Chubb Corp operations since the acquisition date that have been included within our Consolidated statement of operations:

(in millions of U.S. dollars)	January 14, 2016 to December 31, 2016
Total revenues	**$ 12,376**
Net income	**$ 1,756**

The following table provides supplemental unaudited pro forma consolidated information for the years ended December 31, 2016 and 2015, as if Chubb Corp had been acquired as of January 1, 2015. The unaudited pro forma consolidated financial statements are presented solely for informational purposes and are not necessarily indicative of the consolidated results of operations that might have been achieved had the transaction been completed as of the date indicated, nor are they meant to be indicative of any anticipated consolidated future results of operations that the combined company will experience after the transaction.

	Year Ended December 31	
(in millions of U.S. dollars, except per share data)	**2016**	2015
Total revenues	**$ 31,937**	$ 32,622
Net income	**$ 4,183**	$ 4,478
Earnings per share		
Basic earnings per share	**$ 8.95**	$ 9.61
Diluted earnings per share	**$ 8.88**	$ 9.52

Total revenues and net income were lower for the year ended December 31, 2016 , compared to the prior year, primarily reflecting merger-related underwriting actions in the current year, which lowered net premiums earned.

Prior year acquisitions

Fireman's Fund Insurance Company High Net Worth Personal Lines Insurance Business in the U.S. (Fireman's Fund)
On April 1, 2015, we acquired the Fireman's Fund Insurance Company high net worth personal lines insurance business in the U.S., which included the renewal rights for new and existing business and reinsurance of all existing reserves for $365 million in cash. We acquired assets with a fair value of $753 million , consisting primarily of cash of $629 million and insurance and reinsurance balances receivable of $124 million . We assumed liabilities with a fair value of $863 million , consisting primarily of unpaid losses and loss expenses of $417 million and unearned premiums of $428 million . This acquisition generated $196 million of goodwill, attributable to expected growth and profitability, all of which is expected to be deductible for income tax purposes, and other intangible assets of $278 million , primarily related to renewal rights, based on Chubb's purchase price allocation. The acquisition expanded our position in the high net worth personal lines insurers in the U.S. The Fireman's Fund business was integrated into our existing high net worth personal lines business, offering a broad range of coverage including homeowners, automobile, umbrella and excess liability, collectibles, and yachts. Goodwill and other intangible assets arising from this acquisition are included in our North America Personal P&C Insurance segment.

Large Corporate Account P&C Insurance Business of Itaú Seguros, S.A. (Itaú Seguros)
On October 31, 2014, we expanded our presence in Brazil with the acquisition of the large corporate account property and casualty (P&C) insurance business of Itaú Seguros, Brazil's leading carrier for that business, for $ 606 million in cash. This acquisition generated $ 445 million of goodwill, attributable to expected growth and profitability, and other intangible assets of $60 million , primarily related to renewal rights based on Chubb's purchase price allocation. During the fourth quarter of 2015, goodwill became deductible for income tax purposes under Brazilian tax law when we merged Itaú Seguros with a Chubb subsidiary.

The Siam Commercial Samaggi Insurance PCL (Samaggi)
We and our local partner acquired 60.86 percent of Samaggi, a general insurance company in Thailand, from Siam Commercial Bank on April 28, 2014, and subsequently acquired an additional 32.17 percent ownership, through a mandatory tender offer, which expired on June 17, 2014. The purchase price for 93.03 percent of the company was $ 176 million in cash. This acquisition expands our presence in Thailand and Southeast Asia.

The acquisition generated $ 46 million of goodwill, attributable to expected growth and profitability, none of which is deductible for income tax purposes, and other intangible assets of $ 80 million based on Chubb 's purchase price allocation. The other intangible assets primarily relate to a bancassurance agreement.

Goodwill and other intangible assets arising from the prior year acquisitions of Itaú Seguros and Samaggi described above are included in our Overseas General Insurance segment.

The Consolidated financial statements include results of acquired businesses from the acquisition dates.

3 . Investments

a) Fixed maturities

December 31, 2016 (in millions of U.S. dollars)	Amortized Cost	Gross Unrealized Appreciation	Gross Unrealized Depreciation	Fair Value	OTTI Recognized in AOCI
Available for sale					
U.S. Treasury and agency	$ 2,883	$ 32	$ (45)	$ 2,870	$ —
Foreign	20,929	636	(125)	21,440	(5)
Corporate securities	23,736	580	(167)	24,149	(8)
Mortgage-backed securities	14,066	135	(194)	14,007	(1)
States, municipalities, and political subdivisions	17,922	72	(345)	17,649	—
	$ 79,536	$ 1,455	$ (876)	$ 80,115	$ (14)
Held to maturity					
U.S. Treasury and agency	$ 655	$ 9	$ (3)	$ 661	$ —
Foreign	640	28	(1)	667	—
Corporate securities	2,771	50	(26)	2,795	—
Mortgage-backed securities	1,393	35	—	1,428	—
States, municipalities, and political subdivisions	5,185	26	(92)	5,119	—
	$ 10,644	$ 148	$ (122)	$ 10,670	$ —

December 31, 2015 (in millions of U.S. dollars)	Amortized Cost	Gross Unrealized Appreciation	Gross Unrealized Depreciation	Fair Value	OTTI Recognized in AOCI
Available for sale					
U.S. Treasury and agency	$ 2,481	$ 52	$ (5)	$ 2,528	$ —
Foreign	13,190	468	(213)	13,445	(13)
Corporate securities	15,028	355	(454)	14,929	(28)
Mortgage-backed securities	9,827	183	(52)	9,958	(1)
States, municipalities, and political subdivisions	2,623	110	(6)	2,727	—
	$ 43,149	$ 1,168	$ (730)	$ 43,587	$ (42)
Held to maturity					
U.S. Treasury and agency	$ 733	$ 13	$ (1)	$ 745	$ —
Foreign	763	30	(8)	785	—
Corporate securities	3,054	57	(55)	3,056	—
Mortgage-backed securities	1,707	38	(2)	1,743	—
States, municipalities, and political subdivisions	2,173	52	(2)	2,223	—
	$ 8,430	$ 190	$ (68)	$ 8,552	$ —

As discussed in Note 3 c), if a credit loss is incurred on an impaired fixed maturity, an OTTI is considered to have occurred and the portion of the impairment not related to credit losses (non-credit OTTI) is recognized in OCI. Included in the "OTTI Recognized in AOCI" columns above are the cumulative amounts of non-credit OTTI recognized in OCI adjusted for subsequent sales, maturities, and redemptions. OTTI recognized in AOCI does not include the impact of subsequent changes in fair value of the related securities. In periods subsequent to a recognition of OTTI in OCI, changes in the fair value of the related fixed maturities are reflected in Net unrealized appreciation on investments in the Consolidated statement of shareholders' equity. For the years ended December 31, 2016 and 2015 , $ 62 million of net unrealized appreciation and $ 15 million of net unrealized depreciation, respectively, related to such securities is included in OCI. At December 31, 2016 and 2015, AOCI included cumulative net unrealized appreciation of $ 10 million and net unrealized depreciation of $ 35 million, respectively, related to securities remaining in the investment portfolio for which a non-credit OTTI was recognized.

Mortgage-backed securities (MBS) issued by U.S. government agencies are combined with all other to be announced mortgage derivatives held (refer to Note 10 c) (iv)) and are included in the category, "Mortgage-backed securities". Approximately 81 percent of the total mortgage-backed securities at both December 31, 2016 and 2015 , are represented by investments in U.S. government agency bonds. The remainder of the mortgage exposure consists of collateralized mortgage obligations and non-government mortgage-backed securities, the majority of which provide a planned structure for principal and interest payments and carry a rating of AAA by the major credit rating agencies.

The following table presents fixed maturities by contractual maturity:

	December 31 2016		December 31 2015	
(in millions of U.S. dollars)	**Amortized Cost**	**Fair Value**	Amortized Cost	Fair Value
Available for sale				
Due in 1 year or less	**$ 3,892**	**$ 3,913**	$ 1,856	$ 1,865
Due after 1 year through 5 years	**24,027**	**24,429**	14,936	15,104
Due after 5 years through 10 years	**27,262**	**27,379**	12,258	12,173
Due after 10 years	**10,289**	**10,387**	4,272	4,487
	65,470	**66,108**	33,322	33,629
Mortgage-backed securities	**14,066**	**14,007**	9,827	9,958
	$ 79,536	**$ 80,115**	$ 43,149	$ 43,587
Held to maturity				
Due in 1 year or less	**$ 430**	**$ 435**	$ 492	$ 495
Due after 1 year through 5 years	**2,646**	**2,691**	2,443	2,517
Due after 5 years through 10 years	**2,969**	**2,944**	2,292	2,313
Due after 10 years	**3,206**	**3,172**	1,496	1,484
	9,251	**9,242**	6,723	6,809
Mortgage-backed securities	**1,393**	**1,428**	1,707	1,743
	$ 10,644	**$ 10,670**	$ 8,430	$ 8,552

Expected maturities could differ from contractual maturities because borrowers may have the right to call or prepay obligations, with or without call or prepayment penalties.

b) Equity securities

(in millions of U.S. dollars)		December 31 2016		December 31 2015
Cost	$	706	$	441
Gross unrealized appreciation		129		74
Gross unrealized depreciation		(21)		(18)
Fair value	$	814	$	497

c) Net realized gains (losses)
In accordance with guidance related to the recognition and presentation of OTTI, when an impairment related to a fixed maturity has occurred, OTTI is required to be recorded in Net income if management has the intent to sell the security or it is more likely than not that we will be required to sell the security before the recovery of its amortized cost. Further, in cases where we do not intend to sell the security and it is more likely than not that we will not be required to sell the security, we must evaluate the security to determine the portion of the impairment, if any, related to credit losses. If a credit loss is incurred, an OTTI is considered to have occurred and any portion of the OTTI related to credit losses must be reflected in Net income, while the portion of OTTI related to all other factors is recognized in OCI. For fixed maturities held to maturity, OTTI recognized in OCI is accreted from AOCI to the amortized cost of the fixed maturity prospectively over the remaining term of the securities.

Each quarter, securities in an unrealized loss position (impaired securities), including fixed maturities, securities lending collateral, equity securities, and other investments, are reviewed to identify impaired securities to be specifically evaluated for a potential OTTI.

For all non-fixed maturities, OTTI is evaluated based on the following:

- the amount of time a security has been in a loss position and the magnitude of the loss position;
- the period in which cost is expected to be recovered, if at all, based on various criteria including economic conditions and other issuer-specific developments; and
- our ability and intent to hold the security to the expected recovery period.

As a general rule, we also consider that equity securities in an unrealized loss position for twelve consecutive months are other than temporarily impaired. For mutual funds included in equity securities in our Consolidated balance sheets, we employ analysis similar to fixed maturities, when applicable.

Evaluation of potential credit losses related to fixed maturities
We review each fixed maturity in an unrealized loss position to assess whether the security is a candidate for credit loss. Specifically, we consider credit rating, market price, and issuer-specific financial information, among other factors, to assess the likelihood of collection of all principal and interest as contractually due. Securities, for which we determine that credit loss is likely, are subjected to further analysis to estimate the credit loss recognized in Net income, if any. In general, credit loss recognized in Net income equals the difference between the security's amortized cost and the net present value of its projected future cash flows discounted at the effective interest rate implicit in the debt security. All significant assumptions used in determining credit losses are subject to change as market conditions evolve.

U.S. Treasury and agency obligations (including agency mortgage-backed securities); foreign government obligations; and states, municipalities, and political subdivisions obligations
U.S. Treasury and agency obligations (including agency mortgage-backed securities); foreign government obligations; and states, municipalities, and political subdivisions obligations represent $ 725 million of gross unrealized loss at December 31, 2016 . These securities were evaluated for credit loss primarily using qualitative assessments of the likelihood of credit loss considering credit rating of the issuers and level of credit enhancement, if any. We concluded that the high level of creditworthiness of the issuers coupled with credit enhancement, where applicable, supports recognizing no credit loss in Net income.

Corporate securities
Projected cash flows for corporate securities (principally senior unsecured bonds) are driven primarily by assumptions regarding probability of default and also the timing and amount of recoveries associated with defaults. Chubb developed projected cash

flows for corporate securities using market observable data, issuer-specific information, and credit ratings. We use historical default data by Moody’s Investors Service (Moody’s) rating category to calculate a 1-in-100 year probability of default, which results in a default assumption in excess of the historical mean default rate. Consistent with management's approach, Chubb assumed a 32 percent recovery rate (the par value of a defaulted security that will be recovered) across all rating categories, rather than using Moody's historical mean recovery rate of 42 percent . We believe that use of a default assumption, in excess of the historical mean, is conservative in light of current market conditions.

The following table presents default assumptions by Moody's rating category (historical mean default rate provided for comparison):

Moody's Rating Category	1-in-100 Year Default Rate	Historical Mean Default Rate
Investment Grade:		
Aaa-Baa	0.0–1.3%	0.0–0.3%
Below Investment Grade:		
Ba	4.8%	1.0%
B	12.1%	3.2%
Caa-C	36.7%	10.5%

Application of the methodology and assumptions described above resulted in credit losses recognized in Net income for corporate securities of $ 30 million, $ 50 million, and $ 27 million for the years ended December 31, 2016 , 2015 , and 2014 , respectively.

Mortgage-backed securities
For mortgage-backed securities, credit impairment is assessed using a cash flow model that estimates the cash flows on the underlying mortgages, using the security-specific collateral and transaction structure. The model estimates cash flows from the underlying mortgage loans and distributes those cash flows to various tranches of securities, considering the transaction structure and any subordination and credit enhancements that exist in that structure. The cash flow model incorporates actual cash flows on the mortgage-backed securities through the current period and then projects the remaining cash flows using a number of assumptions, including default rates, prepayment rates, and loss severity rates (the par value of a defaulted security that will not be recovered) on foreclosed properties.

We develop specific assumptions using market data, where available, and include internal estimates as well as estimates published by rating agencies and other third-party sources. We project default rates by mortgage sector considering current underlying mortgage loan performance, generally assuming lower loss severity for Prime sector bonds versus ALT-A and Sub-prime bonds.

These estimates are extrapolated along a default timing curve to estimate the total lifetime pool default rate. Other assumptions used contemplate the actual collateral attributes, including geographic concentrations, rating agency loss projections, rating actions, and current market prices. If cash flow projections indicate that losses will exceed the credit enhancement for a given tranche, then we do not expect to recover our amortized cost basis, and we recognize an estimated credit loss in Net income.

For the year ended December 31, 2016 , there were $ 1 million of credit losses recognized in Net income for mortgage-backed securities. For the years ended December 31, 2015 and 2014 , there were no credit losses recognized in Net income for mortgage-backed securities.

The following table presents the Net realized gains (losses) and the losses included in Net realized gains (losses) and OCI as a result of conditions which caused us to conclude the decline in fair value of certain investments was "other-than-temporary" and the change in net unrealized appreciation (depreciation) of investments:

	Year Ended December 31		
(in millions of U.S. dollars)	**2016**	2015	2014
Fixed maturities:			
OTTI on fixed maturities, gross	**$ (89)**	$ (142)	$ (64)
OTTI on fixed maturities recognized in OCI (pre-tax)	**8**	39	7
OTTI on fixed maturities, net	**(81)**	(103)	(57)
Gross realized gains excluding OTTI	**183**	158	213
Gross realized losses excluding OTTI	**(265)**	(235)	(133)
Total fixed maturities	**(163)**	(180)	23
Equity securities:			
OTTI on equity securities	**(8)**	(7)	(8)
Gross realized gains excluding OTTI	**65**	47	22
Gross realized losses excluding OTTI	**(13)**	(11)	(61)
Total equity securities	**44**	29	(47)
OTTI on other investments	**(14)**	(2)	(3)
Foreign exchange gains (losses)	**118**	(80)	(40)
Investment and embedded derivative instruments	**(33)**	32	(107)
Fair value adjustments on insurance derivative	**53**	(203)	(217)
S&P put options and futures	**(136)**	(10)	(168)
Other derivative instruments	**(10)**	(12)	50
Other	**(4)**	6	2
Net realized gains (losses)	**(145)**	(420)	(507)
Change in net unrealized appreciation (depreciation) on investments:			
Fixed maturities available for sale	**142**	(1,119)	734
Fixed maturities held to maturity	**(59)**	43	(2)
Equity securities	**52**	(17)	77
Other	**(51)**	(36)	35
Income tax (expense) benefit	**100**	152	(167)
Change in net unrealized appreciation (depreciation) on investments	**184**	(977)	677
Total net realized gains (losses) and change in net unrealized appreciation (depreciation) on investments	**$ 39**	$ (1,397)	$ 170

The following table presents a roll-forward of pre-tax credit losses related to fixed maturities for which a portion of OTTI was recognized in OCI:

	Year Ended December 31		
(in millions of U.S. dollars)	**2016**	2015	2014
Balance of credit losses related to securities still held – beginning of year	**$ 53**	$ 28	$ 37
Additions where no OTTI was previously recorded	**17**	41	22
Additions where an OTTI was previously recorded	**14**	9	5
Reductions for securities sold during the period	**(49)**	(25)	(36)
Balance of credit losses related to securities still held – end of year	**$ 35**	$ 53	$ 28

d) Other investments

	December 31 2016		December 31 2015	
(in millions of U.S. dollars)	**Fair Value**	**Cost**	Fair Value	Cost
Investment funds	**$ 251**	**$ 126**	$ 269	$ 138
Limited partnerships	**730**	**607**	709	542
Partially-owned investment companies	**2,645**	**2,645**	1,498	1,498
Life insurance policies	**248**	**248**	222	222
Policy loans	**209**	**209**	184	184
Trading securities	**296**	**295**	284	284
Other	**140**	**140**	125	125
Total	**$ 4,519**	**$ 4,270**	$ 3,291	$ 2,993

Investment funds include one highly diversified fund investment as well as several direct funds that employ a variety of investment styles such as long/short equity and arbitrage/distressed. Included in limited partnerships and partially-owned investment companies are 143 individual limited partnerships covering a broad range of investment strategies including large cap buyouts, specialist buyouts, growth capital, distressed, mezzanine, real estate, and co-investments. The underlying portfolio consists of various public and private debt and equity securities of publicly traded and privately held companies and real estate assets. The underlying investments across various partnerships, geographies, industries, asset types, and investment strategies provide risk diversification within the limited partnership portfolio and the overall investment portfolio. Trading securities comprise $ 271 million of mutual funds supported by assets that do not qualify for separate account reporting under GAAP at December 31, 2016 compared with $ 257 million at December 31, 2015 . Trading securities also includes assets held in rabbi trusts of $ 14 million of equity securities and $ 11 million of fixed maturities at December 31, 2016 , compared with $ 20 million of equity securities and $ 7 million of fixed maturities at December 31, 2015 .

e) Investments in partially-owned insurance companies
In 2015, we paid $ 90 million to acquire 11.3 percent of the common equity of ABR Reinsurance Capital Holdings Ltd. and warrants to acquire 0.5 percent of additional equity. ABR Reinsurance Capital Holdings Ltd., is the parent company of ABR Reinsurance Ltd. (ABR Re), an independent reinsurance company. Through long-term arrangements, Chubb will be the sole source of reinsurance risks ceded to ABR Re, and BlackRock, Inc. will be ABR Re's exclusive investment management service provider. As an investor, Chubb is expected to benefit from underwriting profit generated by ABR Re's reinsuring a wide range of Chubb's primary insurance business and the income and capital appreciation BlackRock, Inc. seeks to deliver through its investment management services. In addition, Chubb has entered into an arrangement with BlackRock, Inc. under which both Chubb and BlackRock, Inc. will be entitled to an equal share of the aggregate amount of certain fees, including underwriting and investment management performance related fees, in connection with their respective reinsurance and investment management arrangements with ABR Re.

ABR Re is a variable interest entity; however, Chubb is not the primary beneficiary and does not consolidate ABR Re because Chubb does not have the power to control and direct ABR Re's most significant activities, including investing and underwriting. Our minority ownership interest is accounted for under the equity method of accounting. Chubb cedes premiums to ABR Re and recognizes the associated commissio ns. At December 31, 2016 and 2015, Chubb ceded reinsurance premiums of $ 288 million and $ 115 million , respectively, and recognized ceded commissions of $ 66 million and $ 30 million , respectively. At December 31, 2016 and 2015, the amount of Reinsurance recoverable on losses and loss expenses was $ 148 million and $ 82 million , respectively, and the amount of ceded reinsurance premium payable included in Insurance and reinsurance balances payable in the Consolidated balance sheet was $ 53 million and $ 6 million , respectively.

The following table presents Investments in partially-owned insurance companies:

	December 31, 2016			December 31, 2015			
(in millions of U.S. dollars, except for percentages)	**Carrying Value**	**Issued Share Capital**	**Ownership Percentage**	Carrying Value	Issued Share Capital	Ownership Percentage	Domicile
Huatai Group	**$ 447**	**$ 624**	**20%**	$ 430	$ 624	20%	China
Huatai Life Insurance Company	**99**	**428**	**20%**	107	428	20%	China
Freisenbruch-Meyer	**8**	**5**	**40%**	9	5	40%	Bermuda
Chubb Arabia Cooperative Insurance Company	**13**	**27**	**30%**	11	27	30%	Saudi Arabia
Russian Reinsurance Company	**2**	**4**	**23%**	2	4	23%	Russia
ABR Reinsurance Ltd.	**97**	**800**	**11%**	94	800	11%	Bermuda
Total	**$ 666**	**$ 1,888**		$ 653	$ 1,888		

Huatai Group and Huatai Life Insurance Company provide a range of P&C, life, and investment products.

f) Gross unrealized loss
At December 31, 2016 , there were 11,078 fixed maturities out of a total of 31,955 fixed maturities in an unrealized loss position. The largest single unrealized loss in the fixed maturities was $7 million. There were 87 equity securities out of a total of 320 equity securities in an unrealized loss position. The largest single unrealized loss in the equity securities was $3 million. Fixed maturities in an unrealized loss position at December 31, 2016 , comprised both investment grade and below investment grade securities for which fair value declined primarily due to widening credit spreads since the date of purchase.

The following tables present, for all securities in an unrealized loss position (including securities on loan), the aggregate fair value and gross unrealized loss by length of time the security has continuously been in an unrealized loss position:

December 31, 2016	**0 – 12 Months**		**Over 12 Months**		**Total**	
(in millions of U.S. dollars)	**Fair Value**	**Gross Unrealized Loss**	**Fair Value**	**Gross Unrealized Loss**	**Fair Value**	**Gross Unrealized Loss**
U.S. Treasury and agency	**$ 2,216**	**$ (48)**	**$ —**	**$ —**	**$ 2,216**	**$ (48)**
Foreign	**5,918**	**(99)**	**386**	**(27)**	**6,304**	**(126)**
Corporate securities	**7,021**	**(149)**	**641**	**(44)**	**7,662**	**(193)**
Mortgage-backed securities	**8,638**	**(189)**	**234**	**(5)**	**8,872**	**(194)**
States, municipalities, and political subdivisions	**19,448**	**(435)**	**49**	**(2)**	**19,497**	**(437)**
Total fixed maturities	**43,241**	**(920)**	**1,310**	**(78)**	**44,551**	**(998)**
Equity securities	**199**	**(21)**	**—**	**—**	**199**	**(21)**
Other investments	**201**	**(18)**	**—**	**—**	**201**	**(18)**
Total	**$ 43,641**	**$ (959)**	**$ 1,310**	**$ (78)**	**$ 44,951**	**$ (1,037)**

December 31, 2015 (in millions of U.S. dollars)	0 – 12 Months Fair Value	0 – 12 Months Gross Unrealized Loss	Over 12 Months Fair Value	Over 12 Months Gross Unrealized Loss	Total Fair Value	Total Gross Unrealized Loss
U.S. Treasury and agency	$ 996	$ (5)	$ 153	$ (1)	$ 1,149	$ (6)
Foreign	3,953	(148)	436	(73)	4,389	(221)
Corporate securities	7,518	(371)	738	(138)	8,256	(509)
Mortgage-backed securities	3,399	(42)	516	(12)	3,915	(54)
States, municipalities, and political subdivisions	556	(6)	42	(2)	598	(8)
Total fixed maturities	16,422	(572)	1,885	(226)	18,307	(798)
Equity securities	131	(18)	—	—	131	(18)
Other investments	210	(11)	—	—	210	(11)
Total	$ 16,763	$ (601)	$ 1,885	$ (226)	$ 18,648	$ (827)

g) Net investment income

(in millions of U.S. dollars)	Year Ended December 31 2016	2015	2014
Fixed maturities	**$ 2,779**	$ 2,157	$ 2,199
Short-term investments	**93**	49	45
Equity securities	**36**	16	33
Other	**98**	86	94
Gross investment income	**3,006**	2,308	2,371
Investment expenses	**(141)**	(114)	(119)
Net investment income	**$ 2,865**	$ 2,194	$ 2,252

h) Restricted assets

Chubb is required to maintain assets on deposit with various regulatory authorities to support its insurance and reinsurance operations. These requirements are generally promulgated in the statutory regulations of the individual jurisdictions. The assets on deposit are available to settle insurance and reinsurance liabilities. Chubb is also required to restrict assets pledged under repurchase agreements. We also use trust funds in certain large reinsurance transactions where the trust funds are set up for the benefit of the ceding companies and generally take the place of letter of credit (LOC) requirements. We also have investments in segregated portfolios primarily to provide collateral or guarantees for LOC and derivative transactions. Included in restricted assets at December 31, 2016 and 2015 , are investments, primarily fixed maturities, totaling $20.1 billion and $ 16.9 billion , and cash of $103 million and $110 million, respectively.

The following table presents the components of restricted assets:

(in millions of U.S. dollars)	**December 31 2016**	December 31 2015
Trust funds	**$ 13,880**	$ 11,862
Deposits with U.S. regulatory authorities	**2,203**	1,242
Deposits with non-U.S. regulatory authorities	**2,191**	2,075
Assets pledged under repurchase agreements	**1,461**	1,459
Other pledged assets	**435**	392
	$ 20,170	$ 17,030

4 . Fair value measurements

a) Fair value hierarchy

Fair value of financial assets and financial liabilities is estimated based on the framework established in the fair value accounting guidance. The guidance defines fair value as the price to sell an asset or transfer a liability (an exit price) in an orderly transaction between market participants and establishes a three-level valuation hierarchy based on the reliability of the inputs. The fair value hierarchy gives the highest priority to quoted prices in active markets and the lowest priority to unobservable data.

The three levels of the hierarchy are as follows:

- Level 1 – Unadjusted quoted prices for identical assets or liabilities in active markets;
- Level 2 – Includes, among other items, inputs other than quoted prices that are observable for the asset or liability such as interest rates and yield curves, quoted prices for similar assets and liabilities in active markets, and quoted prices for identical or similar assets and liabilities in markets that are not active; and
- Level 3 – Inputs that are unobservable and reflect management's judgments about assumptions that market participants would use in pricing an asset or liability.

We categorize financial instruments within the valuation hierarchy at the balance sheet date based upon the lowest level of inputs that are significant to the fair value measurement. Accordingly, transfers between levels within the valuation hierarchy occur when there are significant changes to the inputs, such as increases or decreases in market activity, changes to the availability of current prices, changes to the transparency to underlying inputs, and whether there are significant variances in quoted prices. Transfers in and/or out of any level are assumed to occur at the end of the period.

We use pricing services to obtain fair value measurements for the majority of our investment securities. Based on management's understanding of the methodologies used, these pricing services only produce an estimate of fair value if there is observable market information that would allow them to make a fair value estimate. Based on our understanding of the market inputs used by the pricing services, all applicable investments have been valued in accordance with GAAP. We do not adjust prices obtained from pricing services. The following is a description of the valuation techniques and inputs used to determine fair values for financial instruments carried at fair value, as well as the general classification of such financial instruments pursuant to the valuation hierarchy.

Fixed maturities

We use pricing services to estimate fair value measurements for the majority of our fixed maturities. The pricing services use market quotations for fixed maturities that have quoted prices in active markets; such securities are classified within Level 1. For fixed maturities other than U.S. Treasury securities that generally do not trade on a daily basis, the pricing services prepare estimates of fair value measurements using their pricing applications, which include available relevant market information, benchmark curves, benchmarking of like securities, sector groupings, and matrix pricing. Additional valuation factors that can be taken into account are nominal spreads, dollar basis, and liquidity adjustments. The pricing services evaluate each asset class based on relevant market and credit information, perceived market movements, and sector news. The market inputs used in the pricing evaluation, listed in the approximate order of priority include: benchmark yields, reported trades, broker/dealer quotes, issuer spreads, two-sided markets, benchmark securities, bids, offers, reference data, and industry and economic events. The extent of the use of each input is dependent on the asset class and the market conditions. Given the asset class, the priority of the use of inputs may change, or some market inputs may not be relevant. Additionally, fixed maturities valuation is more subjective when markets are less liquid due to the lack of market based inputs (i.e., stale pricing), which may increase the potential that an investment's estimated fair value is not reflective of the price at which an actual transaction would occur. The overwhelming majority of fixed maturities are classified within Level 2 because the most significant inputs used in the pricing techniques are observable. For a small number of fixed maturities, we obtain a single broker quote (typically from a market maker). Due to the disclaimers on the quotes that indicate that the price is indicative only, we include these fair value estimates in Level 3.

Equity securities

Equity securities with active markets are classified within Level 1 as fair values are based on quoted market prices. For equity securities in markets which are less active, fair values are based on market valuations and are classified within Level 2. Equity securities for which pricing is unobservable are classified within Level 3.

Short-term investments
Short-term investments, which comprise securities due to mature within one year of the date of purchase that are traded in active markets, are classified within Level 1 as fair values are based on quoted market prices. Securities such as commercial paper and discount notes are classified within Level 2 because these securities are typically not actively traded due to their approaching maturity and, as such, their cost approximates fair value. Short-term investments for which pricing is unobservable are classified within Level 3.

Other investments
Fair values for the majority of Other investments including investments in partially-owned investment companies, investment funds, and limited partnerships are based on their respective net asset values or equivalent (NAV) and are excluded from the fair value hierarchy table below. Certain of our long-duration contracts are supported by assets that do not qualify for separate account reporting under GAAP. These assets comprise mutual funds classified within Level 1 in the valuation hierarchy on the same basis as other equity securities traded in active markets. Other investments also include equity securities classified within Level 1, and fixed maturities, classified within Level 2, held in rabbi trusts maintained by Chubb for deferred compensation plans, and are classified within the valuation hierarchy on the same basis as other equity securities and fixed maturities. Other investments for which pricing is unobservable are classified within Level 3.

Securities lending collateral
The underlying assets included in Securities lending collateral in the Consolidated balance sheets are fixed maturities which are classified in the valuation hierarchy on the same basis as other fixed maturities. Excluded from the valuation hierarchy is the corresponding liability related to Chubb’s obligation to return the collateral plus interest as it is reported at contract value and not fair value in the Consolidated balance sheets.

Investment derivative instruments
Actively traded investment derivative instruments, including futures, options, and forward contracts are classified within Level 1 as fair values are based on quoted market prices. The fair value of cross-currency swaps are based on market valuations and are classified within Level 2. Investment derivative instruments are recorded in either Other assets or Accounts payable, accrued expenses, and other liabilities in the Consolidated balance sheets.

Other derivative instruments
We generally maintain positions in other derivative instruments including exchange-traded equity futures contracts and option contracts designed to limit exposure to a severe equity market decline, which would cause an increase in expected claims and, therefore, an increase in reserves for our guaranteed minimum death benefits (GMDB) and guaranteed living benefits (GLB) reinsurance business. Our position in exchange-traded equity futures contracts is classified within Level 1. At December 31, 2016 we held no positions in option contracts on equity market indices. The fair value of the majority of the remaining positions in other derivative instruments is based on significant observable inputs including equity security and interest rate indices. Accordingly, these are classified within Level 2. Other derivative instruments based on unobservable inputs are classified within Level 3. Other derivative instruments are recorded in either Other assets or Accounts payable, accrued expenses, and other liabilities in the Consolidated balance sheets.

Separate account assets
Separate account assets represent segregated funds where investment risks are borne by the customers, except to the extent of certain guarantees made by Chubb. Separate account assets comprise mutual funds classified within Level 1 in the valuation hierarchy on the same basis as other equity securities traded in active markets. Separate account assets also include fixed maturities classified within Level 2 because the most significant inputs used in the pricing techniques are observable. Excluded from the valuation hierarchy are the corresponding liabilities as they are reported at contract value and not fair value in the Consolidated balance sheets. Separate account assets are recorded in Other assets in the Consolidated balance sheets.

Guaranteed living benefits
The GLB arises from life reinsurance programs covering living benefit guarantees whereby we assume the risk of guaranteed minimum income benefits (GMIB) and guaranteed minimum accumulation benefits (GMAB) associated with variable annuity contracts. GLB’s are recorded in Accounts payable, accrued expenses, and other liabilities and Future policy benefits in the Consolidated balance sheets. For GLB reinsurance, Chubb estimates fair value using an internal valuation model which includes current market information and estimates of policyholder behavior. All of the treaties contain claim limits, which are factored into the valuation model. The fair value depends on a number of factors, including interest rates, equity markets, credit risk, current account value, market volatility, expected annuitization rates and other policyholder behavior, and changes in policyholder mortality.

The most significant policyholder behavior assumptions include lapse rates and the GMIB annuitization rates. Assumptions regarding lapse rates and GMIB annuitization rates differ by treaty, but the underlying methodologies to determine rates applied to each treaty are comparable.

A lapse rate is the percentage of in-force policies surrendered in a given calendar year. All else equal, as lapse rates increase, ultimate claim payments will decrease. In general, the base lapse function assumes low lapse rates (ranging from about 3 percent to 9 percent per annum) during the surrender charge period of the GMIB contract, followed by a “spike” lapse rate (ranging from about 6 percent to 33 percent per annum) in the year immediately following the surrender charge period, and then reverting to an ultimate lapse rate (generally around 11 percent per annum), typically over a 2 -year period. This base rate is adjusted downward for policies with more valuable guarantees (policies with guaranteed values far in excess of their account values) by multiplying the base lapse rate by a factor ranging from 15 percent to 75 percent . Partial withdrawals and the impact of older policyholders with tax-qualified contracts (due to required minimum distributions) are also reflected in our modeling.

The GMIB annuitization rate is the percentage of policies for which the policyholder will elect to annuitize using the guaranteed benefit provided under the GMIB. All else equal, as GMIB annuitization rates increase, ultimate claim payments will increase, subject to treaty claim limits. All GMIB reinsurance treaties include claim limits to protect Chubb in the event that actual annuitization behavior is significantly higher than expected. In general, Chubb assumes that GMIB annuitization rates will be higher for policies with more valuable guarantees (policies with guaranteed values far in excess of their account values). In addition, we also assume that GMIB annuitization rates are higher in the first year immediately following the waiting period (the first year the policies are eligible to annuitize using the GMIB) in comparison to all subsequent years. We do not yet have fully credible annuitization experience for all clients.

The level of annuitization assumptions at December 31, 2016 are as follows:

% of total GMIB guaranteed value	Year of GMIB eligibility	Maximum annuitization rate(s) (per year)	Maximum annuitization rates based on
67%	First year	2% - 41%	Actual Experience
	Subsequent years	1% - 78%	
4%	First year	N/A	N/A (1)
	Subsequent years	12%, 78%	Weighted average (2)
29%	First year	19%, 44%	Weighted average (2)
	Subsequent years	12%, 31%	

(1) Because all policies in this bracket are past the first year of eligibility, first year annuitization assumptions are no longer modeled.
(2) Weighted average of two different annuitization rates.

The effect of changes in key market factors on assumed lapse and annuitization rates reflect emerging trends using data available from cedants. For treaties with limited experience, rates are established in line with data received from other ceding companies adjusted, as appropriate, with industry estimates. The model and related assumptions are regularly re-evaluated by management and enhanced, as appropriate, based upon additional experience obtained related to policyholder behavior and availability of updated information such as market conditions, market participant assumptions, and demographics of in-force annuities. Because of the significant use of unobservable inputs including policyholder behavior, GLB reinsurance is classified within Level 3.

In the fourth quarter of 2016, we completed an updated review of policyholder behavior related to partial withdrawals, lapses, and annuitizations for our variable annuity reinsurance business.

- Reinsured policies allow for policyholders to make periodic withdrawals from their account values without lapsing the policy. The partial withdrawal results in a reduction to the associated guaranteed value that is either equal or proportional to the amount of the reduction in account value. Based on continued emerging experience including age-based behavior, we refined our assumptions around the types of partial withdrawals according to their impact on guaranteed value. This resulted in an increase to the fair value of GLB liabilities generating a realized loss of approximately $167 million .
- As lapse experience continued to emerge, we were able to expand our analysis and further refine our assumptions which resulted in a net increase to the fair value of GLB liabilities generating a realized loss of approximately $4 million .

- Because of a greater degree of reported experience related to behavior in years subsequent to the first year of annuitization eligibility, we also made several adjustments to our annuitization assumptions, which generally lowered the annuitization rate. In addition, we refined our assumptions to better account for age-based annuitization behavior. The change in annuitization assumptions decreased the fair value of GLB liabilities and generated a realized gain of approximately $221 million .

We will continue to monitor actual policyholder behavior against our assumptions and make adjustments as appropriate. Also, during the fourth quarter of 2016, we refined our model by adjusting the way lapse and annuitization rates react to policyholder account values reaching zero. This refinement decreased the fair value of GLB liabilities and generated a realized gain of approximately $23 million .

During each of the years ended December 31, 2016 , 2015 , and 2014 , we made minor technical refinements to the internal valuation model which resulted in no material impact on the financial statements.

Financial instruments measured at fair value on a recurring basis, by valuation hierarchy

December 31, 2016 (in millions of U.S. dollars)	Level 1	Level 2	Level 3	Total
Assets:				
Fixed maturities available for sale				
U.S. Treasury and agency	$ 2,175	$ 695	$ —	$ 2,870
Foreign	—	21,366	74	21,440
Corporate securities	—	23,468	681	24,149
Mortgage-backed securities	—	13,962	45	14,007
States, municipalities, and political subdivisions	—	17,649	—	17,649
	2,175	77,140	800	80,115
Equity securities	773	—	41	814
Short-term investments	1,757	1,220	25	3,002
Other investments (1)	384	259	225	868
Securities lending collateral	—	1,092	—	1,092
Investment derivative instruments	31	—	—	31
Other derivative instruments	3	—	—	3
Separate account assets	1,784	95	—	1,879
Total assets measured at fair value (1)	$ 6,907	$ 79,806	$ 1,091	$ 87,804
Liabilities:				
Investment derivative instruments	$ 54	$ —	$ —	$ 54
Other derivative instruments	—	—	13	13
GLB (2)	—	—	559	559
Total liabilities measured at fair value	$ 54	$ —	$ 572	$ 626

(1) Excluded from the table above are partially-owned investments, investment funds, and limited partnerships of $3,626 million and other investments of $25 million at December 31, 2016 measured using NAV as a practical expedient.

(2) Our GLB reinsurance product meets the definition of a derivative instrument for accounting purposes and is accordingly carried at fair value. Excluded from the table above is the portion of the GLB derivative liability classified as Future policy benefits in the Consolidated balance sheets. Refer to Note 5 c) for additional information.

December 31, 2015 (in millions of U.S. dollars)	Level 1	Level 2	Level 3	Total
Assets:				
Fixed maturities available for sale				
U.S. Treasury and agency	$ 1,712	$ 816	$ —	$ 2,528
Foreign	—	13,388	57	13,445
Corporate securities	—	14,755	174	14,929
Mortgage-backed securities	—	9,905	53	9,958
States, municipalities, and political subdivisions	—	2,727	—	2,727
	1,712	41,591	284	43,587
Equity securities	481	—	16	497
Short-term investments	7,171	3,275	—	10,446
Other investments (1)	347	230	212	789
Securities lending collateral	—	1,046	—	1,046
Investment derivative instruments	12	—	—	12
Separate account assets	1,464	88	—	1,552
Total assets measured at fair value (1)	$ 11,187	$ 46,230	$ 512	$ 57,929
Liabilities:				
Investment derivative instruments	$ 13	$ —	$ —	$ 13
Other derivative instruments	4	—	6	10
GLB (2)	—	—	609	609
Total liabilities measured at fair value	$ 17	$ —	$ 615	$ 632

(1) Excluded from the table above are partially-owned investments, investment funds, and limited partnerships of $2,477 million and other investments of $25 million at December 31, 2015 measured using NAV as a practical expedient.

(2) Our GLB reinsurance product meets the definition of a derivative instrument for accounting purposes and is accordingly carried at fair value. Excluded from the table above is the portion of the GLB derivative liability classified as Future policy benefits in the Consolidated balance sheets. Refer to Note 5 c) for additional information.

There were no transfers of financial instruments between Level 1 and Level 2 for the years ended December 31, 2016 and 2015. During 2014, there were transfers from Level 1 to Level 2 of $ 189 million .

Fair value of alternative investments
Alternative investments include investment funds, limited partnerships, and partially-owned investment companies measured at fair value using NAV as a practical expedient.

The following table presents, by investment category, the expected liquidation period, fair value, and maximum future funding commitments of alternative investments:

		December 31 2016		December 31 2015	
(in millions of U.S. dollars)	Expected Liquidation Period of Underlying Assets	Fair Value	Maximum Future Funding Commitments	Fair Value	Maximum Future Funding Commitments
Financial	5 to 9 Years	$ 548	$ 428	$ 300	$ 105
Real Assets	3 to 7 Years	536	230	474	140
Distressed	5 to 9 Years	485	179	261	218
Private Credit	3 to 7 Years	236	259	265	209
Traditional	3 to 9 Years	1,550	930	895	152
Vintage	1 to 2 Years	21	14	13	—
Investment funds	Not Applicable	251	—	269	—
		$ 3,627	$ 2,040	$ 2,477	$ 824

Included in all categories in the above table, except for Investment funds, are investments for which Chubb will never have the contractual option to redeem but receives distributions based on the liquidation of the underlying assets. Further, for all categories except for Investment funds, Chubb does not have the ability to sell or transfer the investments without the consent from the general partner of individual funds.

Investment Category	Consists of investments in private equity funds:
Financial	targeting financial services companies such as financial institutions and insurance services worldwide
Real Assets	targeting investments related to hard physical assets such as real estate, infrastructure, and natural resources
Distressed	targeting distressed corporate debt/credit and equity opportunities in the U.S.
Private Credit	targeting privately originated corporate debt investments including senior secured loans and subordinated bonds
Traditional	employing traditional private equity investment strategies such as buyout and growth equity globally
Vintage	made before 2002 and where the funds' commitment periods had already expired

Investment funds
Chubb's investment funds employ various investment strategies such as long/short equity and arbitrage/distressed. Included in this category are investments for which Chubb has the option to redeem at agreed upon value as described in each investment fund's subscription agreement. Depending on the terms of the various subscription agreements, investment fund investments may be redeemed monthly, quarterly, semi-annually, or annually. If Chubb wishes to redeem an investment fund investment, it must first determine if the investment fund is still in a lock-up period (a time when Chubb cannot redeem its investment so that the investment fund manager has time to build the portfolio). If the investment fund is no longer in its lock-up period, Chubb must then notify the investment fund manager of its intention to redeem by the notification date prescribed by the subscription agreement. Subsequent to notification, the investment fund can redeem Chubb's investment within several months of the notification. Notice periods for redemption of the investment funds range between 5 and 120 days. Chubb can redeem its investment funds without consent from the investment fund managers.

Level 3 financial instruments
The fair values of assets and liabilities measured at fair value using significant unobservable inputs (Level 3) consist of various inputs and assumptions that management makes when determining fair value. Management analyzes changes in fair value measurements classified within Level 3 by comparing pricing and returns of our investments to benchmarks, including month-over-month movements, investment credit spreads, interest rate movements, and credit quality of securities.

The following table presents the significant unobservable inputs used in the Level 3 liability valuations. Excluded from the table below are inputs used to determine the fair value of Level 3 assets which are based on single broker quotes and contain no quantitative unobservable inputs developed by management.

(in millions of U.S. dollars, except for percentages)	Fair Value at December 31, 2016	Valuation Technique	Significant Unobservable Inputs	Ranges
GLB [1]	$ 559	Actuarial model	Lapse rate	3% – 34%
			Annuitization rate	0% – 78%

(1) Discussion of the most significant inputs used in the fair value measurement of GLB and the sensitivity of those assumptions is included within Note 4 a) Guaranteed living benefits.

The following tables present a reconciliation of the beginning and ending balances of financial instruments measured at fair value using significant unobservable inputs (Level 3):

	Assets						Liabilities	
	Available-for-Sale Debt Securities							
Year Ended December 31, 2016 (in millions of U.S. dollars)	Foreign	Corporate securities	MBS	Equity securities	Short-term investments	Other investments	Other derivative instruments	GLB [1]
Balance, beginning of year	$ 57	$ 174	$ 53	$ 16	$ —	$ 212	$ 6	$ 609
Transfers into Level 3	9	53	—	—	—	—	—	—
Transfers out of Level 3	(24)	(10)	—	—	(50)	—	—	—
Change in Net Unrealized Gains (Losses) included in OCI	1	15	(1)	2	—	(2)	—	—
Net Realized Gains/Losses	(6)	(13)	—	1	—	1	5	(50)
Purchases [2]	70	566	1	27	75	33	2	—
Sales	(17)	(59)	(8)	(5)	—	—	—	—
Settlements	(16)	(45)	—	—	—	(19)	—	—
Balance, end of year	$ 74	$ 681	$ 45	$ 41	$ 25	$ 225	$ 13	$ 559
Net Realized Gains/Losses Attributable to Changes in Fair Value at the Balance Sheet Date	$ (5)	$ (11)	$ —	$ —	$ —	$ 1	$ 5	$ (50)

(1)Our GLB reinsurance product meets the definition of a derivative instrument for accounting purposes and is accordingly carried at fair value. Excluded from the table above is the portion of the GLB derivative liability classified as Future policy benefits in the Consolidated balance sheets. Refer to Note 5 c) for additional information.

(2) Includes acquired invested assets as a result of the Chubb Corp acquisition.

Year Ended December 31, 2015 (in millions of U.S. dollars)	Assets: Available-for-Sale Debt Securities: Foreign	Corporate securities	MBS	Equity securities	Other investments	Liabilities: Other derivative instruments	GLB (1)
Balance, beginning of year	$ 22	$ 187	$ 15	$ 2	$ 204	$ 4	$ 406
Transfers into Level 3	34	16	—	—	—	—	—
Change in Net Unrealized Gains (Losses) included in OCI	(2)	(1)	—	3	(6)	—	—
Net Realized Gains/Losses	(1)	(4)	—	(2)	—	2	203
Purchases	15	52	41	13	33	—	—
Sales	(3)	(28)	(2)	—	—	—	—
Settlements	(8)	(48)	(1)	—	(19)	—	—
Balance, end of year	$ 57	$ 174	$ 53	$ 16	$ 212	$ 6	$ 609
Net Realized Gains/Losses Attributable to Changes in Fair Value at the Balance Sheet Date	$ (1)	$ (2)	$ —	$ (2)	$ —	$ 2	$ 203

(1)Our GLB reinsurance product meets the definition of a derivative instrument for accounting purposes and is accordingly carried at fair value. Excluded from the table above is the portion of the GLB derivative liability classified as Future policy benefits in the Consolidated balance sheets. The liability for GLB reinsurance was $888 million at December 31, 2015 and $663 million at December 31, 2014 , which includes a fair value derivative adjustment of $609 million and $406 million , respectively.

Year Ended December 31, 2014 (in millions of U.S. dollars)	Assets: Available-for-Sale Debt Securities: Foreign	Corporate securities	MBS	Equity securities	Short-term investments	Other investments	Liabilities: Other derivative instruments	GLB (1)
Balance, beginning of year	$ 44	$ 166	$ 8	$ 4	$ 7	$ 196	$ —	$ 193
Transfers into Level 3	10	37	—	—	—	—	2	—
Transfers out of Level 3	(34)	(23)	—	(2)	(7)	—	—	—
Change in Net Unrealized Gains (Losses) included in OCI	(1)	(1)	—	—	—	(1)	—	—
Net Realized Gains/Losses	(3)	(5)	—	—	—	—	2	213
Purchases	15	73	8	2	—	20	—	—
Sales	(4)	(38)	—	(2)	—	—	—	—
Settlements	(5)	(22)	(1)	—	—	(11)	—	—
Balance, end of year	$ 22	$ 187	$ 15	$ 2	$ —	$ 204	$ 4	$ 406
Net Realized Gains/Losses Attributable to Changes in Fair Value at the Balance Sheet Date	$ (4)	$ (5)	$ —	$ —	$ —	$ —	$ 2	$ 213

(1)Our GLB reinsurance product meets the definition of a derivative instrument for accounting purposes and is accordingly carried at fair value. Excluded from the table above is the portion of the GLB derivative liability classified as Future policy benefits in the Consolidated balance sheets. The liability for GLB reinsurance was $663 million at December 31, 2014 and $427 million at December 31, 2013, which includes a fair value derivative adjustment of $406 million and $ 193 million , respectively.

b) Financial instruments disclosed, but not measured, at fair value
Chubb uses various financial instruments in the normal course of its business. Our insurance contracts are excluded from fair value of financial instruments accounting guidance, and therefore, are not included in the amounts discussed below.

The carrying values of cash, other assets, other liabilities, and other financial instruments not included below approximated their fair values.

Investments in partially-owned insurance companies
Fair values for investments in partially-owned insurance companies are based on Chubb's share of the net assets based on the financial statements provided by those companies and are excluded from the valuation hierarchy tables below.

Short- and long-term debt, repurchase agreements, and trust preferred securities
Where practical, fair values for short-term debt, long-term debt, repurchase agreements, and trust preferred securities are estimated using discounted cash flow calculations based principally on observable inputs including incremental borrowing rates, which reflect Chubb's credit rating, for similar types of borrowings with maturities consistent with those remaining for the debt being valued.

The following tables present fair value, by valuation hierarchy, and carrying value of the financial instruments not measured at fair value:

December 31, 2016				**Fair Value**	
(in millions of U.S. dollars)	**Level 1**	**Level 2**	**Level 3**	**Total**	**Carrying Value**
Assets:					
Fixed maturities held to maturity					
U.S. Treasury and agency	**$ 555**	**$ 106**	**$ —**	**$ 661**	**$ 655**
Foreign	**—**	**667**	**—**	**667**	**640**
Corporate securities	**—**	**2,782**	**13**	**2,795**	**2,771**
Mortgage-backed securities	**—**	**1,428**	**—**	**1,428**	**1,393**
States, municipalities, and political subdivisions	**—**	**5,119**	**—**	**5,119**	**5,185**
Total assets	**$ 555**	**$ 10,102**	**$ 13**	**$ 10,670**	**$ 10,644**
Liabilities:					
Repurchase agreements	**$ —**	**$ 1,403**	**$ —**	**$ 1,403**	**$ 1,403**
Short-term debt	**—**	**503**	**—**	**503**	**500**
Long-term debt	**—**	**12,998**	**—**	**12,998**	**12,610**
Trust preferred securities	**—**	**456**	**—**	**456**	**308**
Total liabilities	**$ —**	**$ 15,360**	**$ —**	**$ 15,360**	**$ 14,821**

December 31, 2015				Fair Value	
(in millions of U.S. dollars)	Level 1	Level 2	Level 3	Total	Carrying Value
Assets:					
Fixed maturities held to maturity					
U.S. Treasury and agency	$ 583	$ 162	$ —	$ 745	$ 733
Foreign	—	785	—	785	763
Corporate securities	—	3,042	14	3,056	3,054
Mortgage-backed securities	—	1,743	—	1,743	1,707
States, municipalities, and political subdivisions	—	2,223	—	2,223	2,173
Total assets	$ 583	$ 7,955	$ 14	$ 8,552	$ 8,430
Liabilities:					
Repurchase agreements	$ —	$ 1,404	$ —	$ 1,404	$ 1,404
Long-term debt	—	9,678	—	9,678	9,389
Trust preferred securities	—	446	—	446	307
Total liabilities	$ —	$ 11,528	$ —	$ 11,528	$ 11,100

5 . Reinsurance

a) Consolidated reinsurance

Chubb purchases reinsurance to manage various exposures including catastrophe risks. Although reinsurance agreements contractually obligate Chubb's reinsurers to reimburse it for the agreed-upon portion of its gross paid losses, they do not discharge Chubb's primary liability. The amounts for net premiums written and net premiums earned in the Consolidated statements of operations are net of reinsurance. The following table presents direct, assumed, and ceded premiums:

	Year Ended December 31		
(in millions of U.S. dollars)	**2016**	2015	2014
Premiums written			
Direct	**$ 31,543**	$ 19,879	$ 20,069
Assumed	**3,440**	3,932	3,321
Ceded	**(6,838)**	(6,098)	(5,591)
Net	**$ 28,145**	$ 17,713	$ 17,799
Premiums earned			
Direct	**$ 31,811**	$ 19,355	$ 19,555
Assumed	**3,744**	3,676	3,336
Ceded	**(6,806)**	(5,818)	(5,465)
Net	**$ 28,749**	$ 17,213	$ 17,426

For the year ended December 31, 2016 , reinsurance recoveries on losses and loss expenses incurred were $4.1 billion , compared with $ 3.1 billion for both the years ended December 31, 2015 and 2014 .

b) Reinsurance recoverable on ceded reinsurance

(in millions of U.S. dollars)	**December 31 2016**	December 31 2015
Reinsurance recoverable on unpaid losses and loss expenses (1)	**$ 12,708**	$ 10,741
Reinsurance recoverable on paid losses and loss expenses (1)	**869**	645
Reinsurance recoverable on losses and loss expenses (1)	**$ 13,577**	$ 11,386

(1) Net of a provision for uncollectible reinsurance.

We evaluate the financial condition of our reinsurers and potential reinsurers on a regular basis and also monitor concentrations of credit risk with reinsurers. The provision for uncollectible reinsurance is required principally due to the potential failure of reinsurers to indemnify Chubb, primarily because of disputes under reinsurance contracts and insolvencies. We have established provisions for amounts estimated to be uncollectible. At December 31, 2016 and 2015 , we recorded a provision for uncollectible reinsurance of $ 300 million and $ 328 million, respectively. The following tables present a listing, at December 31, 2016 , of the categories of Chubb's reinsurers:

December 31, 2016 (in millions of U.S. dollars, except for percentages)	**Gross Reinsurance Recoverable on Loss and Loss Expenses**	**Provision for Uncollectible Reinsurance**	**% of Gross Reinsurance Recoverable**
Categories			
Largest reinsurers	**$ 5,064**	**$ 59**	**1.2%**
Other reinsurers rated A- or better	**4,699**	**52**	**1.1%**
Other reinsurers with ratings lower than A- or not rated	**586**	**70**	**11.9%**
Pools	**577**	**11**	**1.9%**
Structured settlements	**557**	**14**	**2.5%**
Captives	**2,172**	**16**	**0.7%**
Other	**222**	**78**	**35.1%**
Total	**$ 13,877**	**$ 300**	**2.2%**

Largest Reinsurers

Alleghany Corp	HDI Group (Hannover Re)	Munich Re Group
Berkshire Hathaway Insurance Group	Lloyd's of London	Swiss Re Group

Categories of Chubb's reinsurers	Comprises:
Largest reinsurers	• All groups of reinsurers or captives where the gross recoverable exceeds one percent of Chubb's total shareholders' equity.
Other reinsurers rated A- or better	• All reinsurers rated A- or better that were not included in the largest reinsurer category.
Other reinsurers rated lower than A- or not rated	• All reinsurers rated lower than A- or not rated that were not included in the largest reinsurer category.
Pools	• Related to Chubb's voluntary pool participation and Chubb's mandatory pool participation required by law in certain states.
Structured settlements	• Annuities purchased from life insurance companies to settle claims. Since we retain ultimate liability in the event that the life company fails to pay, we reflect the amounts as both a liability and a recoverable/receivable for GAAP purposes.
Captives	• Companies established and owned by our insurance clients to assume a significant portion of their direct insurance risk from Chubb; structured to allow clients to self-insure a portion of their reinsurance risk. It generally is our policy to obtain collateral equal to expected losses. Where appropriate, exceptions are granted but only with review and approval at a senior officer level. Excludes captives included in the largest reinsurer category.
Other	• Amounts recoverable that are in dispute or are from companies that are in supervision, rehabilitation, or liquidation.

The provision for uncollectible reinsurance is principally based on an analysis of the credit quality of the reinsurer and collateral balances. We establish the provision for uncollectible reinsurance for the Other category based on a case-by-case analysis of individual situations including the merits of the underlying matter, credit and collateral analysis, and consideration of our collection experience in similar situations.

c) Assumed life reinsurance programs involving minimum benefit guarantees under variable annuity contracts
The following table presents income and expenses relating to GMDB and GLB reinsurance. GLBs include GMIBs as well as some GMABs originating in Japan.

	Year Ended December 31		
(in millions of U.S. dollars)	**2016**	2015	2014
GMDB			
Net premiums earned	**$ 55**	$ 61	$ 71
Policy benefits and other reserve adjustments	**$ 45**	$ 34	$ 50
GLB			
Net premiums earned	**$ 118**	$ 121	$ 138
Policy benefits and other reserve adjustments	**52**	45	36
Net realized gains (losses)	**48**	(203)	(213)
Gain (loss) recognized in Net income	**$ 114**	$ (127)	$ (111)
Net cash received	**79**	98	125
Net decrease (increase) in liability	**$ 35**	$ (225)	$ (236)

Net realized gains (losses) in the table above include gains (losses) related to foreign exchange and fair value adjustments on insurance derivatives and exclude gains (losses) on S&P put options and futures used to partially offset the risk in the GLB reinsurance portfolio. Refer to Note 10 for additional information.

At December 31, 2016 and 2015 , the reported liability for GMDB reinsurance was $120 million and $117 million, respectively. At December 31, 2016 and 2015 , the reported liability for GLB reinsurance was $853 million and $888 million, respectively, which includes a fair value derivative adjustment of $559 million and $609 million, respectively. Reported liabilities for both GMDB and GLB reinsurance are determined using internal valuation models. Such valuations require considerable judgment and are subject to significant uncertainty. The valuation of these products is subject to fluctuations arising from, among other factors, changes in interest rates, changes in equity markets, changes in credit markets, changes in the allocation of the investments underlying annuitants' account values, and assumptions regarding future policyholder behavior. These models and the related assumptions are regularly reviewed by management and enhanced, as appropriate, based upon improvements in modeling assumptions and availability of updated information, such as market conditions and demographics of in-force annuities.

Variable Annuity Net Amount at Risk

The net amount at risk is defined as the present value of future claim payments assuming policy account values and guaranteed values are fixed at the valuation date (December 31, 2016 and 2015 , respectively) and reinsurance coverage ends at the earlier of the maturity of the underlying variable annuity policy or the reinsurance treaty. In addition, the following assumptions were used:

(in millions of U.S. dollars, except for percentages)		Net amount at risk				
Reinsurance covering		2016	2015	2016 Future claims discount rate	Other assumptions	Total claims at 100% mortality at December 31, 2016 (1)
GMDB Risk Only		$ 341	$ 364	3.3% - 3.8%	No lapses or withdrawals	$ 202
					Mortality according to 100% of the Annuity 2000 mortality table	
GLB Risk Only		$ 800	$ 733	4.3% - 4.8%	No deaths, lapses or withdrawals	N/A
					Annuitization at a frequency most disadvantageous to Chubb (2)	
					Claim calculated using interest rates in line with rates used to calculate reserve	
Both Risks: (3)	GMDB	$ 88	$ 89	4.3% - 4.8%	No lapses or withdrawals	$ 22
					Mortality according to 100% of the Annuity 2000 mortality table	
	GLB	$ 464	$ 422	4.3% - 4.8%	Annuitization at a frequency most disadvantageous to Chubb (2)	N/A
					Claim calculated using interest rates in line with rates used to calculate reserve	

(1) Takes into account all applicable reinsurance treaty claim limits.
(2) Annuitization at a level that maximizes claims taking into account the treaty limits.
(3) Covering both the GMDB and GLB risks on the same underlying policyholders.

The average attained age of all policyholders for all risk categories above, weighted by the guaranteed value of each reinsured policy, is approximately 70 years.

6 . Goodwill and intangible assets

At December 31, 2016 and 2015 , Goodwill was $ 15.3 billion and $ 4.8 billion, respectively, and Other intangible assets were $ 6.8 billion and $ 887 million, respectively. The increases in Goodwill and Other intangible assets reflect the goodwill and intangible assets recorded in connection with the Chubb Corp acquisition.

a) Goodwill

The following table presents a roll-forward of Goodwill by segment:

(in millions of U.S. dollars)	North America Commercial P&C Insurance	North America Personal P&C Insurance	North America Agricultural Insurance	Overseas General Insurance	Global Reinsurance	Life Insurance	Chubb Consolidated
Balance at December 31, 2014	$ 1,211	$ —	$ 134	$ 2,366	$ 365	$ 828	$ 4,904
Purchase price allocation adjustment	—	—	—	(4)	—	—	(4)
Acquisition of Fireman's Fund	—	196	—	—	—	—	196
Foreign exchange revaluation and other	(8)	—	—	(284)	—	(8)	(300)
Balance at December 31, 2015	$ 1,203	$ 196	$ 134	$ 2,078	$ 365	$ 820	$ 4,796
Acquisition of Chubb Corp	5,714	2,025	—	2,775	—	—	10,514
Foreign exchange revaluation and other	44	14	—	(36)	—	—	22
Balance at December 31, 2016	**$ 6,961**	**$ 2,235**	**$ 134**	**$ 4,817**	**$ 365**	**$ 820**	**$ 15,332**

b) Other intangible assets

Included in Other intangible assets at December 31, 2016 and 2015 , are intangible assets subject to amortization of $ 3.8 billion and $789 million , respectively, and intangible assets not subject to amortization of $ 3.0 billion and $98 million , respectively. Intangible assets subject to amortization primarily include agency relationships and renewal rights, software, and client lists. Intangible assets not subject to amortization, primarily trademarks, are principally attributable to the Chubb Corp acquisition.

The purchase price allocation to intangible assets recorded in connection with the Chubb Corp acquisition and their related useful lives are as follows:

(in millions of U.S. dollars)	Purchase price allocation	Estimated useful life
Definite life		
Unearned premium reserves (UPR) intangible asset	**$ 1,550**	**1 year**
Agency distribution relationships and renewal rights	**3,150**	**24 years**
Internally developed technology	**95**	**3 years**
Indefinite life		
Trademarks	**2,800**	**Indefinite**
Licenses	**50**	**Indefinite**
Syndicate capacity	**10**	**Indefinite**
Total identified intangible assets	**$ 7,655**	

Amortization of purchased intangibles

Amortization expense related to purchased intangibles amounted to $19 million , $ 171 million, and $ 108 million for the years ended December 31, 2016 , 2015 , and 2014 , respectively. Amortization expense of purchased intangibles was low in 2016 reflecting the favorable impact of the amortization benefit of the fair value adjustment on acquired Unpaid losses and loss expenses. In 2017, the amortization is expected to increase to $251 million , primarily reflecting the increase in intangible amortization related to agency distribution relationships and renewal rights.

The following table presents, as of December 31, 2016 , the expected estimated pre-tax amortization expense (benefit) of purchased intangibles, at current foreign currency exchange rates, for the next five years:

	Associated with the Chubb Corp Acquisition					
For the Years Ending December 31 (in millions of U.S. dollars)	Agency distribution relationships and renewal rights	Internally developed technology	Fair value adjustment to Unpaid losses and loss expense (1)	Total	Other intangible assets	Total Amortization of purchased intangibles
2017	$ 295	$ 32	$ (160)	$ 167	$ 84	$ 251
2018	323	32	(101)	254	74	328
2019	280	—	(62)	218	68	286
2020	239	—	(35)	204	59	263
2021	217	—	(20)	197	52	249
Total	$ 1,354	$ 64	$ (378)	$ 1,040	$ 337	$ 1,377

(1)In connection with the Chubb Corp acquisition, we recorded an increase to Unpaid losses and loss expenses acquired as part of Chubb Corp of $ 715 million to adjust the carrying value of Chubb Corp's historical unpaid losses and loss expenses to fair value as of the acquisition date. This fair value adjustment amortizes through Amortization of purchased intangibles on the Consolidated statements of operations over a range of 5 to 17 years. The balance of the fair value adjustment on Unpaid losses and loss expense at December 31, 2016 was $470 million . Refer to Note 1(h) for additional information.

c) VOBA
The following table presents a roll-forward of VOBA:

(in millions of U.S. dollars)	**2016**	2015	2014
Balance, beginning of year	**$ 395**	$ 466	$ 536
Amortization of VOBA (1)	**(41)**	(42)	(51)
Foreign exchange revaluation	**1**	(29)	(19)
Balance, end of year	**$ 355**	$ 395	$ 466

(1) Recognized in Policy acquisition costs in the Consolidated statements of operations.

The following table presents, as of December 31, 2016, the expected estimated pre-tax amortization expense related to VOBA for the next five years:

For the Year Ending December 31 (in millions of U.S. dollars)	VOBA
2017	$ 35
2018	31
2019	27
2020	23
2021	20
Total	$ 136

7 . Unpaid losses and loss expenses

Chubb establishes reserves for the estimated unpaid ultimate liability for losses and loss expenses under the terms of its policies and agreements. Reserves include estimates for both claims that have been reported and for IBNR claims, and include estimates of expenses associated with processing and settling these claims. Reserves are recorded in Unpaid losses and loss expenses in the consolidated balance sheets. While we believe that our reserves for unpaid losses and loss expenses at December 31, 2016 are adequate, new information or trends may lead to future developments in incurred loss and loss expenses significantly greater or less than the reserves provided. Any such revisions could result in future changes in estimates of losses or reinsurance recoverable and would be reflected in our results of operations in the period in which the estimates are changed.

a) Description of Reserving Methodologies
Our recorded reserves represent management's best estimate of the provision for unpaid claims as of the balance sheet date. Management's best estimate is developed after collaboration with actuarial, underwriting, claims, legal, and finance departments and culminates with the input of reserve committees. Each business unit reserve committee includes the participation of the relevant parties from actuarial, finance, claims, and unit senior management and has the responsibility for finalizing, recommending and approving the estimate to be used as management's best estimate. Reserves are further reviewed by Chubb's Chief Actuary and senior management. The objective of such a process is to determine a single estimate that we believe represents a better estimate than any other and which is viewed by management to be the best estimate of ultimate loss settlements.

This estimate is based on a combination of exposure and experience-based actuarial methods (described below) and other considerations such as claims reviews, reinsurance recovery assumptions and/or input from other knowledgeable parties such as underwriting. Exposure-based methods are most commonly used on relatively immature origin years (i.e., the year in which the losses were incurred — "accident year" or "report year"), while experience-based methods provide a view based on the projection of loss experience that has emerged as of the valuation date. Greater reliance is placed upon experience-based methods as the pool of emerging loss experience grows and where it is deemed sufficiently credible and reliable as the basis for the estimate. In comparing the held reserve for any given origin year to the actuarial projections, judgment is required as to the credibility, uncertainty and inherent limitations of applying actuarial techniques to historical data to project future loss experience. Examples of factors that impact such judgments include, but are not limited to, the following:

- nature and complexity of underlying coverage provided and net limits of exposure provided;
- segmentation of data to provide sufficient homogeneity and credibility for loss projection methods;
- extent of credible internal historical loss data and reliance upon industry information as required;
- historical variability of actual loss emergence compared with expected loss emergence;
- extent of emerged loss experience relative to the remaining expected period of loss emergence;
- rate monitor information for new and renewal business;
- facts and circumstances of large claims;
- impact of applicable reinsurance recoveries; and
- nature and extent of underlying assumptions.

We have actuarial staff within each of our business units who analyze loss reserves (including loss expenses) and regularly project estimates of ultimate losses and the corresponding indications of the required IBNR reserve. Our reserving approach is a comprehensive ground-up process using data at a detailed level that reflects the specific types and coverages of the diverse products written by our various operations. The data presented in this disclosure was prepared on a more aggregated basis and with a focus on changes in incurred loss estimates over time as well as associated cash flows. We note that data prepared on this basis may not demonstrate the full spectrum of characteristics that are evident in the more detailed level studied internally.

We perform an actuarial reserve review for each product line at least once a year. For most product lines, one or more standard actuarial reserving methods may be used to determine estimates of ultimate losses and loss expenses, and from these estimates, a single actuarial central estimate is selected. The actuarial central estimate is an input to the reserve committee process described above. For the few product lines that do not lend themselves to standard actuarial reserving methods, appropriate techniques are applied to produce the actuarial central estimates. For example, run-off asbestos and environmental liability estimates are better suited to the application of account-specific exposure-based analyses to best evaluate their associated aggregate reserve levels.

b) Standard actuarial reserving methods
Standard actuarial reserving methods include, but are not limited to, expected loss ratio, paid and reported loss development, and Bornhuetter-Ferguson methods. A general description of these methods is provided below. In addition to these standard methods, depending upon the product line characteristics and available data, we may use other recognized actuarial methods and approaches. Implicit in the standard actuarial methods that we generally utilize is the need for two fundamental assumptions: first, the pattern by which losses are expected to emerge over time for each origin year, and second the expected loss ratio for each origin year.

The expected loss ratio for any particular origin year is selected after consideration of a number of factors, including historical loss ratios adjusted for rate changes, premium and loss trends, industry benchmarks, the results of policy level loss modeling at the time of underwriting, and/or other more subjective considerations for the product line (e.g., terms and conditions) and external environment as noted above. The expected loss ratio for a given origin year is initially established at the start of the origin year as part of the planning process. This analysis is performed in conjunction with underwriters and management. The expected loss ratio method arrives at an ultimate loss estimate by multiplying the expected ultimate loss ratio by the corresponding premium base. This method is most commonly used as the basis for the actuarial central estimate for immature origin periods on product lines where the actual paid or reported loss experience is not yet deemed sufficiently credible to serve as the principal basis for the selection of ultimate losses. The expected loss ratio for a given origin year may be modified over time if the underlying assumptions differ from the original assumptions (e.g., the assessment of prior year loss ratios, loss trend, rate changes, actual claims, or other information).

Our selected paid and reported development patterns provide a benchmark against which the actual emerging loss experience can be monitored. Where possible, development patterns are selected based on historical loss emergence by origin year. For product lines where the historical data is viewed to have low statistical credibility, the selected development patterns also reflect relevant industry benchmarks and/or experience from similar product lines written elsewhere within Chubb. This most commonly occurs for relatively new product lines that have limited historical data or for high severity/low frequency portfolios where our historical experience exhibits considerable volatility and/or lacks credibility. The paid and reported loss development methods convert the selected loss emergence pattern to a set of multiplicative factors which are then applied to actual paid or reported losses to arrive at an estimate of ultimate losses for each period. Due to their multiplicative nature, the paid and reported loss development methods will leverage differences between actual and expected loss emergence. These methods tend to be utilized for more mature origin periods and for those portfolios where the loss emergence has been relatively consistent over time.

The Bornhuetter-Ferguson method is a combination of the expected loss ratio method and the loss development method, where the loss development method is given more weight as the origin year matures. This approach allows a logical transition between the expected loss ratio method which is generally utilized at earlier maturities and the loss development methods which are typically utilized at later maturities. We usually apply this method using reported loss data although paid data may also be used.

Short-tail business
Short-tail business generally describes product lines for which losses are typically known and paid shortly after the loss actually occurs. This would include, for example, most property, personal accident, aviation hull, and automobile physical damage policies that we write. Due to the short reporting and development pattern for these product lines, the uncertainty associated with our estimate of ultimate losses for any particular accident period diminishes relatively quickly as actual loss experience emerges. We typically assign credibility to methods that incorporate actual loss emergence, such as the paid and reported loss development and Bornhuetter-Ferguson methods, sooner than would be the case for long-tail lines at a similar stage of development for a given origin year. The reserving process for short-tail losses arising from catastrophic events typically involves an assessment by the claims department, in conjunction with underwriters and actuaries, of our exposure and estimated losses immediately following an event and then subsequent revisions of the estimated losses as our insureds provide updated actual loss information.

Long-tail business
Long-tail business describes lines of business for which specific losses may not be known/reported for some period and for which claims can take significant time to settle/close. This includes most casualty lines such as general liability, D&O, and workers' compensation. There are various factors contributing to the uncertainty and volatility of long-tail business. Among these are:

- The nature and complexity of underlying coverage provided and net limits of exposure provided;
- Our historical loss data and experience is sometimes too immature and lacking in credibility to rely upon for reserving purposes. Where this is the case, in our reserve analysis we may utilize industry loss ratios or industry benchmark development patterns that we believe reflect the nature and coverage of the underwritten business and its future development, where available. For such product lines, actual loss experience may differ from industry loss statistics as well as loss experience for previous underwriting years;
- The difficulty in estimating loss trends, claims inflation (e.g., medical and judicial) and underlying economic conditions;
- The need for professional judgment to estimate loss development patterns beyond that represented by historical data using supplemental internal or industry data, extrapolation, or a blend of both;
- The need to address shifts in mix over time when applying historical paid and reported loss development patterns from older origin years to more recent origin years. For example, changes over time in the processes and procedures for establishing case reserves can distort reported loss development patterns or changes in ceded reinsurance structures by origin year can alter the development of paid and reported losses;

- Loss reserve analyses typically require loss or other data be grouped by common characteristics in some manner. If data from two combined lines of business exhibit different characteristics, such as loss payment patterns, the credibility of the reserve estimate could be affected. Additionally, since casualty lines of business can have significant intricacies in the terms and conditions afforded to the insured, there is an inherent risk as to the homogeneity of the underlying data used in performing reserve analyses; and
- The applicability of the price change data used to estimate ultimate loss ratios for most recent origin years.

As described above, various factors are considered when determining appropriate data, assumptions, and methods used to establish the loss reserve estimates for long-tail product lines. These factors may also vary by origin year for given product lines. The derivation of loss development patterns from data and the selection of a tail factor to project ultimate losses from actual loss emergence require considerable judgment, particularly with respect to the extent to which historical loss experience is relied upon to support changes in key reserving assumptions.

c) Loss Development Tables
The following loss development tables present Chubb’s historic incurred and paid claims development through December 31, 2016 , net of reinsurance, as well as the cumulative number of reported claims, IBNR balances, and other supplementary information.

The loss development data, presented in a triangular format below, represents nine broad product line groupings within the following four segments: North America Commercial P&C Insurance, North America Personal P&C Insurance, Overseas General Insurance, and Global Reinsurance. The remaining short-duration contract portfolios provide limited insight when presented in this format and are included among the reconciling items at the end of this disclosure. The excluded segments are the North America Agricultural Insurance segment, which is short-tailed with final settlements driven largely by the variability of crop prices; and the Life Insurance segment, which is generally written using long-duration contracts. Also excluded is Corporate, which includes run-off liabilities such as asbestos and environmental and other mass tort exposures and which impact accident years older than those shown in the exhibits below.

Each product line grouping follows a similar format and reflects the following:

- The incurred loss triangle includes both reported case reserves and IBNR liabilities.
- Both the incurred and paid loss triangles include allocated loss adjustment expense (i.e., defense and investigative costs particular to individual claims) but exclude unallocated loss adjustment expense (i.e., the costs associated with internal claims staff and third party administrators).
- The amounts in both triangles for the years ended December 31, 2007 , to December 31, 2015 and average historical claim duration as of December 31, 2016 , are presented as supplementary information.
- All data presented in the triangles is net of reinsurance recoveries.
- The IBNR reserves shown to the right of each incurred loss development exhibit reflect the net IBNR recorded as of December 31, 2016 .

Historical dollar amounts are presented in this footnote on a constant-currency basis, which is achieved by assuming constant foreign exchange rates between periods in the loss triangles, translating prior period amounts using the same local currency exchange rates as the current year end. The impact of this conversion is to show the change between periods exclusive of the effect of fluctuations in exchange rates, which would otherwise distort the change in incurred loss and cash flow patterns shown. The change in incurred loss shown will differ from other U.S. GAAP disclosures of incurred prior period reserve development amounts, which include the effect of fluctuations in exchanges rates.

We have provided guidance in the following pages on key assumptions that should be considered when reviewing this disclosure. The tables are presented retrospectively with respect to acquisitions where these are material and doing so is practicable. Most notably, the Chubb Corp acquisition is presented retrospectively. The unaudited consolidated data is presented solely for informational purposes and is not necessarily indicative of the consolidated data that might have been observed had the transactions been completed prior to the date indicated.

Establishing an estimate for loss reserves requires management to incorporate many assumptions. The information contained in this disclosure allows readers to understand, at the level presented in the development tables, the change over time in incurred loss estimates reported by Chubb, as well as the nature of cash flows associated with those estimates. We have provided information relating to how loss reserve estimates are developed, which is achieved by performing studies among other estimation techniques, at a more detailed level than is presented in the disaggregated disclosures herein. We believe the information provided in the “Loss Development Tables” section of the disclosure is of limited use for independent analysis or application of standard actuarial estimations, and to attempt to do so should be interpreted with care.

Development Tables
The nine development tables presented below display disaggregated loss experience for product grouping as follows:

- North America Commercial P&C Insurance segment loss experience is presented within four triangular tables: Workers' Compensation, Liability, Other Casualty, and non-Casualty lines.
- North America Personal P&C Insurance segment loss experience is presented within one table, since most products are short- tail.
- Overseas General Insurance segment loss experience is presented within two tables: Casualty and non-Casualty.
- Global Reinsurance segment loss experience is presented within two tables: Property and non-Property.

As noted above, the North America Agricultural Insurance and Life Insurance segments and Corporate are excluded from the development tables, but are included as reconciling items. In addition, certain subsets of our business are excluded from the development tables owing to data limitations or unsuitability to the development table presentation, including:

- We underwrite loss portfolio transfers at various times; by convention, all premium and losses associated with these transactions are recorded to the policy period of the transaction, even though the accident dates of the claims covered may be a decade or more in the past.
- We underwrite certain high attachment, high limit, multiple-line and excess of aggregate coverages for large commercial clients. Changes in incurred loss and cash flow patterns are volatile and sufficiently different from those of typical insureds.
- Reinsurance recoverable bad debt.
- Purchase accounting adjustments related to unpaid losses and loss expenses for the Chubb Corp.

Cumulative Number of Reported Claims
Reported claim counts, on a cumulative basis, are provided to the far right of each paid loss development table. We generally consider a reported claim to be one claim per coverage per claimant, which is generally consistent with our U.S. statutory presentation. We exclude claims closed without payment. Use of the presented claim counts in analysis of company experience has significant limitations, including:

- High deductible workers' compensation claim counts include claims below the applicable policy deductible.
- Professional liability and certain other lines have a high proportion of claims reported which will be closed without any payment; shifts in total reported counts may not meaningfully impact reported and ultimate loss experience.
- Claims for certain events and/or product lines, such as portions of assumed reinsurance and A&H business, are not reported on an individual basis, but rather in bulk and thus not available for inclusion in this disclosure. For certain A&H business, where bulk reporting affected only the oldest few accident years, presented claim counts for these years were estimated.
- Each of the segments below typically has a mixture of primary and excess experience which has shifted over time.

Reported claim counts include open claims which have case reserves and exclude claims that have been incurred but not reported. As such the reported claims are consistent with reported losses, which can be calculated by subtracting incurred but not reported losses from incurred losses. However, they are inconsistent with losses in the incurred loss triangle, which includes incurred but not reported loss, and to losses in the paid loss triangle, which exclude case reserves.

North America Commercial P&C Insurance — Workers' Compensation

This product line has a substantial geographic spread and a broad mix across industries. Types of coverage include risk management business predominantly with high deductible policies, loss sensitive business (i.e., retrospectively-rated policies), business fronted for captives, as well as primary guaranteed cost coverages.

Net Incurred Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	Years Ended December 31 Unaudited										December 31 2016 Net IBNR Reserves
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 1,068	$ 1,042	$ 1,026	$ 1,018	$ 976	$ 943	$ 944	$ 934	$ 933	**$ 913**	**$ 171**
2008		1,018	993	997	991	966	952	952	948	**932**	**185**
2009			960	933	933	928	908	902	889	**877**	**220**
2010				985	988	1,003	1,008	1,004	994	**972**	**254**
2011					957	963	978	982	984	**954**	**276**
2012						956	940	957	967	**932**	**321**
2013							1,013	1,031	1,043	**1,047**	**374**
2014								1,106	1,111	**1,129**	**526**
2015									1,179	**1,157**	**588**
2016										**1,259**	**905**
Total										**$ 10,172**	

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	Years Ended December 31 Unaudited										December 31 2016 Reported Claims (in thousands)
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 121	$ 281	$ 386	$ 451	$ 502	$ 550	$ 580	$ 606	$ 625	**$ 641**	**351**
2008		125	276	370	436	500	542	574	602	**627**	**333**
2009			108	260	347	412	463	506	535	**559**	**283**
2010				125	303	414	495	548	587	**612**	**304**
2011					119	294	410	480	529	**560**	**287**
2012						111	272	365	435	**483**	**288**
2013							107	286	415	**499**	**301**
2014								113	296	**408**	**338**
2015									117	**302**	**338**
2016										**123**	**275**
Total										**$ 4,814**	

Net Liabilities for Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	**December 31, 2016**
Accident years prior to 2007	$ 2,226
All Accident years	$ 7,584

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as of December 31, 2016

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	12%	17%	11%	8%	6%	4%	3%	3%	2%	2%

North America Commercial P&C Insurance — Liability
This line consists of primary and excess liability exposures, including medical liability, and professional lines, including directors and officers (D&O) liability, errors and omissions (E&O) liability, employment practices liability (EPL), and fiduciary liability.
The primary and excess liability business represents the largest part of these exposures. The former includes both monoline and commercial package liability. The latter includes a substantial proportion of commercial umbrella, excess and high excess business, where loss activity can produce significant volatility in the loss triangles at later ages within an accident year (and sometimes across years) due to the size of the limits afforded and the complex nature of the underlying losses.

This line also includes management and professional liability products provided to a wide variety of clients, from national accounts to small firms to private and not-for-profit organizations, distributed through brokers, agents, wholesalers and MGAs. Many of these coverages, particularly D&O and E&O, are typically written on a claims-made form. While most of the coverages are underwritten on a primary basis, there are significant amounts of large line and excess exposure as well.

Net Incurred Loss and Allocated Loss Adjustment Expenses

	Years Ended December 31										**December 31 2016**
(in millions of U.S. dollars)	Unaudited										**Net IBNR Reserves**
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 3,682	$ 3,760	$ 3,719	$ 3,755	$ 3,692	$ 3,447	$ 3,318	$ 3,300	$ 3,253	**$ 3,105**	**$ 249**
2008		3,716	3,719	3,708	3,682	3,551	3,290	3,217	3,142	**3,036**	**335**
2009			3,682	3,630	3,599	3,556	3,454	3,205	3,130	**3,060**	**447**
2010				3,507	3,468	3,495	3,474	3,334	3,169	**3,045**	**559**
2011					3,437	3,498	3,525	3,539	3,472	**3,360**	**856**
2012						3,489	3,529	3,519	3,480	**3,441**	**1,168**
2013							3,490	3,479	3,481	**3,477**	**1,588**
2014								3,460	3,501	**3,585**	**1,969**
2015									3,502	**3,668**	**2,639**
2016										**3,474**	**3,082**
Total										**$ 33,251**	

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

	Years Ended December 31										**December 31 2016**
(in millions of U.S. dollars)	Unaudited										**Reported Claims** (in thousands)
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 76	$ 447	$ 922	$ 1,488	$ 1,980	$ 2,301	$ 2,497	$ 2,618	$ 2,700	**$ 2,757**	**21**
2008		115	471	987	1,500	1,837	2,169	2,394	2,496	**2,591**	**21**
2009			86	425	979	1,460	1,813	2,118	2,307	**2,461**	**21**
2010				97	501	981	1,421	1,757	2,125	**2,294**	**20**
2011					111	538	1,069	1,638	2,045	**2,310**	**21**
2012						114	532	1,028	1,535	**1,953**	**21**
2013							101	468	1,089	**1,489**	**22**
2014								116	576	**1,124**	**23**
2015									117	**544**	**26**
2016										**142**	**19**
Total										**$ 17,665**	

North America Commercial P&C Insurance — Liability (continued)

Net Liabilities for Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)		**December 31, 2016**
Accident years prior to 2007	$	1,726
All Accident years	$	17,312

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as of December 31, 2016

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	3%	12%	16%	15%	12%	10%	6%	4%	3%	2%

North America Commercial P&C Insurance — Other Casualty

This product line consists of the remaining commercial casualty coverages such as automobile liability, marine, and aviation. There is also a small portion of commercial multi-peril (CMP) business in accident years 2014 and prior . The paid and reported data are impacted by some catastrophe loss activity primarily on the CMP exposures just noted and, to a lesser extent, marine exposures. The ultimate loss experience for years ended December 31, 2008 , 2011 , and 2012 were impacted by natural catastrophes.

Net Incurred Loss and Allocated Loss Adjustment Expenses

	Years Ended December 31										**December 31 2016**
(in millions of U.S. dollars)	Unaudited										**Net IBNR Reserves**
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 726	$ 682	$ 659	$ 630	$ 611	$ 611	$ 599	$ 591	$ 597	**$ 596**	**$ 24**
2008		903	942	910	879	856	856	849	853	**847**	**18**
2009			718	710	665	640	593	557	548	**546**	**16**
2010				737	736	727	668	639	606	**608**	**27**
2011					696	717	703	675	659	**651**	**40**
2012						748	714	682	668	**633**	**60**
2013							619	640	632	**621**	**121**
2014								655	658	**651**	**176**
2015									538	**525**	**211**
2016										**563**	**408**
Total										**$ 6,241**	

North America Commercial P&C Insurance — Other Casualty (continued)

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	Years Ended December 31										December 31 2016
	Unaudited										**Reported Claims** (in thousands)
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 112	$ 274	$ 379	$ 452	$ 489	$ 527	$ 540	$ 547	$ 558	**$ 564**	**24**
2008		210	464	604	690	748	777	798	807	**815**	**25**
2009			106	281	378	432	471	500	511	**520**	**20**
2010				144	334	430	481	517	560	**571**	**21**
2011					131	335	455	522	561	**585**	**23**
2012						108	307	413	484	**538**	**24**
2013							115	292	372	**452**	**21**
2014								113	289	**387**	**22**
2015									80	**205**	**20**
2016										**74**	**17**
Total										**$ 4,711**	

Net Liabilities for Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	**December 31, 2016**
Accident years prior to 2007	$ 241
All Accident years	$ 1,771

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as of December 31, 2016

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	19%	29%	16%	11%	7%	5%	2%	1%	1%	1%

North America Commercial P&C Insurance — Non-Casualty

This product line represents first party commercial product lines that are short-tailed in nature, such as property, inland marine, A&H, and surety/fidelity bonds. There is a wide diversity of products, primary and excess coverages, and policy sizes. During this ten-year period, this product line was also impacted by natural catastrophes in the same years as outlined above in Other Casualty.

North America Commercial P&C Insurance — Non-Casualty (continued)

Net Incurred Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	Years Ended December 31 Unaudited										December 31 2016 Net IBNR Reserves
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 1,271	$ 1,190	$ 1,181	$ 1,168	$ 1,151	$ 1,137	$ 1,138	$ 1,139	$ 1,138	**$ 1,139**	**$ —**
2008		1,927	1,880	1,852	1,836	1,845	1,849	1,859	1,846	**1,845**	**29**
2009			1,366	1,395	1,367	1,357	1,356	1,353	1,355	**1,369**	**28**
2010				1,509	1,568	1,486	1,442	1,432	1,424	**1,420**	**15**
2011					1,985	1,957	1,922	1,916	1,895	**1,915**	**43**
2012						2,069	1,971	1,938	1,909	**1,901**	**53**
2013							1,487	1,446	1,359	**1,383**	**73**
2014								1,755	1,755	**1,681**	**103**
2015									1,839	**1,828**	**281**
2016										**2,012**	**828**
Total										**$ 16,493**	

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	Years Ended December 31 Unaudited										December 31 2016 **Reported Claims** (in thousands)
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 563	$ 987	$ 1,076	$ 1,117	$ 1,124	$ 1,126	$ 1,130	$ 1,133	$ 1,134	**$ 1,135**	**906**
2008		929	1,607	1,708	1,766	1,797	1,800	1,807	1,813	**1,813**	**995**
2009			630	1,118	1,213	1,268	1,280	1,322	1,332	**1,335**	**1,067**
2010				703	1,231	1,335	1,374	1,394	1,400	**1,401**	**1,054**
2011					942	1,585	1,742	1,822	1,832	**1,856**	**1,045**
2012						727	1,612	1,745	1,810	**1,830**	**1,027**
2013							630	1,119	1,241	**1,291**	**1,068**
2014								833	1,405	**1,539**	**1,095**
2015									712	**1,334**	**1,164**
2016										**852**	**1,098**
Total										**$ 14,386**	

Net Liabilities for Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	**December 31, 2016**
Accident years prior to 2007	$ 143
All Accident years	$ 2,250

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as of December 31, 2016

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	46%	37%	7%	4%	1%	1%	—%	—%	—%	—%

North America Personal P&C Insurance
Chubb provides personal lines coverages for high-net-worth individuals and families in North America including homeowners, automobile, valuable articles (including fine art), umbrella liability, and recreational marine insurance offered through independent regional agents and brokers. A portfolio acquired from Fireman's Fund is presented on a prospective basis beginning in May of accident year 2015 . Reserves associated with prior accident periods were acquired through a loss portfolio transfer, which does not allow for a retrospective presentation.

Net Incurred Loss and Allocated Loss Adjustment Expenses

	Years Ended December 31										December 31 2016
(in millions of U.S. dollars)	Unaudited										**Net IBNR Reserves**
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 1,549	$ 1,538	$ 1,460	$ 1,431	$ 1,416	$ 1,411	$ 1,402	$ 1,400	$ 1,398	**$ 1,398**	**$ 6**
2008		1,777	1,777	1,746	1,722	1,693	1,675	1,667	1,659	**1,659**	**6**
2009			1,608	1,595	1,565	1,551	1,543	1,536	1,536	**1,532**	**9**
2010				1,868	1,876	1,853	1,836	1,832	1,828	**1,823**	**11**
2011					2,205	2,207	2,183	2,171	2,162	**2,158**	**17**
2012						2,183	2,181	2,181	2,189	**2,183**	**25**
2013							1,855	1,883	1,891	**1,894**	**29**
2014								2,202	2,203	**2,189**	**141**
2015									2,491	**2,546**	**213**
2016										**2,437**	**609**
Total										**$ 19,819**	

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

	Years Ended December 31										December 31 2016
(in millions of U.S. dollars)	Unaudited										**Reported Claims** (in thousands)
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 843	$ 1,182	$ 1,267	$ 1,328	$ 1,353	$ 1,370	$ 1,377	$ 1,384	$ 1,387	**$ 1,387**	**127**
2008		974	1,406	1,518	1,584	1,620	1,636	1,642	1,644	**1,648**	**139**
2009			886	1,234	1,345	1,437	1,484	1,501	1,511	**1,519**	**125**
2010				1,152	1,521	1,669	1,727	1,770	1,792	**1,803**	**149**
2011					1,358	1,833	1,969	2,049	2,103	**2,127**	**168**
2012						1,175	1,804	1,955	2,061	**2,115**	**173**
2013							1,040	1,500	1,683	**1,782**	**126**
2014								1,308	1,762	**1,923**	**134**
2015									1,497	**2,081**	**137**
2016										**1,452**	**120**
Total										**$ 17,837**	

Net Liabilities for Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	**December 31, 2016**
Accident years prior to 2007	$ 39
All Accident years	$ 2,021

North America Personal P&C Insurance (continued)

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as of December 31, 2016

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	59%	24%	7%	4%	2%	1%	1%	—%	—%	—%

Overseas General Insurance

Approximately 40 percent of Chubb International's business is generated by European accounts. Business related to minor acquisitions in Overseas General Insurance is not material and therefore has been excluded from the tables below.

Overseas General Insurance — Casualty

This product line is comprised of D&O liability, E&O liability, financial institutions (including crime/fidelity coverages), and non-U.S. general liability as well as shorter-tailed casualty exposures such as aviation, surety, and political risk. Exposures are located around the world, including Europe, Latin America, and Asia. There is some U.S. exposure in Casualty from multinational accounts. The financial lines coverages are typically written on a claims-made form, while general liability coverages are typically on an occurrence basis and a mix of primary and excess business.

Net Incurred Loss and Allocated Loss Adjustment Expenses

	Years Ended December 31										December 31 2016
(in millions of U.S. dollars)	Unaudited										Net IBNR Reserves
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 1,136	$ 1,174	$ 1,180	$ 1,163	$ 1,080	$ 1,021	$ 932	$ 888	$ 867	**$ 848**	**$ 21**
2008		1,189	1,301	1,386	1,389	1,398	1,360	1,290	1,273	**1,267**	**105**
2009			1,214	1,357	1,400	1,414	1,411	1,300	1,195	**1,191**	**124**
2010				1,170	1,203	1,280	1,349	1,284	1,239	**1,118**	**162**
2011					1,239	1,232	1,222	1,217	1,140	**1,062**	**240**
2012						1,253	1,196	1,257	1,278	**1,269**	**373**
2013							1,229	1,219	1,231	**1,274**	**537**
2014								1,242	1,286	**1,285**	**626**
2015									1,186	**1,252**	**719**
2016										**1,181**	**914**
Total										**$ 11,747**	

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

	Years Ended December 31										December 31 2016
(in millions of U.S. dollars)	Unaudited										**Reported Claims** (in thousands)
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 95	$ 287	$ 425	$ 550	$ 631	$ 680	$ 715	$ 743	$ 776	**$ 787**	**37**
2008		120	295	455	618	759	859	931	986	**1,036**	**37**
2009			119	330	505	642	734	791	860	**950**	**36**
2010				106	266	461	602	707	794	**843**	**38**
2011					88	240	382	511	610	**686**	**39**
2012						74	243	422	569	**677**	**40**
2013							87	260	413	**555**	**41**
2014								114	289	**459**	**41**
2015									93	**283**	**41**
2016										**129**	**29**
Total										**$ 6,405**	

Overseas General Insurance — Casualty (continued)

Net Liabilities for Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)		December 31, 2016
Accident years prior to 2007	$	339
All Accident years	$	5,681

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as of December 31, 2016

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	9%	15%	14%	12%	9%	7%	5%	5%	4%	1%

Overseas General Insurance — Non-Casualty

This product line comprises commercial fire, marine (predominantly cargo), personal automobile (in Latin America, Asia Pacific and Japan), personal cell phones, personal residential (including high net worth), energy and construction. Latin America and Europe each make up about 35 percent of the Chubb International non-casualty book. In general, these lines have relatively stable payment and reporting patterns although they are impacted by natural catastrophes particularly in the 2008 , 2010 and 2011 years.

Net Incurred Loss and Allocated Loss Adjustment Expenses

	Years Ended December 31										December 31 2016
(in millions of U.S. dollars)	Unaudited										Net IBNR Reserves
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 1,224	$ 1,214	$ 1,209	$ 1,191	$ 1,189	$ 1,165	$ 1,181	$ 1,178	$ 1,177	**$ 1,184**	**$ 5**
2008		1,364	1,360	1,318	1,294	1,302	1,287	1,284	1,280	**1,269**	**14**
2009			1,315	1,288	1,203	1,176	1,160	1,143	1,143	**1,137**	**8**
2010				1,434	1,449	1,424	1,424	1,413	1,400	**1,392**	**30**
2011					1,665	1,728	1,677	1,644	1,631	**1,620**	**1**
2012						1,472	1,473	1,442	1,401	**1,400**	**43**
2013							1,530	1,521	1,474	**1,436**	**59**
2014								1,601	1,664	**1,622**	**63**
2015									1,705	**1,812**	**192**
2016										**1,685**	**424**
Total										**$ 14,557**	

Overseas General Insurance — Non-Casualty (continued)

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

	Years Ended December 31										December 31 2016
(in millions of U.S. dollars)	Unaudited										**Reported Claims** (in thousands)
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 426	$ 861	$ 1,032	$ 1,091	$ 1,124	$ 1,140	$ 1,147	$ 1,152	$ 1,159	**$ 1,164**	**183**
2008		479	985	1,120	1,183	1,206	1,215	1,225	1,233	**1,233**	**206**
2009			449	882	1,010	1,073	1,096	1,106	1,113	**1,116**	**234**
2010				523	1,028	1,218	1,278	1,316	1,328	**1,334**	**252**
2011					631	1,272	1,465	1,519	1,549	**1,563**	**268**
2012						553	1,050	1,233	1,290	**1,311**	**283**
2013							569	1,088	1,272	**1,301**	**281**
2014								622	1,209	**1,394**	**269**
2015									692	**1,315**	**256**
2016										**789**	**191**
Total										**$ 12,520**	

Net Liabilities for Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	December 31, 2016
Accident years prior to 2007	$ 65
All Accident years	$ 2,102

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as of December 31, 2016

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	39%	37%	12%	4%	2%	1%	1%	—%	—%	—%

Global Reinsurance
Chubb analyzes its Global Reinsurance business on a treaty year basis rather than on an accident year basis. Treaty year data was converted to an accident year basis for the purposes of this disclosure. Mix shifts are an important consideration in these product line groupings. As proportional business and excess of loss business have different earning and loss reporting and payment patterns, this change in mix will affect the cash flow patterns across the accident years. In addition, the shift from excess to proportional business over time will make the cash flow patterns of older and more recent years difficult to compare. In general, the proportional business will pay out more quickly than the excess of loss business, as such, using older years development patterns may overstate the ultimate loss estimates in more recent years.

Global Reinsurance — Property
This portfolio consists of property catastrophe, property proportional, and property per risk books, with U.S. exposure representing approximately 70 percent of the business within this segment. Although the mixture of business varies by year, property catastrophe represents approximately 70 percent in Treaty Years 2007 and after . Of the non-catastrophe book, approximately 75 percent is on proportional treaties in Treaty Year 2007 and after . This percentage has increased over time with the proportion being approximately 50 percent from 2007 growing to approximately 90 percent in Treaty Year 2015 , with the remainder being written on an excess of loss basis. Also note, this product line is impacted by natural catastrophes, particularly in the 2011 and 2012 years.

Global Reinsurance — Property (continued)

Net Incurred Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	Years Ended December 31										December 31 2016
	Unaudited										Net IBNR Reserves
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 107	$ 106	$ 97	$ 91	$ 90	$ 88	$ 87	$ 87	$ 87	**$ 86**	**$ 2**
2008		223	214	206	206	206	208	210	209	**208**	**—**
2009			99	113	105	105	103	100	100	**100**	**—**
2010				155	179	173	172	178	179	**180**	**6**
2011					227	224	224	220	221	**222**	**1**
2012						175	154	149	142	**141**	**4**
2013							117	117	109	**105**	**(2)**
2014								125	142	**142**	**6**
2015									98	**105**	**9**
2016										**143**	**29**
Total										**$ 1,432**	

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	Years Ended December 31										December 31 2016
	Unaudited										**Reported Claims** (in thousands)
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 23	$ 65	$ 77	$ 81	$ 84	$ 85	$ 85	$ 86	$ 86	**$ 86**	**0.215**
2008		65	139	169	194	205	207	208	208	**208**	**0.157**
2009			41	79	90	95	96	98	98	**98**	**0.107**
2010				40	137	157	167	171	173	**173**	**0.095**
2011					75	151	175	198	214	**217**	**0.103**
2012						29	95	117	125	**129**	**0.084**
2013							38	85	98	**103**	**0.097**
2014								56	112	**127**	**0.081**
2015									50	**87**	**0.086**
2016										**50**	**0.087**
Total										**$ 1,278**	

Net Liabilities for Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	**December 31, 2016**
Accident years prior to 2007	$ —
All Accident years	$ 154

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as of December 31, 2016

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	33%	41%	12%	8%	4%	1%	—%	—%	—%	— %

Global Reinsurance — Non-Property

This product line includes proportional and excess casualty coverages with exposures located around the world. Reinsurance in general exhibits less stable development patterns than primary business. In particular U.S. casualty reinsurance is long-tailed and can be very volatile.

Net Incurred Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	Years Ended December 31 Unaudited										**December 31 2016 Net IBNR Reserves**
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 655	$ 670	$ 670	$ 641	$ 620	$ 606	$ 581	$ 570	$ 564	**$ 558**	**$ 70**
2008		488	512	528	513	503	480	480	475	**474**	**55**
2009			356	404	404	409	401	383	365	**354**	**35**
2010				442	472	479	485	472	467	**457**	**84**
2011					449	461	474	472	467	**458**	**67**
2012						440	437	440	440	**425**	**30**
2013							359	363	362	**361**	**54**
2014								367	367	**373**	**69**
2015									328	**333**	**87**
2016										**256**	**141**
Total										**$ 4,049**	

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	Years Ended December 31 Unaudited										**December 31 2016 Reported Claims** (in thousands)
Accident Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	**2016**	**2016**
2007	$ 52	$ 122	$ 200	$ 267	$ 318	$ 363	$ 393	$ 417	$ 437	**$ 445**	**1.470**
2008		46	113	187	239	286	319	343	362	**373**	**1.292**
2009			49	109	151	191	224	246	265	**278**	**0.921**
2010				71	149	209	253	283	315	**331**	**0.877**
2011					80	171	227	270	304	**330**	**0.796**
2012						93	202	260	301	**334**	**0.677**
2013							72	158	206	**247**	**0.417**
2014								99	199	**240**	**0.428**
2015									95	**173**	**0.370**
2016										**63**	**0.118**
Total										**$ 2,814**	

Net Liabilities for Loss and Allocated Loss Adjustment Expenses

(in millions of U.S. dollars)	**December 31, 2016**
Accident years prior to 2007	$ 357
All Accident years	$ 1,592

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as of December 31, 2016

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	18%	19%	13%	11%	8%	7%	5%	4%	3%	2%

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The following table presents a reconciliation of the loss development tables above to the gross loss reserve liability in the consolidated balance sheet:

Reconciliation of Reserve Balances to Liability for Unpaid Loss and Loss Expenses

(in millions of U.S. dollars)		December 31, 2016
Net unpaid loss and allocated loss adjustment expense:		
North America Commercial P&C Insurance — Workers' Compensation	$	7,584
North America Commercial P&C Insurance — Liability		17,312
North America Commercial P&C Insurance — Other Casualty		1,771
North America Commercial P&C Insurance — Non-Casualty		2,250
North America Personal P&C Insurance		2,021
Overseas General Insurance — Casualty		5,681
Overseas General Insurance — Non-Casualty		2,102
Global Reinsurance — Property		154
Global Reinsurance — Non-Property		1,592
Other (1)		4,837
Net unpaid loss and allocated loss adjustment expense		45,304
Ceded unpaid loss and allocated loss adjustment expense:		
North America Commercial P&C Insurance — Workers' Compensation	$	1,872
North America Commercial P&C Insurance — Liability		4,273
North America Commercial P&C Insurance — Other Casualty		437
North America Commercial P&C Insurance — Non-Casualty		555
North America Personal P&C Insurance		168
Overseas General Insurance — Casualty		2,617
Overseas General Insurance — Non-Casualty		968
Global Reinsurance — Property		11
Global Reinsurance — Non-Property		114
Other (1)		1,825
Ceded unpaid loss and allocated loss adjustment expense		12,840
Net unpaid loss and loss expense on other than short-duration contracts (2)		741
Unpaid unallocated loss adjustment expenses		1,655
Unpaid losses and loss expenses	$	60,540

(1) Other includes the North America Agricultural Insurance segment, run-off asbestos and environmental, the loss portfolio transfer of Fireman's Fund personal lines run-off liabilities, and Alternative Risk Solutions. Excludes the Life Insurance segment reserves.
(2) Primarily includes our international A&H business and Life Insurance segment reserves.

The following table presents a reconciliation of Unpaid losses and loss expenses:

	Year Ended December 31		
(in millions of U.S. dollars)	**2016**	2015	2014
Gross unpaid losses and loss expenses, beginning of year	**$ 37,303**	$ 38,315	$ 37,443
Reinsurance recoverable on unpaid losses (1)	**(10,741)**	(11,307)	(10,612)
Net unpaid losses and loss expenses, beginning of year	**26,562**	27,008	26,831
Acquisition of subsidiaries	**21,402**	417	320
Total	**47,964**	27,425	27,151
Net losses and loss expenses incurred in respect of losses occurring in:			
Current year	**17,256**	10,030	10,176
Prior years (2)	**(1,204)**	(546)	(527)
Total	**16,052**	9,484	9,649
Net losses and loss expenses paid in respect of losses occurring in:			
Current year	**5,899**	4,053	3,975
Prior years	**9,816**	5,612	5,260
Total	**15,715**	9,665	9,235
Foreign currency revaluation and other	**(469)**	(682)	(557)
Net unpaid losses and loss expenses, end of year	**47,832**	26,562	27,008
Reinsurance recoverable on unpaid losses (1)	**12,708**	10,741	11,307
Gross unpaid losses and loss expenses, end of year	**$ 60,540**	$ 37,303	$ 38,315

(1) Net of provision for uncollectible reinsurance.
(2) Relates to prior period loss reserve development only and excludes prior period development related to reinstatement premiums, expense adjustments, and earned premiums.

Net losses and loss expenses incurred includes $ 1,204 million, $ 546 million, and $ 527 million, of net favorable prior period development (PPD) in the years ended December 31, 2016 , 2015 , and 2014 , respectively. Long-tail lines include lines such as workers' compensation, general liability, and professional liability; while short-tail lines include lines such as most property lines, energy, personal accident, aviation, marine (including associated liability-related exposures) and agriculture. Significant prior period movements by segment, principally driven by reserve reviews completed during each respective period, are discussed in more detail below. The remaining net development for long-tail lines and short-tail business for each segment and Corporate comprises numerous favorable and adverse movements across a number of lines and accident years, none of which is significant individually or in the aggregate.

North America Commercial P&C Insurance
2016
North America Commercial P&C Insurance experienced net favorable PPD of $778 million , driven by the following principal changes:

- Net favorable development of $650 million in long-tail business, primarily from:
  - Net favorable development of $264 million in our commercial excess and umbrella portfolios, primarily in accident years 2010 and prior, driven by lower than expected reported loss activity and an increase in weighting towards experience-based methods; in general, the severity of claims has been less than expected;
  - Net favorable development of $220 million in our management liability portfolios, where paid and reported loss activity was lower than expected. The majority of this favorable activity impacted accident years 2011 and prior. Partially offsetting this were smaller amounts of adverse development in the more recent accident years, mostly as a result of higher severity claim costs compared to prior expectations in some lines;
  - Net favorable development of $141 million in our workers’ compensation lines with favorable development of $40 million in the 2015 accident year related to our annual assessment of multi-claimant events including industrial

accidents. Favorable development of $92 million driven by accident years 2012 and prior was principally due to lower than expected loss experience and revision to the basis for selecting development patterns used in our loss projection methods for select portfolios; and

- Favorable development of $58 million in our professional Errors & Omission (E&O) portfolios, primarily impacting the 2012 and prior accident years and arising from both lower than expected reported loss activity and re-assessments of remaining claim-specific liabilities for the older accident years.

- Net favorable development of $128 million in short-tail business, primarily from:
  - Net favorable development of $79 million in our property and inland marine portfolios, primarily impacting the 2014 and 2015 accident years, resulting from lower than expected loss emergence; and
  - Net favorable development of $39 million in our credit-related businesses, including surety, trade credit and political risk, mainly due to favorable claim emergence in the 2012 and 2014 accident years.

2015
North America Commercial P&C Insurance experienced net favorable PPD of $264 million in 2015, driven by the following principal changes:

- Net favorable development of $155 million in long-tail business, primarily from:
  - Net favorable development of $108 million in our management and professional liability portfolios, primarily impacting accident years 2010 and prior. Lower than expected paid and reported loss activity led to reductions in our estimates of ultimate loss for these accident years;
  - Favorable development of $32 million in our auto liability excess lines and $26 million in our general liability product lines primarily impacting the 2010 accident year, resulting from lower than expected loss emergence and an increase in weighting applied to experience-based methods;
  - Net favorable development of $21 million in our workers' compensation lines with favorable development of $52 million in the 2014 accident year related to our annual assessment of multi-claimant events including industrial accidents. Consistent with prior years, we reviewed these potential exposures after the end of the accident year to allow for late reporting or identification of significant losses. Adverse development of $29 million was experienced on the 2009 and prior accident years due to a combination of claim-specific deteriorations and higher than expected loss emergence. There was also adverse development on the 2014 accident year due to revised account-level estimates, which were higher than our original aggregate expectations; and
  - Net adverse development of $33 million in our commercial umbrella and excess portfolios, primarily impacting accident years 2010 and 2011. Higher than expected reported loss activity, combined with an increase in weighting applied to experience-based methods, led to increased provisions in accident years 2010 and 2011, which was partly offset by the recognition of favorable emergence in the 2009 and prior accident years.
- Net favorable development of $109 million in short-tail business, primarily from:
  - Favorable development of $34 million in our excess property business primarily impacting the 2013 accident year. Paid and reported loss activity was lower than expected leading to reductions in our estimate of ultimate loss; and
  - Favorable development of $37 million in our credit-related business due to lower than expected claims emergence primarily in the 2013 accident year.

2014
North America Commercial P&C Insurance experienced net favorable PPD of $378 million in 2014 , representing 1.4 percent of the beginning consolidated net unpaid losses and loss expense reserves.

North America Personal P&C Insurance
North America Personal P&C Insurance incurred net adverse PPD of $27 million in 2016, in our homeowners and umbrella lines due to higher than expected loss emergence. Average loss severities were higher than expected, and to a lesser degree, reinsurance and other recoveries were lower than expected. Net adverse PPD of $25 million , in 2015, was the net result of several underlying favorable and adverse movements, none of which were significant individually or in the aggregate.
Net adverse PPD of $24 million in 2014 , represented 0.1 percent of the beginning consolidated net unpaid losses and loss expense reserves.

North America Agricultural Insurance
North America Agricultural Insurance experienced net favorable development of $72 million and $45 million in 2016 and 2015, respectively, and net adverse development of $34 million in 2014. Actual claim development relates to our MPCI business and is favorable or (adverse) based on better or (worse) than expected crop yield results in certain states at the prior year-end period (i.e., 2016 results based on crop yield results at year-end 2015).

Overseas General Insurance
2016
Overseas General Insurance experienced net favorable PPD of $423 million , which was the net result of several underlying favorable and adverse movements, driven by the following principal changes:

- Net favorable development of $191 million in long-tail business, primarily from:
    - Net favorable development of $165 million , primarily in casualty and financial lines, with favorable development of $257 million in accident years 2012 and prior, resulting from lower than expected loss emergence, and adverse development of $92 million in accident years 2013 to 2015, primarily due to large loss experience in our D&O portfolio in Asia and financial lines in Europe; and
    - Favorable development of $25 million on an individual legacy liability case reserve take-down. This release follows a legal analysis completed in 2016, based on court opinion in the year and discussions with defense counsel, which concluded that these reserves were no longer required.
- Net favorable development of $232 million in short-tail business, primarily from:
    - Favorable development of $97 million in property (including technical lines), primarily from favorable Continental Europe loss emergence in accident years 2012 through 2014;
    - Favorable development of $43 million in energy lines, driven by favorable loss emergence in accident years 2010 through 2014, primarily in offshore where experience on multi-year construction accounts has been better than expected, as well as a claims review of catastrophe impacts on underwriting years 2004 through 2008;
    - Favorable development of $28 million in accident & health (A&H) lines, due to lower than expected loss emergence, primarily in Asia Pacific and Continental Europe in accident years 2013 through 2015; and
    - Favorable development of $28 million in aviation lines due to lower than expected loss emergence and case-specific reserve reductions impacting accident years 2012 and prior.

2015
Overseas General Insurance experienced net favorable PPD of $343 million in 2015, driven by the following principal changes:

- Net favorable development of $166 million in long-tail business, primarily from:
    - Net favorable development of $140 million , primarily in casualty and financial lines with favorable development of $175 million in accident years 2011 and prior, resulting from lower than expected loss emergence, and adverse development of $35 million in accident years 2012 to 2014, primarily due to large loss experience in the U.K. and Europe; and

    - Favorable development of $26 million on an individual legacy liability case reserve take-down. This release follows a legal analysis completed in 2015, based on court opinion in the year and discussions with defense counsel, which concluded that these reserves were no longer required.

- Favorable development of $177 million in short-tail business primarily from:

    - Favorable development of $90 million in property, technical, energy and marine lines from specific claims and additional credibility assigned to accident years 2013 and prior favorable indications;

    - Favorable development of $34 million in A&H business primarily in accident year 2013 and 2014 across all regions and products, none of which was individually significant; and

    - Favorable development of $26 million in consumer business primarily in Latin America and Asia Pacific, resulting from favorable development and additional credibility assigned to accident years 2012 and 2013.

2014
Overseas General Insurance experienced net favorable PPD of $391 million in 2014 , representing 1.5 percent of the beginning consolidated net unpaid losses and loss expense reserves.

Global Reinsurance
2016
Global Reinsurance experienced net favorable PPD of $78 million , driven by the following principal changes:

- Net favorable development of $42 million in casualty lines primarily impacting treaty years 2011 and prior, principally resulting from lower than expected loss emergence; and

- Net favorable development of $30 million in professional liability lines primarily impacting treaty years 2011 and prior due to lower than expected loss emergence.

2015
Global Reinsurance experienced net favorable PPD of $119 million in 2015, driven by the following principal changes:

- Favorable development of $54 million comprising $42 million in long-tail lines and $12 million in short-tail lines, on an individual legacy liability case reserve take-down. This release follows a legal analysis completed in 2015, based on court opinion and discussions with defense counsel, which concluded that these reserves were no longer required;

- Favorable development of $33 million in professional liability lines, including medical malpractice business, primarily in treaty years 2010 and prior reflecting favorable paid and incurred loss trends and an increase in weighting applied to experience-based methods; and

- Favorable development of $23 million in casualty lines, principally in treaty years 2009 and prior reflecting favorable paid and incurred loss trends and an increase in weighting applied to experience-based methods.

2014
Global Reinsurance experienced net favorable PPD of $63 million in 2014 , representing 0.2 percent of the beginning consolidated net unpaid losses and loss expense reserves.

Corporate
2016
Corporate incurred adverse development was $189 million in long-tail lines, driven by the following principal changes:

- Adverse development of $141 million in asbestos, environmental, and other run-off liabilities primarily arose as a result of the annual review of individual accounts and case specific exposures, with account changes driven by recent frequency and severity trends, certain case specific settlements and higher than expected defense spending; and

- Adverse development of $48 million on unallocated loss adjustment expenses due to run-off operating expenses paid and incurred in 2016.

2015
Corporate incurred adverse PPD of $200 million in long-tail lines, driven by the following principal changes:

- Adverse development of $170 million in our Westchester and Brandywine run-off operations, related to the completion of reserve reviews during 2015, impacting accident years 1996 and prior. The development primarily arose from case specific settlements and higher than expected remediation expense and defense costs for environmental claims and increases in indemnity and defense costs on a select number of modeled accounts for asbestos. Further, we experienced higher than expected loss emergence on certain portfolios in our assumed reinsurance book and in other run-off lines; and

- Adverse development of $30 million on unallocated loss adjustment expenses due to run-off operating expenses paid and incurred during 2015.

2014
Corporate incurred adverse PPD of $247 million in 2014 , representing 0.9 percent of the beginning consolidated net unpaid losses and loss expense reserves.

Asbestos and environmental (A&E)

Chubb's exposure to A&E claims principally arises out of liabilities acquired when it purchased Westchester Specialty in 1998, CIGNA's P&C business in 1999, and Chubb Corp in 2016. The following table presents a roll-forward of consolidated A&E loss reserves including allocated loss expense reserves for A&E exposures, and the provision for uncollectible paid and unpaid reinsurance recoverables:

	Asbestos		Environmental		Total	
(in millions of U.S. dollars)	Gross	Net	Gross	Net	Gross	Net
Balance at December 31, 2015	$ 1,351	$ 831	$ 199	$ 149	$ 1,550	$ 980
Acquired reserves	488	468	371	354	859	822
Incurred activity	311	95	104	69	415	164 [(1)]
Paid activity	(424)	(275)	(97)	(82)	(521)	(357)
Balance at December 31, 2016	**$ 1,726**	**$ 1,119**	**$ 577**	**$ 490**	**$ 2,303**	**$ 1,609**

(1) Excludes unallocated loss expenses and the net activity reflects third-party reinsurance other than the aggregate excess of loss reinsurance provided by National Indemnity Company (NICO) to Westchester Specialty (see Westchester Specialty section below).

The A&E net loss reserves including allocated loss expense reserves and provision for uncollectible reinsurance at December 31, 2016 and 2015 shown in the table above is comprised of:

	December 31	
(in millions of U.S. dollars)	2016	2015
Brandywine operations	**$ 760**	$ 782
Westchester Specialty	**112**	115
Chubb Corp	**657**	—
Other, mainly Overseas General Insurance	**80**	83
Total	**$ 1,609**	$ 980

The incurred activity of $164 million in 2016 and $ 162 million in 2015 were primarily the result of our annual internal, ground-up review of A&E liabilities.

Brandywine Run-off entities – The Restructuring Plan and uncertainties relating to Chubb's ultimate Brandywine exposure

In 1996 , the Pennsylvania Insurance Commissioner approved a plan to restructure INA Financial Corporation and its subsidiaries (the Restructuring) which included the division of Insurance Company of North America (INA) into two separate corporations:

(1) An active insurance company that retained the INA name and continued to write P&C business; and
(2) An inactive run-off company, now called Century Indemnity Company (Century).

As a result of the division, predominantly all A&E and certain other liabilities of INA were ascribed to Century and extinguished, as a matter of Pennsylvania law, as liabilities of INA.

As part of the Restructuring, most A&E liabilities of various U.S. affiliates of INA were reinsured to Century. Century and certain other run-off companies having A&E and other liabilities were contributed to Brandywine Holdings.

The U.S.-based Chubb INA companies assumed two contractual obligations in respect of the Brandywine operations in connection with the Restructuring: a dividend retention fund obligation and a surplus maintenance obligation in the form of the excess of loss (XOL) agreement.

INA Financial Corporation established and funded a dividend retention fund (the Dividend Retention Fund) consisting of $ 50 million plus investment earnings. The full balance of the Dividend Retention Fund was contributed to Century as of December 31, 2002 . Under the Restructuring Order, while any obligation to maintain the Dividend Retention Fund is in effect, to the extent dividends are paid by INA Holdings Corporation to its parent, INA Financial Corporation, and to the extent INA Financial Corporation then pays such dividends to INA Corporation, a portion of those dividends must be withheld to replenish the principal of the Dividend Retention Fund to $ 50 million. During 2011 and 2010, $ 35 million and $ 15 million , respectively, were withheld from such dividends and deposited into the Dividend Retention Fund as a result of dividends paid up to the INA Corporation. Capital contributions from the Dividend Retention Fund to Century are not required until the XOL Agreement has less than $ 200 million of capacity remaining on an incurred basis for statutory reporting purposes. The amount of the capital contribution shall be the lesser of the amount necessary to restore the XOL Agreement remaining capacity to $ 200 million or the Dividend Retention Fund balance. The Dividend Retention Fund may not be terminated without prior written approval from the Pennsylvania Insurance Commissioner.

In addition, a Chubb INA insurance subsidiary provided reinsurance coverage to Century in the amount of $ 800 million under an XOL, triggered if the statutory capital and surplus of Century falls below $ 25 million or if Century lacks liquid assets with which to pay claims as they become due.

Effective December 31, 2004 , Chubb INA contributed $ 100 million to Century in exchange for a surplus note. After giving effect to the contribution and issuance of the surplus note, the statutory surplus of Century at December 31, 2016 was $ 25 million and $ 512 million in statutory-basis losses have been ceded to the XOL on an inception-to-date basis. Century reports the amount ceded under the XOL in accordance with statutory accounting principles, which differ from GAAP by, among other things, allowing Century to discount its liabilities, including certain asbestos related and environmental pollution liabilities and Century's reinsurance payable to active companies. For GAAP reporting purposes, intercompany reinsurance recoverables related to the XOL are eliminated upon consolidation.

While Chubb believes it has no legal obligation to fund Century losses above the XOL limit of coverage, Chubb's consolidated results would nevertheless continue to include any losses above the limit of coverage for so long as the Brandywine companies remain consolidated subsidiaries of Chubb.

Certain active Chubb companies are primarily liable for asbestos, environmental, and other exposures that they have reinsured to Century. Accordingly, if Century were to become insolvent and placed into rehabilitation or liquidation, some or all of the recoverables due to these active Chubb companies from Century could become uncollectible. At both December 31, 2016 and 2015 , the aggregate reinsurance recoverables owed by Century to certain active Chubb companies were approximately $ 1.2 billion. Chubb believes the active company intercompany reinsurance recoverables, which relate to direct liabilities payable over many years, are not impaired. At December 31, 2016 and 2015 , Century's carried gross reserves (including reserves assumed from the active Chubb companies) were $ 2.0 billion and $ 1.9 billion, respectively. Should Century's loss reserves experience adverse development in the future and should Century be placed into rehabilitation or liquidation, the reinsurance recoverables due from Century to certain active Chubb companies would be payable only after the payment in full of certain expenses and liabilities, including administrative expenses and direct policy liabilities. Thus, the intercompany reinsurance recoverables would be at risk to the extent of the shortage of assets remaining to pay these recoverables.

Westchester Specialty – impact of NICO contracts on Chubb's run-off entities

As part of the Westchester Specialty acquisition in 1998, NICO provided a 75 percent pro-rata share of $ 1.0 billion of reinsurance protection on losses and loss adjustment expenses incurred on or before December 31, 1996, in excess of a retention of $ 721 million . At December 31, 2016 , the remaining unused incurred limit under the Westchester NICO agreement was $ 438 million .

8 . Taxation

Under Swiss law, a resident company is subject to income tax at the federal, cantonal, and communal levels that is levied on net worldwide income. Income attributable to permanent establishments or real estate located abroad is excluded from the Swiss tax base. Chubb Limited is a holding company and, therefore, is exempt from cantonal and communal income tax. As a result, Chubb Limited is subject to Swiss income tax only at the federal level. Furthermore, participation relief (i.e., tax relief) is granted to Chubb Limited at the federal level for qualifying dividend income and capital gains related to the sale of qualifying participations (i.e., subsidiaries). It is expected that the participation relief will result in a full exemption of participation income from federal income tax. Chubb Limited is subject to an annual cantonal and communal capital tax on the taxable equity of Chubb Limited in Switzerland.

Chubb has two Swiss operating subsidiaries, an insurance company, Chubb Insurance (Switzerland) Limited and a reinsurance company, Chubb Reinsurance (Switzerland) Limited. Both are subject to federal, cantonal, and communal income tax and to annual cantonal and communal capital tax.

Under current Bermuda law, Chubb Limited and its Bermuda subsidiaries are not required to pay any taxes on income or capital gains. If a Bermuda law were enacted that would impose taxes on income or capital gains, Chubb Limited and the Bermuda subsidiaries have received an undertaking from the Minister of Finance in Bermuda that would exempt such companies from Bermudian taxation until March 2035.

Income from Chubb's operations at Lloyd's is subject to United Kingdom (U.K.) corporation taxes. Lloyd's is required to pay U.S. income tax on U.S. connected income (U.S. income) written by Lloyd's syndicates. Lloyd's has a closing agreement with the Internal Revenue Service (IRS) whereby the amount of tax due on this business is calculated by Lloyd's and remitted directly to the IRS. These amounts are then charged to the accounts of the Names/Corporate Members in proportion to their participation in the relevant syndicates. Chubb's Corporate Members are subject to this arrangement but, as U.K. domiciled companies, will receive U.K. corporation tax credits for any U.S. income tax incurred up to the value of the equivalent U.K. corporation income tax charge on the U.S. income.

Chubb Group Holdings and its respective subsidiaries are subject to income taxes imposed by U.S. authorities and file a consolidated U.S. tax return. As part of the Chubb Corp acquisition, immediately following the merger, legacy Chubb Corp merged with and into Chubb INA Holdings Inc., and therefore, joined the Chubb Group Holdings consolidated return. Starting in tax year 2014, Combined Insurance and its life subsidiary joined the Chubb Group Holdings consolidated return. For tax years prior to 2014, Combined Insurance and its life subsidiary filed a separate consolidated U.S. tax return. Should Chubb Group Holdings pay a dividend to Chubb Limited, withholding taxes would apply. Currently, however, no withholding taxes are accrued with respect to such un-remitted earnings as management has no intention of remitting these earnings. Similarly, no taxes have been provided on the un-remitted earnings of certain foreign subsidiaries (Hong Kong and Korea) as management has no intention of remitting these earnings. The cumulative amount that would be subject to withholding tax, if distributed, as well as the determination of the associated tax liability are not practicable to compute; however, such amount would be material to Chubb. Certain international operations of Chubb are also subject to income taxes imposed by the jurisdictions in which they operate.

Chubb's domestic operations are in Switzerland, the jurisdiction where we are legally organized, incorporated, and registered.

The following table presents pre-tax income and the related provision for income taxes:

	Year Ended December 31		
(in millions of U.S. dollars)	**2016**	2015	2014
Pre-tax income:			
Switzerland	**$ 766**	$ 469	$ 404
Outside Switzerland	**4,184**	2,827	3,083
Total pre-tax income	**$ 4,950**	$ 3,296	$ 3,487
Provision for income taxes:			
Current tax expense:			
Switzerland	**$ 97**	$ 38	$ 31
Outside Switzerland	**727**	266	450
Total current tax expense	**824**	304	481
Deferred tax expense:			
Switzerland	**(27)**	4	9
Outside Switzerland	**18**	154	144
Total deferred tax expense	**(9)**	158	153
Provision for income taxes	**$ 815**	$ 462	$ 634

The most significant jurisdictions contributing to the overall taxation of Chubb are calculated using the following rates: Switzerland 7.83 percent , Bermuda 0.0 percent , U.S. 35.0 percent , and U.K. 20.0 percent . The following table presents a reconciliation of the difference between the provision for income taxes and the expected tax provision at the Swiss statutory income tax rate:

	Year Ended December 31		
(in millions of U.S. dollars)	**2016**	2015	2014
Expected tax provision at Swiss statutory tax rate	**$ 388**	$ 258	$ 273
Permanent differences:			
Taxes on earnings subject to rate other than Swiss statutory rate	**582**	193	224
Change to deferred taxes related to unrealized foreign exchange losses (1)	**—**	—	139
Tax-exempt interest and dividends received deduction, net of proration	**(200)**	(32)	(33)
Net withholding taxes	**20**	35	33
Change in valuation allowance (1)	**(1)**	2	(20)
Other	**26**	6	18
Total provision for income taxes	**$ 815**	$ 462	$ 634

(1) 2014 includes a charge to deferred taxes related to non-recognition of foreign tax credits related to unrealized foreign exchange losses.

The following table presents the components of the net deferred tax assets (liabilities):

(in millions of U.S. dollars)	**December 31 2016**	December 31 2015 (1)
Deferred tax assets:		
Loss reserve discount	**$ 1,269**	$ 663
Unearned premiums reserve	**498**	190
Foreign tax credits	**2,115**	969
Provision for uncollectible balances	**72**	65
Loss carry-forwards	**92**	72
Debt related amounts	**219**	3
Compensation related amounts	**449**	189
Cumulative translation adjustments	**59**	17
Other, net	**69**	80
Total deferred tax assets	**4,842**	2,248
Deferred tax liabilities:		
Deferred policy acquisition costs	**842**	412
Other intangible assets, including VOBA	**2,352**	384
Un-remitted foreign earnings	**2,001**	827
Investments	**406**	6
Unrealized appreciation on investments	**60**	195
Depreciation	**91**	68
Total deferred tax liabilities	**5,752**	1,892
Valuation allowance	**78**	38
Net deferred tax assets (liabilities)	**$ (988)**	$ 318

(1) Certain amounts within the components of deferred taxes at December 31, 2015 have been reclassified to conform to the new presentation at December 31, 2016.

In connection with the Chubb Corp acquisition, we established deferred tax liabilities, principally related to purchased intangibles. These liabilities resulted in a net deferred tax liability position for us at December 31, 2016 as noted in the table above.

The valuation allowance of $ 78 million at December 31, 2016 , and $ 38 million at December 31, 2015 , reflects management's assessment, based on available information, that it is more likely than not that a portion of the deferred tax assets will not be realized due to the inability of certain foreign subsidiaries to generate sufficient taxable income. Adjustments to the valuation allowance are made when there is a change in management's assessment of the amount of deferred tax assets that are realizable.

At December 31, 2016 , Chubb has net operating loss carry-forwards of $ 356 million which, if unused, will expire starting in the year 2018, and a foreign tax credit carry-forward in the amount of $ 114 million which, if unused, will expire in the years 2019 through 2026.

The following table presents a reconciliation of the beginning and ending amount of gross unrecognized tax benefits:

(in millions of U.S. dollars)		December 31 2016		December 31 2015
Balance, beginning of year	$	16	$	23
Additions based on tax positions related to the current year		3		1
Additions based on tax positions related to prior years [1]		2		—
Reductions for tax positions of prior years		(4)		(7)
Reductions for the lapse of the applicable statutes of limitations		—		(1)
Balance, end of year	$	17	$	16

[1] Assumed in connection with the Chubb Corp acquisition.

At December 31, 2016 and 2015 , the total amount of unrecognized tax benefits that would affect the effective tax rate, if recognized, were $ 17 million and $ 16 million , respectively.

Chubb recognizes accruals for interest and penalties, if any, related to unrecognized tax benefits in income tax expense in the Consolidated statements of operations. For the years ended December 31, 2016 , 2015 , and 2014 , tax-related interest expense (income) and penalties reported in the Consolidated statements of operations were $1 million , $ 1 million, and $ (1) million , respectively. At both December 31, 2016 and 2015 , liabilities for tax-related interest and penalties in our Consolidated balance sheets were $ 4 million.

In September 2016, the IRS completed its examination of one of our subsidiary’s federal tax returns for the 2010-2012 tax years. No material adjustments resulted from this examination. It is reasonably possible that over the next twelve months, the amount of unrecognized tax benefits may change resulting from the re-evaluation of unrecognized tax benefits arising from examinations of taxing authorities and the closing of tax statutes of limitations. With few exceptions, Chubb is no longer subject to state and local or non-U.S. income tax examinations for years before 2009.

9 . Debt

In connection with the Chubb Corp acquisition, Chubb INA Holdings Inc. (formerly ACE INA Holdings Inc.) assumed $ 3.3 billion par value outstanding debt of Chubb Corp, fair valued at $ 3.8 billion at the acquisition date. Chubb INA Holdings Inc. (Chubb INA) assumed Chubb Corp's rights, duties and obligations and Chubb Limited fully and unconditionally guarantees Chubb INA's payment obligations under these debts. Additionally, effective January 1, 2016, we retrospectively adopted new accounting guidance that requires debt issuance costs to be recorded as a reduction of the carrying amount of the related debt liability (these costs were previously included in Other assets on the Consolidated balance sheets). The debt balances at December 31, 2015 have been updated to reflect the adoption of this guidance.

(in millions of U.S. dollars)		December 31 2016		December 31 2015	Early Redemption Option
Repurchase agreements (weighted average interest rate of 0.8% in 2016 and 0.6% in 2015)	**$**	**1,403**	$	1,404	None
Short-term debt					
Chubb INA senior notes:					
$500 million 5.7% due February 2017	**$**	**500**	$	—	Make-whole premium plus 0.20%
Long-term debt					
Chubb INA senior notes:					
$500 million 5.7% due February 2017	**$**	**—**	$	500	Make-whole premium plus 0.20%
$300 million 5.8% due March 2018		**300**		299	Make-whole premium plus 0.35%
$600 million 5.75% due May 2018		**635**		—	Make-whole premium plus 0.30%
$100 million 6.6% due August 2018		**107**		—	None
$500 million 5.9% due June 2019		**498**		497	Make-whole premium plus 0.40%
$1,300 million 2.3% due November 2020		**1,294**		1,294	Make-whole premium plus 0.15%
$1,000 million 2.875% due November 2022		**994**		994	Make-whole premium plus 0.20%
$475 million 2.7% due March 2023		**471**		471	Make-whole premium plus 0.10%
$700 million 3.35% due May 2024		**695**		694	Make-whole premium plus 0.15%
$800 million 3.15% due March 2025		**794**		794	Make-whole premium plus 0.15%
$1,500 million 3.35% due May 2026		**1,488**		1,487	Make-whole premium plus 0.20%
$100 million 8.875% due August 2029		**100**		100	None
$200 million 6.8% due November 2031		**257**		—	Make-whole premium plus 0.25%
$300 million 6.7% due May 2036		**297**		297	Make-whole premium plus 0.20%
$800 million 6.0% due May 2037		**980**		—	Make-whole premium plus 0.20%
$600 million 6.5% due May 2038		**776**		—	Make-whole premium plus 0.30%
$475 million 4.15% due March 2043		**469**		469	Make-whole premium plus 0.15%
$1,500 million 4.35% due November 2045		**1,482**		1,482	Make-whole premium plus 0.25%
Chubb INA $1,000 million 6.375% capital securities due March 2067 (1)		**962**		—	Make-whole premium plus 0.25%-0.50%
Other long-term debt (2.75% to 7.1% due December 2019 to September 2020)		**11**		11	None
Total long-term debt	**$**	**12,610**	$	9,389	
Trust preferred securities					
Chubb INA capital securities due April 2030	**$**	**308**	$	307	Redemption prices (2)

(1) 6.375% interest rate through April 14, 2017; interest rate equal to three-month LIBOR rate plus 2.25% thereafter.
(2) Redemption prices are equal to accrued and unpaid interest to the redemption date plus the greater of (i) 100 percent of the principal amount thereof, or (ii) sum of present value of scheduled payments of principal and interest on the capital securities from the redemption date to April 1, 2030.

a) Repurchase agreements
Chubb has executed repurchase agreements with certain counterparties under which Chubb agreed to sell securities and repurchase them at a future date for a predetermined price.

b) Short-term debt
Short-term debt comprises the current maturities of our long-term debt instruments described below. In February 2017, $500 million of 5.7 percent senior notes matured and were fully paid.

c) Long-term debt
Certain of Chubb INA's senior notes and capital securities are redeemable at any time at Chubb INA's option subject to the provisions described in the table above. A "make-whole" premium is the present value of the remaining principal and interest discounted at the applicable U.S. Treasury rate. The senior notes and capital securities are also redeemable at par plus accrued and unpaid interest in the event of certain changes in tax law.

The senior notes do not have the benefit of any sinking fund. These senior unsecured notes are guaranteed on a senior basis by Chubb Limited and they rank equally with all of Chubb's other senior obligations. They also contain customary limitations on lien provisions as well as customary events of default provisions which, if breached, could result in the accelerated maturity of such senior debt.

In November 2015, Chubb INA issued $ 5.3 billion of senior notes. The proceeds from the issuance were used to finance a portion of the Chubb Corp acquisition. Chubb INA may redeem some or all of these notes at its option one month (for the 2020 Notes), two months (for the 2022 Notes), three months (for the 2026 Notes), and six months (for the 2045 Notes) prior to the respective maturity dates at a redemption price equal to 100 percent of the principal amount of the notes plus accrued and unpaid interest. The remaining terms of the senior notes are commensurate with those of our existing notes as described above.

We have outstanding $ 1.0 billion of unsecured junior subordinated capital securities at December 31, 2016 , which were assumed by Chubb INA in connection with the Chubb Corp acquisition. The capital securities will become due on April 15, 2037, the scheduled maturity date, but only to the extent that we have received sufficient net proceeds from the sale of certain qualifying capital securities. We must use commercially reasonable efforts, subject to certain market disruption events, to sell enough qualifying capital securities to permit repayment of the capital securities on the scheduled maturity date or as soon thereafter as possible. Any remaining outstanding principal amount will be due on March 29, 2067, the final maturity date. The capital securities bear interest at a rate of 6.375 percent through April 14, 2017. Thereafter, the capital securities will bear interest at a rate equal to the three-month LIBOR rate plus 2.25 percent. Subject to certain conditions, we have the right to defer the payment of interest on the capital securities for a period not exceeding ten consecutive years. During any such period, interest will continue to accrue and we generally may not declare or pay any dividends on or purchase any shares of our capital stock.

In connection with the issuance of capital securities, a replacement capital covenant was entered into in which we agreed that we will not repay, redeem, or purchase capital securities before March 29, 2047, unless, subject to certain limitations, we have received proceeds from the sale of specified replacement capital securities. The replacement capital covenant is not intended for the benefit of holders of the capital securities and may not be enforced by them. The replacement capital covenant is for the benefit of holders of one or more designated series of Chubb's indebtedness, which initially was and continues to be its 6.8 percent debentures due November 2031.

Subject to the replacement capital covenant, the $ 1.0 billion capital securities may be redeemed, in whole or in part, at any time (i) on or after April 15, 2017 at a redemption price equal to the principal amount plus any accrued interest or (ii) prior to April 15, 2017 at a redemption price equal to the greater of (1) the principal amount or (2) a make-whole premium, in each case plus any accrued interest.

d) Trust preferred securities
In March 2000, ACE Capital Trust II, a Delaware statutory business trust, publicly issued $ 300 million of 9.7 percent Capital Securities (the Capital Securities) due to mature in April 2030. At the same time, Chubb INA purchased $ 9.2 million of common securities of ACE Capital Trust II. The sole assets of ACE Capital Trust II consist of $ 309 million principal amount of 9.7 percent Junior Subordinated Deferrable Interest Debentures (the Subordinated Debentures) issued by Chubb INA due to mature in April 2030.

Distributions on the Capital Securities are payable semi-annually and may be deferred for up to ten consecutive semi-annual periods (but no later than April 1, 2030). Any deferred payments would accrue interest compounded semi-annually if Chubb INA defers interest on the Subordinated Debentures. Interest on the Subordinated Debentures is payable semi-annually. Chubb INA may defer such interest payments (but no later than April 1, 2030), with such deferred payments accruing interest compounded semi-annually. The Capital Securities and the ACE Capital Trust II Common Securities will be redeemed upon repayment of the Subordinated Debentures.

Chubb Limited has guaranteed, on a subordinated basis, Chubb INA's obligations under the Subordinated Debentures, and distributions and other payments due on the Capital Securities. These guarantees, when taken together with Chubb's obligations under expense agreements entered into with ACE Capital Trust II, provide a full and unconditional guarantee of amounts due on the Capital Securities.

10 . Commitments, contingencies, and guarantees

a) Derivative instruments

Foreign currency management
As a global company, Chubb entities transact business in multiple currencies. Our policy is to generally match assets, liabilities, and required capital for each individual jurisdiction in local currency, which would include the use of derivatives discussed below. We do not hedge our net asset non-U.S. dollar capital positions; however, we do consider hedging for planned cross border transactions.

Derivative instruments employed
Chubb maintains positions in derivative instruments such as futures, options, swaps, and foreign currency forward contracts for which the primary purposes are to manage duration and foreign currency exposure, yield enhancement, or to obtain an exposure to a particular financial market. Chubb also maintains positions in convertible securities that contain embedded derivatives. Investment derivative instruments are recorded in either Other assets (OA) or Accounts payable, accrued expenses, and other liabilities (AP), convertible bonds are recorded in Fixed maturities available for sale (FM AFS), and convertible equity securities are recorded in Equity securities (ES) in the Consolidated balance sheets. These are the most numerous and frequent derivative transactions.

In addition, Chubb from time to time purchases to be announced mortgage-backed securities (TBAs) as part of its investing activities.

Under reinsurance programs covering GLBs, Chubb assumes the risk of GLBs, including GMIB and GMAB, associated with variable annuity contracts. The GMIB risk is triggered if, at the time the contract holder elects to convert the accumulated account value to a periodic payment stream (annuitize), the accumulated account value is not sufficient to provide a guaranteed minimum level of monthly income. The GMAB risk is triggered if, at contract maturity, the contract holder’s account value is less than a guaranteed minimum value. The GLB reinsurance product meets the definition of a derivative instrument. Benefit reserves in respect of GLBs are classified as Future policy benefits (FPB) while the fair value derivative adjustment is classified within AP. Chubb also generally maintains positions in exchange-traded equity futures contracts and options on equity market indices to limit equity exposure in the GMDB and GLB blocks of business. At December 31, 2016 , we held no positions in option contracts on equity market indices.

All derivative instruments are carried at fair value with changes in fair value recorded in Net realized gains (losses) in the Consolidated statements of operations. None of the derivative instruments are designated as hedges for accounting purposes.

The following table presents the balance sheet locations, fair values of derivative instruments in an asset or (liability) position, and notional values/payment provisions of our derivative instruments:

(in millions of U.S. dollars)	Consolidated Balance Sheet Location	December 31, 2016 Fair Value Derivative Asset	December 31, 2016 Fair Value Derivative (Liability)	December 31, 2016 Notional Value/ Payment Provision	December 31, 2015 Fair Value Derivative Asset	December 31, 2015 Fair Value Derivative (Liability)	December 31, 2015 Notional Value/ Payment Provision
Investment and embedded derivative instruments							
Foreign currency forward contracts	OA / (AP)	$ 25	$ (50)	$ 2,220	$ 7	$ (11)	$ 1,029
Cross-currency swaps	OA / (AP)	—	—	95	—	—	95
Options/Futures contracts on notes and bonds	OA / (AP)	6	(4)	2,344	5	(2)	751
Convertible securities [1]	FM AFS/ES	2	—	7	31	—	40
		$ 33	$ (54)	$ 4,666	$ 43	$ (13)	$ 1,915
Other derivative instruments							
Futures contracts on equities [2]	OA / (AP)	$ 1	$ —	$ 1,316	$ —	$ (4)	$ 1,197
Other	OA / (AP)	2	(13)	214	—	(6)	15
		$ 3	$ (13)	$ 1,530	$ —	$ (10)	$ 1,212
GLB [3]	(AP) / (FPB)	$ —	$ (853)	$ 1,264	$ —	$ (888)	$ 1,155

(1) Includes fair value of embedded derivatives.
(2) Related to GMDB and GLB blocks of business.
(3) Includes both future policy benefits reserves and fair value derivative adjustment. Refer to Note 5 c) for additional information. Note that the payment provision related to GLB is the net amount at risk. The concept of a notional value does not apply to the GLB reinsurance contracts.

At December 31, 2016 and 2015 , derivative liabilities of $ 10 million and derivative assets of $1 million , respectively, included in the table above were subject to a master netting agreement. The remaining derivatives included in the table above were not subject to a master netting agreement.

b) Secured borrowings
Chubb participates in a securities lending program operated by a third-party banking institution whereby certain assets are loaned to qualified borrowers and from which we earn an incremental return. At December 31, 2016 and 2015 , our securities lending collateral was $1,092 million and $1,046 million , respectively, and our securities lending payable, reflecting our obligation to return the collateral plus interest, was $1,093 million and $1,047 million , respectively. The securities lending collateral can only be drawn down by Chubb in the event that the institution borrowing the securities is in default under the lending agreement. An indemnification agreement with the lending agent protects us in the event a borrower becomes insolvent or fails to return any of the securities on loan. The collateral is recorded in Securities lending collateral and the liability is recorded in Securities lending payable in the Consolidated balance sheets.

The following table presents the carrying value of collateral held under securities lending agreements by investment category and remaining contractual maturity of the underlying agreements:

	Remaining contractual maturity	
	Overnight and Continuous	
(in millions of U.S. dollars)	**December 31 2016**	December 31 2015
Collateral held under securities lending agreements:		
Cash	**$ 423**	$ 424
U.S. Treasury and agency	**54**	67
Foreign	**578**	296
Corporate securities	**37**	2
Equity securities	**—**	257
	$ 1,092	$ 1,046
Gross amount of recognized liability for securities lending payable	**$ 1,093**	$ 1,047
Difference [(1)]	**$ (1)**	$ (1)

(1) The carrying value of the securities lending collateral held is $1 million lower than the securities lending payable due to accrued interest recorded in the securities lending payable.

At December 31, 2016 and 2015 , our repurchase agreement obligations of $1,403 million and $ 1,404 million , respectively, were fully collateralized. In contrast to securities lending programs, the use of cash received is not restricted for the repurchase obligations. The fair value of the underlying securities sold remains in Fixed maturities available for sale and Equity securities, and the repurchase agreement obligation is recorded in Repurchase agreements in the Consolidated balance sheets.

The following table presents the carrying value of collateral pledged under repurchase agreements by investment category and remaining contractual maturity of the underlying agreements:

	December 31, 2016			December 31, 2015			
	Remaining contractual maturity			Remaining contractual maturity			
(in millions of U.S. dollars)	**Up to 30 Days**	**Greater than 90 Days**	**Total**	Up to 30 Days	30 - 90 Days	Greater than 90 Days	Total
Collateral pledged under repurchase agreements:							
Cash	**$ —**	**$ 1**	**$ 1**	$ 34	$ —	$ —	$ 34
U.S. Treasury and agency	**230**	**10**	**240**	6	—	231	237
Mortgage-backed securities	**339**	**881**	**1,220**	365	480	343	1,188
	$ 569	**$ 892**	**$ 1,461**	$ 405	$ 480	$ 574	$ 1,459
Gross amount of recognized liabilities for repurchase agreements			**$ 1,403**				$ 1,404
Difference [(1)]			**$ 58**				$ 55

(1) Per the repurchase agreements, the amount of collateral posted is required to exceed the amount of gross liability.

Potential risks exist in our secured borrowing transactions due to market conditions and counterparty exposure. With collateral that we pledge, there is a risk that the collateral may not be returned at the expiration of the agreement. If the counterparty fails to return the collateral, Chubb will have free use of the borrowed funds until our collateral is returned. In addition, we may encounter the risk that Chubb may not be able to renew outstanding borrowings with a new term or with an existing counterparty due to market conditions including a decrease in demand as well as more restrictive terms from banks due to increased regulatory and capital constraints. Should this condition occur, Chubb may seek alternative borrowing sources or reduce borrowings. Additionally, increased margins and collateral requirements due to market conditions would increase our restricted assets as we are required to provide additional collateral to support the transaction.

The following table presents net realized gains (losses) related to derivative instrument activity in the Consolidated statements of operations:

	Year Ended December 31		
(in millions of U.S. dollars)	**2016**	2015	2014
Investment and embedded derivative instruments			
Foreign currency forward contracts	**$ (31)**	$ 31	$ 29
All other futures contracts and options	**(10)**	9	(118)
Convertible securities (1)	**8**	(8)	(18)
Total investment and embedded derivative instruments	**$ (33)**	$ 32	$ (107)
GLB and other derivative instruments			
GLB (2)	**$ 53**	$ (203)	$ (217)
Futures contracts on equities (3)	**(136)**	(8)	(164)
Options on equity market indices (3)	**—**	(2)	(4)
Other	**(10)**	(12)	50
Total GLB and other derivative instruments	**$ (93)**	$ (225)	$ (335)
	$ (126)	$ (193)	$ (442)

(1) Includes embedded derivatives.
(2) Excludes foreign exchange gains (losses) related to GLB.
(3) Related to GMDB and GLB blocks of business.

c) Derivative instrument objectives
(i) Foreign currency exposure management
A foreign currency forward contract (forward) is an agreement between participants to exchange specific foreign currencies at a future date. Chubb uses forwards to minimize the effect of fluctuating foreign currencies as discussed above.

(ii) Duration management and market exposure
Futures
Futures contracts give the holder the right and obligation to participate in market movements, determined by the index or underlying security on which the futures contract is based. Settlement is made daily in cash by an amount equal to the change in value of the futures contract times a multiplier that scales the size of the contract. Exchange-traded futures contracts on money market instruments, notes and bonds are used in fixed maturity portfolios to more efficiently manage duration, as substitutes for ownership of the money market instruments, bonds and notes without significantly increasing the risk in the portfolio. Investments in futures contracts may be made only to the extent that there are assets under management not otherwise committed.

Exchange-traded equity futures contracts are used to limit exposure to a severe equity market decline, which would cause an increase in expected claims and therefore, an increase in reserves for GMDB and GLB reinsurance business.

Options
An option contract conveys to the holder the right, but not the obligation, to purchase or sell a specified amount or value of an underlying security at a fixed price. Option contracts are used in the investment portfolio as protection against unexpected shifts in interest rates, which would affect the duration of the fixed maturity portfolio. By using options in the portfolio, the overall interest rate sensitivity of the portfolio can be reduced. Option contracts may also be used as an alternative to futures contracts in the synthetic strategy as described above.

Another use for option contracts is to limit exposure to a severe equity market decline, which would cause an increase in expected claims and therefore, an increase in reserves for GMDB and GLB reinsurance business.

The price of an option is influenced by the underlying security, expected volatility, time to expiration, and supply and demand.

The credit risk associated with the above derivative financial instruments relates to the potential for non-performance by counterparties. Although non-performance is not anticipated, in order to minimize the risk of loss, management monitors the creditworthiness of its counterparties and obtains collateral. The performance of exchange-traded instruments is guaranteed by the exchange on which they trade. For non-exchange-traded instruments, the counterparties are principally banks which must meet certain criteria according to our investment guidelines.

Cross-currency swaps
Cross-currency swaps are agreements under which two counterparties exchange interest payments and principal denominated in different currencies at a future date. We use cross-currency swaps to reduce the foreign currency and interest rate risk by converting cash flows back into local currency. We invest in foreign currency denominated investments to improve credit diversification and also to obtain better duration matching to our liabilities that is limited in the local currency market.

Other
Included within Other are derivatives intended to reduce potential losses which may arise from certain exposures in our insurance business. The economic benefit provided by these derivatives is similar to purchased reinsurance. For example, Chubb may enter into crop derivative contracts to protect underwriting results in the event of a significant decline in commodity prices. Also included within Other are certain life insurance products that meet the definition of a derivative instrument for accounting purposes.

(iii) Convertible security investments
A convertible security is a debt instrument or preferred stock that can be converted into a predetermined amount of the issuer's equity. The convertible option is an embedded derivative within the host instruments which are classified in the investment portfolio as either available for sale or as an equity security. Chubb purchases convertible securities for their total return and not specifically for the conversion feature.

(iv) TBA
By acquiring TBAs, we make a commitment to purchase a future issuance of mortgage-backed securities. For the period between purchase of the TBAs and issuance of the underlying security, we account for our position as a derivative in the consolidated financial statements. Chubb purchases TBAs both for their total return and for the flexibility they provide related to our mortgage-backed security strategy.

(v) GLB
Under the GLB program, as the assuming entity, Chubb is obligated to provide coverage until the expiration or maturity of the underlying deferred annuity contracts or the expiry of the reinsurance treaty. Premiums received under the reinsurance treaties are classified as premium. Expected losses allocated to premiums received are classified as Future policy benefits and valued similar to GMDB reinsurance. Other changes in fair value, principally arising from changes in expected losses allocated to expected future premiums, are classified as Net realized gains (losses). Fair value represents management's estimate of an exit price and thus, includes a risk margin. We may recognize a realized loss for other changes in fair value due to adverse changes in the capital markets (e.g., declining interest rates and/or declining equity markets) and changes in actual or estimated future policyholder behavior (e.g., increased annuitization or decreased lapse rates) although we expect the business to be profitable. We believe this presentation provides the most meaningful disclosure of changes in the underlying risk within the GLB reinsurance programs for a given reporting period.

d) Concentrations of credit risk
Our investment portfolio is managed following prudent standards of diversification. Specific provisions limit the allowable holdings of a single issue and issuer. We believe that there are no significant concentrations of credit risk associated with our investments. Our three largest exposures by issuer at December 31, 2016 , were JP Morgan Chase & Co., Wells Fargo & Co., and Goldman Sachs Group Inc. Our largest exposure by industry at December 31, 2016 was financial services.

We market our insurance and reinsurance worldwide primarily through insurance and reinsurance brokers. We assume a degree of credit risk associated with brokers with whom we transact business. No one broker or one insured accounted for more than 10 percent of gross written premium for both the years ended December 31, 2016 and 2015. For the year ended December 31, 2014 , approximately 10 percent of our gross premiums written were generated from or placed by Marsh, Inc. This entity is a large, well established company and there are no indications that it is financially troubled at December 31, 2016 . No other broker and no one insured or reinsured accounted for more than 10 percent of gross premiums written in the year ended December 31, 2014 .

e) Fixed maturities
At December 31, 2016 , we have commitments to purchase fixed income securities of $716 million over the next several years.

f) Other investments
At December 31, 2016 , included in Other investments in the Consolidated balance sheet are investments in limited partnerships and partially-owned investment companies with a carrying value of $3.4 billion. In connection with these investments, we have commitments that may require funding of up to $2.0 billion over the next several years.

g) Letters of credit
We have a $ 1.5 billion unsecured operational LOC facility expiring in November 2017. We are allowed to use up to $ 300 million of this LOC facility as an unsecured revolving credit facility. At December 31, 2016 , outstanding LOCs issued under this facility were $ 443 million .

This facility requires that Chubb Limited and/or certain of its subsidiaries continue to maintain certain covenants. Chubb Limited is also required to maintain a minimum consolidated net worth covenant and a maximum leverage covenant, all of which have been met at December 31, 2016 .

h) Legal proceedings
Our insurance subsidiaries are subject to claims litigation involving disputed interpretations of policy coverages and, in some jurisdictions, direct actions by allegedly-injured persons seeking damages from policyholders. These lawsuits, involving claims on policies issued by our subsidiaries which are typical to the insurance industry in general and in the normal course of business, are considered in our loss and loss expense reserves. In addition to claims litigation, we are subject to lawsuits and regulatory actions in the normal course of business that do not arise from or directly relate to claims on insurance policies. This category of business litigation typically involves, among other things, allegations of underwriting errors or misconduct, employment claims, regulatory activity, or disputes arising from our business ventures. In the opinion of management, our ultimate liability for these matters could be, but we believe is not likely to be, material to our consolidated financial condition and results of operations.

i) Lease commitments
We lease office space and equipment under operating leases which expire at various dates through 2033. Rent expense was $ 209 million, $ 126 million, and $ 127 million for the years ended December 31, 2016 , 2015 , and 2014 , respectively. Future minimum lease payments under the leases are expected to be as follows:

For the years ending December 31 (in millions of U.S. dollars)	
2017	$ 173
2018	149
2019	118
2020	93
2021	78
Thereafter	186
Total minimum future lease commitments	$ 797

11 . Shareholders' equity

a) Common Shares

All of Chubb's Common Shares are authorized under Swiss corporate law. Though the par value of Common Shares is stated in Swiss francs, Chubb continues to use U.S. dollars as its reporting currency for preparing the consolidated financial statements. Under Swiss corporate law, we are generally prohibited from issuing Common Shares below their par value. If there were a need to raise common equity at a time when the trading price of Chubb's Common Shares is below par value, we would need in advance to obtain shareholder approval to decrease the par value of the Common Shares.

Dividend approval

At the January 10, 2014 extraordinary general meeting, our shareholders approved a resolution to increase our quarterly dividend from $0.51 per share to $0.63 per share for the final two quarterly installments (made on January 31, 2014 and April 17, 2014) that had been earlier approved at our 2013 annual general meeting. The $0.12 per share increase for each installment was distributed from capital contribution reserves (Additional paid-in capital), a subaccount of legal reserves, and transferred to free reserves (Retained earnings) for payment, while the existing $0.51 per share was distributed by way of a par value reduction.

At our May 2014 annual general meeting, our shareholders approved an annual dividend for the following year of $2.60 per share, which was paid in four quarterly installments of $0.65 per share after the annual general meeting in the form of a distribution by way of a par value reduction.

At our May 2015 annual general meeting, our shareholders approved an annual dividend for the following year of up to $2.68 per share, which was paid in four quarterly installments of $0.67 per share at dates determined by the Board of Directors (Board) after the annual general meeting by way of a distribution from capital contribution reserves, transferred to free reserves for payment.

At our May 2016 annual general meeting, our shareholders approved an annual dividend for the following year of up to $2.76 per share, expected to be paid in four quarterly installments of $0.69 per share after the annual general meeting by way of distribution from capital contribution reserves, transferred to free reserves for payment. The Board will determine the record and payment dates at which the annual dividend may be paid, and is authorized to abstain from distributing a dividend in its discretion, until the date of the 2017 annual general meeting. The first three quarterly installments, each of $0.69 per share, have been distributed by the Board as expected.

Dividend distributions

Under Swiss corporate law, dividends, including distributions through a reduction in par value (par value reduction), must be stated in Swiss francs though dividend payments are made by Chubb in U.S. dollars. Dividend distributions following Chubb's redomestication to Switzerland have generally been made by way of par value reduction (under the methods approved by our shareholders at our annual general meetings) and had the effect of reducing par value per Common Share each time a dividend was distributed. We may also issue dividends without subjecting them to withholding tax by way of distributions from capital contribution reserves and payment out of free reserves. We employed this method of dividends to effect our dividend increase that was approved by our shareholders on January 10, 2014 , and the annual dividends approved in May 2015 and 2016, as noted above.

The following table presents dividend distributions per Common Share in Swiss francs (CHF) and U.S. dollars (USD):

	Year Ended December 31					
	2016		2015		2014	
	CHF	**USD**	CHF	USD	CHF	USD
Dividends - par value reduction	**—**	**$ —**	0.62	$ 0.65	2.27	$ 2.46
Dividends - distributed from capital contribution reserves	**2.70**	**2.74**	1.94	2.01	0.20	0.24
Total dividend distributions per common share	**2.70**	**$ 2.74**	2.56	$ 2.66	2.47	$ 2.70

Par value reductions have been reflected as such through Common Shares in the Consolidated statements of shareholders' equity and had the effect of reducing par value per Common Share to CHF 24.15 at December 31, 2016 .

b) Shares issued, outstanding, authorized, and conditional

	Year Ended December 31		
	2016	2015	2014
Shares issued, beginning of year	**342,832,412**	342,832,412	342,832,412
Shares issued for Chubb Corp acquisition	**136,951,452**	—	—
Common Shares in treasury, end of year (at cost)	**(13,815,148)**	(18,268,971)	(14,172,726)
Shares issued and outstanding, end of year	**465,968,716**	324,563,441	328,659,686
Common Shares issued to employee trust			
Balance, beginning of year	**(5,800)**	(9,467)	(9,467)
Shares redeemed	**3,000**	3,667	—
Balance, end of year	**(2,800)**	(5,800)	(9,467)

Increases in Common Shares in treasury are due to open market repurchases of Common Shares and the surrender of Common Shares to satisfy tax withholding obligations in connection with the vesting of restricted stock and the forfeiture of unvested restricted stock. Decreases in Common Shares in treasury are principally due to grants of restricted stock, exercises of stock options, and purchases under the Employee Stock Purchase Plan (ESPP).

Common Shares issued to employee trust are issued by Chubb to a rabbi trust for deferred compensation obligations as discussed in Note 11 e) below.

Authorized share capital for general purposes
The Board has shareholder-approved authority as set forth in the Articles of Association to increase for general purposes Chubb's share capital from time to time until May 19, 2018, by the issuance of up to 200,000,000 fully paid up Common Shares, with a par value equal to the par value of Chubb's Common Shares as set forth in the Articles of Association at the time of any such issuance.

Conditional share capital for bonds and similar debt instruments
Chubb's share capital may be increased through the issuance of a maximum of 33,000,000 fully paid up Common Shares (with a par value of CHF 24.15 as of December 31, 2016) through the exercise of conversion and/or option or warrant rights granted in connection with bonds, notes, or similar instruments, issued or to be issued by Chubb, including convertible debt instruments.

Conditional share capital for employee benefit plans
Chubb's share capital may be increased through the issuance of a maximum of 25,410,929 fully paid up Common Shares (with a par value of CHF 24.15 as of December 31, 2016) in connection with the exercise of option rights granted to any employee of Chubb, and any consultant, director, or other person providing services to Chubb.

c) Chubb Limited securities repurchases
From time to time, we repurchase shares as part of our capital management program and to partially offset potential dilution from the exercise of stock options and the granting of restricted stock under share-based compensation plans. Our Board of Directors has authorized share repurchase programs as follows:

- $2.0 billion of Chubb Common Shares from November 21, 2013 through December 31, 2014
- $ 1.5 billion of Chubb Common Shares from January 1, 2015 through December 31, 2015
- $ 1.0 billion of Chubb Common Shares from November 17, 2016 through December 31, 2017

Share repurchases may be in the open market, in privately negotiated transactions, block trades, accelerated repurchases and/or through option or other forward transactions.

The following table presents repurchases of Chubb's Common Shares conducted in a series of open market transactions under the Board authorizations:

	Year Ended December 31			January 1, 2017 through
(in millions of U.S. dollars, except share data)	**2016**	2015	2014	February 24, 2017
Number of shares repurchased	**—**	6,677,663	13,982,358	419,623
Cost of shares repurchased	**$ —**	$ 734	$ 1,449	$ 55

At February 24, 2017, $945 million in share repurchase authorization remained through December 31, 2017.

d) General restrictions
The holders of the Common Shares are entitled to receive dividends as approved by the shareholders. Holders of Common Shares are allowed one vote per share provided that, if the controlled shares of any shareholder constitute ten percent or more of the outstanding Common Shares of Chubb, only a fraction of the vote will be allowed so as not to exceed ten percent in aggregate. Entry of acquirers of Common Shares as shareholders with voting rights in the share register may be refused if it would confer voting rights with respect to ten percent or more of the registered share capital recorded in the commercial register.

e) Deferred compensation obligation
Chubb maintains rabbi trusts for deferred compensation plans principally for employees and former directors. The shares issued by Chubb to the rabbi trusts in connection with deferrals of share compensation are classified in shareholders' equity and accounted for at historical cost in a manner similar to Common Shares in treasury. Changes in the fair value of the shares underlying the obligations are recorded in Accounts payable, accrued expenses, and other liabilities in the Consolidated balance sheets and the related expense or income is recorded in Administrative expenses in the Consolidated statements of operations.

The rabbi trusts also hold other assets, such as fixed maturities, equity securities, and life insurance policies. The assets of the rabbi trusts are consolidated with Chubb's assets in the consolidated balance sheets. Assets held by the trust and the associated obligations are reported at fair value in Other investments and Accounts payable, accrued expenses, and other liabilities, respectively, in the consolidated balance sheets, with changes in fair value reflected as a corresponding increase or decrease to Other (income) expense in the Consolidated statements of operations. However, life insurance policies assets and obligations are reported at cash surrender value.

12 . Share-based compensation

Chubb has share-based compensation plans which currently provide the Board the ability to grant awards of stock options, restricted stock, and restricted stock units to its employees, consultants, and members of the Board.

In connection with the Chubb Corp acquisition, we assumed outstanding equity awards consisting of service-based restricted stock units, performance-based restricted stock units, and stock options issued by Chubb Corp to employees and directors with a fair value of $525 million , of which $323 million is attributed to purchase consideration for the acquisition. These awards were generally granted with a 3-year vesting period, and the stock options generally have a 10-year term.

In May 2016, our shareholders approved the Chubb Limited 2016 Long-Term Incentive Plan (the 2016 LTIP), which replaced both the ACE Limited 2004 LTIP (the 2004 LTIP) and The Chubb Corporation Long-Term Incentive Plan (2014). The 2016 LTIP is substantially similar to the 2004 LTIP in its operation and the types of awards that may be granted. Under the 2016 LTIP, Common Shares of Chubb were authorized to be issued pursuant to awards made as stock options, stock appreciation rights, performance shares, performance units, restricted stock, and restricted stock units.

Chubb principally issues restricted stock grants and stock options on a graded vesting schedule. Chubb recognizes compensation cost for restricted stock and stock option grants with only service conditions that have a graded vesting schedule on a straight-line basis over the requisite service period for each separately vesting portion of the award as if the award was, in-substance, multiple awards. We incorporate an estimate of future forfeitures (6.5 percent assumption used for grants made in 2016, 2015, and 2014) in determining compensation cost for both grants of restricted stock and stock options.

Chubb generally grants restricted stock and restricted stock units with a 4 -year vesting period, which vest in equal annual installments over the respective vesting period. The restricted stock is granted at market close price on the day of grant. Each restricted stock unit represents our obligation to deliver to the holder one Common Share upon vesting.

Under the 2016 LTIP, 19,500,000 Common Shares were authorized to be issued, in addition to any shares that have not been delivered pursuant to the 2004 LTIP and remain available for grant pursuant to the 2004 LTIP, including any shares covered by awards granted under the 2004 LTIP that are forfeited, expire or are canceled after the effective date of the 2016 LTIP without delivery of shares or which result in the forfeiture of the shares back to Chubb. At December 31, 2016, a total of 20,522,230 shares remain available for future issuance under the 2016 LTIP, which includes shares canceled or forfeited from the 2004 LTIP, in addition to common shares that were previously registered and authorized to be issued.

Under the Employee Stock Purchase Plan (ESPP), 4,500,000 shares are authorized to be issued. At December 31, 2016, a total of 722,751 shares remain available for issuance under the ESPP.

Chubb generally issues Common Shares for the exercise of stock options, restricted stock, and purchases under the ESPP from un-issued reserved shares (conditional share capital) and Common Shares in treasury.

The following table presents pre-tax and after-tax share-based compensation expense:

	Year Ended December 31		
(in millions of U.S. dollars)	**2016**	2015	2014
Stock options and shares issued under ESPP:			
Pre-tax	**$ 33**	$ 31	$ 28
After-tax [(1)]	**$ 20**	$ 21	$ 19
Restricted stock:			
Pre-tax	**$ 268**	$ 143	$ 128
After-tax	**$ 167**	$ 84	$ 75

(1) Excludes windfall tax benefit for share-based compensation recognized as a direct adjustment to Additional paid-in capital of $32 million , $26 million and $28 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Unrecognized compensation expense related to the unvested portion of Chubb's employee share-based awards was $260 million at December 31, 2016 , and is expected to be recognized over a weighted-average period of approximately 1 year.

Stock options
Both incentive and non-qualified stock options are principally granted at an option price per share equal to the grant date fair value of Chubb's Common Shares. Stock options are generally granted with a 3 -year vesting period and a 10 -year term. Stock options vest in equal annual installments over the respective vesting period, which is also the requisite service period.

Chubb's 2016 share-based compensation expense includes a portion of the cost related to the 2013 through 2016 stock option grants. Stock option fair value was estimated on the grant date using the Black-Scholes option-pricing model that uses the weighted-average assumptions noted below:

	Year Ended December 31		
	2016	2015	2014
Dividend yield	**2.3%**	2.3%	2.7%
Expected volatility	**23.2%**	21.0%	25.2%
Risk-free interest rate	**1.3%**	1.7%	1.7%
Expected life	**5.6 years**	5.8 years	5.8 years

The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant. The expected life (estimated period of time from grant to exercise date) was estimated using the historical exercise behavior of employees. Expected volatility was calculated as a blend of (a) historical volatility based on daily closing prices over a period equal to the expected life assumption, (b) long-term historical volatility based on daily closing prices over the period from Chubb's initial public trading date through the most recent quarter, and (c) implied volatility derived from Chubb's publicly traded options.

The following table presents a roll-forward of Chubb's stock options:

(Intrinsic Value in millions of U.S. dollars)	Number of Options		Weighted-Average Exercise Price		Weighted-Average Fair Value		Total Intrinsic Value
Options outstanding, December 31, 2013	9,496,856	$	61.84				
Granted	1,782,903	$	96.77	$	18.00		
Exercised	(1,511,948)	$	54.84			$	73
Forfeited	(143,825)	$	84.52				
Options outstanding, December 31, 2014	9,623,986	$	69.06				
Granted	1,892,641	$	114.78	$	18.49		
Exercised	(1,457,580)	$	60.88			$	72
Forfeited	(205,551)	$	100.25				
Options outstanding, December 31, 2015	9,853,496	$	78.40				
Assumed in Chubb Corp Acquisition	339,896	$	77.83	$	36.07		
Granted	1,929,616	$	118.39	$	21.52		
Exercised	(1,728,949)	$	66.65			$	99
Forfeited	(213,339)	$	110.01				
Options outstanding, December 31, 2016	**10,180,720**	**$**	**87.29**			**$**	**456**
Options exercisable, December 31, 2016	**6,562,884**	**$**	**72.90**			**$**	**389**

The weighted-average remaining contractual term was 6.1 years for stock options outstanding and 4.7 years for stock options exercisable at December 31, 2016 . Cash received from the exercise of stock options for the year ended December 31, 2016 was $112 million .

Restricted stock and restricted stock units
Grants of restricted stock and restricted stock units awarded under both the 2004 LTIP and 2016 LTIP typically have a 4-year vesting period, based on a graded vesting schedule. Chubb grants performance-based restricted stock to certain executives that vest based on tangible book value (shareholders' equity less goodwill and intangible assets, net of tax) per share growth compared to a defined group of peer companies. The performance-based stock awards comprise target awards which have four installments that vest annually based on the performance criteria, and premium awards, which are earned only if tangible book value per share growth over the cumulative 4-year period after the grant of the associated target awards exceeds a higher threshold compared to our peer group. Shares representing target awards are issued when the performance award is approved. They are subject to forfeiture if applicable performance criteria are not met. For awards granted prior to February 2014, shares representing premium awards were not issued at the time the target award was approved. Rather, they were subject to issuance following the 4-year performance period, if and to the extent the premium awards were earned. For awards granted in February 2014 and thereafter, premium awards have been issued subject to vesting if actually earned or forfeited if not earned at the end of the 4-year performance period. Chubb also grants restricted stock awards to non-management directors which vest at the following year's annual general meeting. The restricted stock is granted at market close price on the grant date. Each restricted stock unit represents our obligation to deliver to the holder one Common Share upon vesting. Chubb's 2016 share-based compensation expense includes a portion of the cost related to the restricted stock granted in the years 2012 through 2016.

The following table presents a roll-forward of our restricted stock awards. Included in the roll-forward below are 23,812 restricted stock awards, 24,945 restricted stock awards, and 25,339 restricted stock awards that were granted to non-management directors during the years ended December 31, 2016 , 2015 , and 2014 , respectively:

	Service-based Restricted Stock Awards and Restricted Stock Units		Performance-based Restricted Stock Awards and Restricted Stock Units	
	Number of Shares	Weighted-Average Grant-Date Fair Value	Number of Shares	Weighted-Average Grant-Date Fair Value
Unvested restricted stock, December 31, 2013	4,129,583	$ 71.85	196,497	$ 71.35
Granted	1,596,245	$ 97.16	374,202	$ 98.31
Vested	(1,500,949)	$ 68.33	(192,009)	$ 85.39
Forfeited	(387,782)	$ 73.21	—	$ —
Unvested restricted stock, December 31, 2014	3,837,097	$ 83.60	378,690	$ 90.87
Granted	1,417,965	$ 114.37	326,860	$ 113.29
Vested	(1,341,358)	$ 80.05	(110,340)	$ 98.70
Forfeited	(424,535)	$ 87.36	—	$ —
Unvested restricted stock, December 31, 2015	3,489,169	$ 97.01	595,210	$ 101.73
Assumed in Chubb Corp Acquisition	3,706,639	$ 111.02	—	$ —
Granted	1,622,065	$ 118.70	517,507	$ 118.96
Vested	(2,592,622)	$ 100.87	(181,548)	$ 102.43
Forfeited	(420,125)	$ 109.42	—	$ —
Unvested restricted stock, December 31, 2016	**5,805,126**	**$ 109.39**	**931,169**	**$ 111.17**

Prior to 2009, legacy ACE granted restricted stock units with a 1 -year vesting period to non-management directors. Delivery of Common Shares on account of these restricted stock units to non-management directors is deferred until after the date of the non-management directors' termination from the Board. Legacy Chubb Corp historically allowed directors and certain key employees of Chubb Corp and its subsidiaries to defer a portion of their compensation earned with respect to services performed in the form of deferred stock units. In addition, legacy Chubb Corp provides supplemental retirement benefits for certain employees through its Defined Contribution Excess Benefit Plan in the form of deferred shares of stock. The minimum vesting period under these legacy Chubb Corp deferred plans is 1-year and the maximum is 3-years. Employees and directors had the option to elect to receive their awards at a future specified date or upon their termination of service with Chubb. At December 31, 2016 , there were 519,331 deferred restricted stock units.

ESPP

The ESPP gives participating employees the right to purchase Common Shares through payroll deductions during consecutive subscription periods at a purchase price of 85 percent of the fair value of a Common Share on the exercise date (Purchase Price). Annual purchases by participants are limited to the number of whole shares that can be purchased by an amount equal to ten percent of the participant's compensation or $ 25,000 , whichever is less. The ESPP has two six-month subscription periods each year, the first of which runs between January 1 and June 30 and the second of which runs between July 1 and December 31. Legacy Chubb Corp employees were eligible to participant in the ESPP beginning in the July 1 to December 31 subscription period of 2016. The amounts collected from participants during a subscription period are used on the exercise date to purchase full shares of Common Shares. An exercise date is generally the last trading day of a subscription period. The number of shares purchased is equal to the total amount, at the exercise date, collected from the participants through payroll deductions for that subscription period, divided by the Purchase Price, rounded down to the next full share. Participants may withdraw from an offering before the exercise date and obtain a refund of amounts withheld through payroll deductions. Pursuant to the provisions of the ESPP, during the years ended December 31, 2016 , 2015 , and 2014 , employees paid $24 million , $ 18 million, and $ 17 million to purchase 211,492 shares, 197,442 shares, and 181,901 shares, respectively.

13 . Postretirement benefits

Chubb provides postretirement benefits to eligible employees and their dependents through various defined contribution plans and defined benefit plans sponsored by Chubb. With the acquisition, Chubb assumed the outstanding pension and other postretirement benefit plan obligations of legacy Chubb Corp, which consisted of several non-contributory defined benefit pension plans covering substantially all its employees, and several other postretirement benefit plans to retired employees. After the acquisition, Chubb also sponsors the defined contribution plans covering legacy Chubb Corp employees.

Defined benefit pension plans
We maintain non-contributory defined benefit pension plans that cover certain employees located in the U.S., U.K., Canada, and various other statutorily required countries. We account for pension benefits using the accrual method. Benefits under these plans are based on employees' years of service and compensation during final years of service. All underlying plans are subject to periodic actuarial valuations by qualified actuarial firms using actuarial models to calculate the expense and liability for each plan. We use December 31 as the measurement date for our defined benefit pension plans.

Under the legacy Chubb Corp plans, prior to 2001, benefits were generally based on an employee’s years of service and average compensation during the last five years of employment. Effective January 1, 2001, the formula for providing pension benefits was changed from the final average pay formula to a cash balance formula. Under the cash balance formula, a notional account is established for each employee, which is credited semi-annually with an amount equal to a percentage of eligible compensation based on age and years of service plus interest based on the account balance. Legacy Chubb Corp employees hired prior to 2001 will generally be eligible to receive vested benefits based on the higher of the final average pay or cash balance formulas.

Other postretirement benefit plans
We also assumed legacy Chubb Corp other postretirement benefit plans, principally healthcare and life insurance, to retired employees, their beneficiaries, and covered dependents. Healthcare coverage is contributory. Retiree contributions vary based upon retiree’s age, type of coverage, and years of service requirements. Life insurance coverage is non-contributory. Chubb funds a portion of the healthcare benefits obligation where such funding can be accomplished on a tax-effective basis. Benefits are paid as covered expenses are incurred.

Amendments to U.S. Qualified and Excess Pension Plans and U.S. Retiree Healthcare Plan
On October 31, 2016, we harmonized and amended several of our U.S. retirement programs to create a unified retirement savings program. In 2020, we will transition from a traditional defined benefit pension program that had been in effect for certain employees to a defined contribution program. Additionally, after 2025, we plan to eliminate a subsidized U.S. retiree healthcare plan that had been in place for certain employees. Both amendments required a remeasurement of the plan assets and benefit obligations with updated assumptions, including discount rates and the expected return on assets.

The plan amendments and related remeasurement of the obligation at October 31, 2016 resulted in a net decrease to the benefit obligations of $496 million as follows:

- The amendment of the pension plan and excess pension plan resulted in a pre-tax curtailment gain of $113 million immediately recognized in income during the fourth quarter of 2016 as it reduced expected years of future service of active plan participants.
- The amendment of the retiree healthcare plan resulted in a reduction in the obligation of $383 million , of which $ 15 million pre-tax was recognized in income during the fourth quarter of 2016 and the remaining balance will be amortized as a reduction to expense over the next 4.5 years as it relates to benefits already accrued.

Obligations and funded status
The funded status of the pension and other postretirement benefit plans at December 31, 2016 and 2015 was as follows:

	Pension Benefits				Other Postretirement Benefits			
	2016		2015		**2016**		2015	
(in millions of U.S. dollars)	**U.S. Plans**	**Non-U.S. Plans**	U.S. Plans	Non-U.S. Plans	**U.S. Plans**	**Non-U.S. Plans**	U.S. Plans	Non-U.S. Plans
Benefit obligation, beginning of year	**$ 10**	**$ 559**	$ 10	$ 584	**$ 16**	**$ —**	$ 16	$ —
Acquisition of Chubb Corp	**3,153**	**372**	—	—	**491**	**15**	—	—
Service cost	**75**	**18**	—	6	**9**	**1**	1	—
Interest cost	**103**	**30**	—	21	**16**	**1**	—	—
Actuarial loss	**131**	**204**	—	13	**33**	**3**	(1)	—
Benefits paid	**(79)**	**(22)**	—	(22)	**(11)**	**—**	—	—
Amendments	**—**	**(9)**	—	1	**(410)**	**—**	—	—
Curtailments	**(259)**	**(7)**	—	—	**—**	**—**	—	—
Settlements	**(99)**	**(7)**	—	(7)	**—**	**—**	—	—
Foreign currency revaluation	**—**	**(113)**	—	(37)	**—**	**1**	—	—
Benefit obligation, end of year	**$ 3,035**	**$ 1,025**	$ 10	$ 559	**$ 144**	**$ 21**	$ 16	$ —
Plan assets at fair value, beginning of year	**$ 9**	**$ 564**	$ 9	$ 579	**$ —**	**$ —**	$ —	$ —
Acquisition of Chubb Corp	**2,473**	**315**	—	—	**138**	**—**	—	—
Actual return on plan assets	**359**	**168**	—	40	**29**	**—**	—	—
Employer contributions	**98**	**67**	—	10	**3**	**—**	—	—
Benefits paid	**(79)**	**(22)**	—	(22)	**(11)**	**—**	—	—
Settlements	**(95)**	**(7)**	—	(7)	**—**	**—**	—	—
Foreign currency revaluation	**—**	**(123)**	—	(36)	**—**	**—**	—	—
Plan assets at fair value, end of year	**$ 2,765**	**$ 962**	$ 9	$ 564	**$ 159**	**$ —**	$ —	$ —
Funded status at end of year	**$ (270)**	**$ (63)**	$ (1)	$ 5	**$ 15**	**$ (21)**	$ (16)	$ —

The accumulated benefit obligation for the pension benefit plans was $ 3.8 billion and $ 559 million at December 31, 2016 and 2015 , respectively. The accumulated benefit obligation is the present value of pension benefits earned as of the measurement date based on employee service and compensation prior to that date. It differs from the pension benefit obligation in the table above in that the accumulated benefit obligation includes no assumptions regarding future compensation levels.

The net components of the funded status of the pension and other postretirement benefit plans are included in Accounts payable, accrued expenses, and other liabilities in the consolidated balance sheets.

Chubb’s funding policy is to contribute amounts that meet regulatory requirements plus additional amounts determined based on actuarial valuations, market conditions and other factors. All benefit plans satisfy minimum funding requirements of the Employee Retirement Income Security Act of 1974 (ERISA).

At December 31, 2016, we estimate that we will contribute $ 27 million to the pension plans in 2017. We do not expect to make any contributions to the other postretirement benefits plan in 2017. The estimate is subject to change due to contribution decisions that are affected by various factors including our liquidity, market performance and management discretion.

As part of purchase accounting, Chubb eliminated legacy Chubb Corp's postretirement benefit costs not yet recognized in Net income that were recorded in Accumulated other comprehensive income (AOCI) at the time of the acquisition. Net actuarial loss (gain) and prior service cost included in AOCI that were not yet recognized as components of net benefit costs in Net income at December 31, 2016 and 2015 were as follows:

	Pension Benefits				Other Postretirement Benefits	
	2016		2015		**2016**	
(in millions of U.S. dollars)	**U.S. Plans**	**Non-U.S. Plans**	U.S. Plans	Non-U.S. Plans	**U.S. Plans**	**Non-U.S. Plans**
Net actuarial loss (gain)	**$ (207)**	**$ 156**	$ —	$ 107	**$ 14**	**$ 3**
Prior service cost	**—**	**(2)**	—	7	**(395)**	**—**
Total	**$ (207)**	**$ 154**	$ —	$ 114	**$ (381)**	**$ 3**

As part of the acquisition, Chubb conformed the accounting policies for the acquired plans of legacy Chubb Corp to the accounting policies of Chubb, including selecting the applicable discount rates using specific spot rates along a yield curve determined by the projected cash flows assumptions, for which the timing and amount of cash flows correspond with the timing and amount of the estimated benefits payment patterns. This resulted in a lower overall discount rate used to determine the benefit obligation and therefore increased that obligation at the date of the acquisition.

The weighted-average assumptions used to determine the projected benefit obligation were as follows:

	Pension Benefits		Other Postretirement Benefits	
	U.S. Plans	Non-U.S. Plans	U.S. Plans	Non-U.S. Plans
December 31, 2016				
Discount rate	**4.14%**	**2.83%**	**2.86%**	**3.73%**
Rate of compensation increase	**4.00%**	**3.57%**	**N/A**	**N/A**
December 31, 2015				
Discount rate	NM	3.61%	NM	
Rate of compensation increase	NM	3.05%	NM	

NM – not meaningful

The components of net pension and other postretirement benefit costs reflected in Net income and other changes in plan assets and benefit obligations recognized in other comprehensive income were as follows:

	Pension Benefits			Other Postretirement Benefits		
Year Ended December 31, 2016 (in millions of U.S. dollars)	U.S. Plans	Non-U.S. Plans	Total	U.S. Plans	Non-U.S. Plans	Total
Costs reflected in Net income:						
Service cost	**$ 75**	**$ 18**	**$ 93**	**$ 9**	**$ 1**	**$ 10**
Interest cost	**103**	**30**	**133**	**16**	**1**	**17**
Expected return on plan assets	**(165)**	**(39)**	**(204)**	**(8)**	**—**	**(8)**
Amortization of net actuarial loss (gain)	**—**	**2**	**2**	**(1)**	**—**	**(1)**
Amortization of prior service cost	**—**	**(1)**	**(1)**	**(15)**	**—**	**(15)**
Curtailments	**(117)**	**—**	**(117)**	**—**	**—**	**—**
Settlements	**(2)**	**1**	**(1)**	**—**	**—**	**—**
Net periodic (benefit) cost	**$ (106)**	**$ 11**	**$ (95)**	**$ 1**	**$ 2**	**$ 3**
Changes in plan assets and benefit obligations recognized in other comprehensive income						
Net actuarial loss (gain)	**$ (326)**	**$ 49**	**$ (277)**	**$ 14**	**$ 3**	**$ 17**
Prior service benefit	**—**	**(8)**	**(8)**	**(395)**	**—**	**(395)**
Curtailments	**117**	**—**	**117**	**—**	**—**	**—**
Settlements	**2**	**(1)**	**1**	**—**	**—**	**—**
Total (increase) decrease in other comprehensive income	**$ (207)**	**$ 40**	**$ (167)**	**$ (381)**	**$ 3**	**$ (378)**
Year Ended December 31, 2015						
Costs reflected in Net income:						
Service cost	$ —	$ 6	$ 6	$ 1	$ —	$ 1
Interest cost	—	21	21	—	—	—
Expected return on plan assets	—	(29)	(29)	—	—	—
Amortization of net actuarial loss	—	2	2	(1)	—	(1)
Settlements	—	1	1	—	—	—
Net periodic benefit cost	$ —	$ 1	$ 1	$ —	$ —	$ —
Changes in plan assets and benefit obligations recognized in other comprehensive income						
Net actuarial loss (gain)	$ —	$ (16)	$ (16)	$ —	$ —	$ —
Prior service cost	—	1	1	—	—	—
Total increase in other comprehensive income	$ —	$ (15)	$ (15)	$ —	$ —	$ —
Year Ended December 31, 2014						
Costs reflected in Net income:						
Service cost	$ —	$ 6	$ 6	$ 1	$ —	$ 1
Interest cost	—	25	25	—	—	—
Expected return on plan assets	—	(30)	(30)	—	—	—
Amortization of net actuarial loss	—	2	2	1	—	1
Net periodic benefit cost	$ —	$ 3	$ 3	$ 2	$ —	$ 2
Changes in plan assets and benefit obligations recognized in other comprehensive income						
Net actuarial loss (gain)	$ —	$ (10)	$ (10)	$ —	$ —	$ —
Prior service cost	—	8	8	—	—	—
Total increase in other comprehensive income	$ —	$ (2)	$ (2)	$ —	$ —	$ —

The estimated net actuarial loss that will be amortized from AOCI into net periodic benefit costs in Net income for Non-U.S. pension plans during 2017 is $3 million . The estimated net prior service credit that will be amortized from AOCI into net periodic benefit costs in Net income during 2017 for U.S. other postretirement benefit plans is $ 92 million .

The weighted-average assumptions used to determine the net periodic pension and other postretirement benefit costs were as follows:

	Pension Benefits		Other Postretirement Benefits	
Year Ended December 31	U.S. Plans	Non-U.S. Plans	U.S. Plans	Non-U.S. Plans
2016				
Discount rate in effect for determining service cost	**4.38%**	**3.85%**	**4.56%**	**4.30%**
Discount rate in effect for determining interest cost	**3.59%**	**3.44%**	**3.82%**	**4.30%**
Rate of compensation increase	**4.00%**	**3.33%**	**N/A**	**N/A**
Expected long-term rate of return on plan assets	**7.00%**	**4.79%**	**6.34%**	**N/A**
2015				
Discount rate	NM	3.51%	NM	
Rate of compensation increase	NM	3.09%	NM	
Expected long-term rate of return on plan assets	NM	4.81%	NM	
2014				
Discount rate	NM	4.21%	NM	
Rate of compensation increase	NM	3.43%	NM	
Expected long-term rate of return on plan assets	NM	5.34%	NM	

NM – not meaningful

The weighted average healthcare cost trend rate assumptions used to measure the expected cost of healthcare benefits were as follows:

	U.S. Plans			Non-U.S. Plans
	2016	2015	2014	**2016**
Healthcare cost trend rate	**7.28%**	6.50%	6.50%	**6.61%**
Rate to which the cost trend rate is assumed to decline (the ultimate trend rate)	**4.50%**	4.50%	4.50%	**4.50%**
Year that the rate reaches the ultimate trend rate	**2038**	2026	2026	**2029**

The healthcare cost trend rate assumption has a significant effect on the amount of the accumulated other postretirement benefit obligation and the net other postretirement benefit cost reported. To illustrate, a one percent increase in the trend rate for each year would increase the accumulated other postretirement benefit obligation at December 31, 2016 by approximately $ 11 million and the aggregate of the service and interest cost components of net other postretirement benefit cost for the year ended December 31, 2016 by approximately $ 1 million . A one percent decrease in the trend rate for each year would decrease the accumulated other postretirement benefit obligation at December 31, 2016 by approximately $ 9 million and the aggregate of the service and interest cost components of net other postretirement benefit cost for the year ended December 31, 2016 by approximately $ 1 million .

Plan Assets

The long term objective of the pension plan is to provide sufficient funding to cover expected benefit obligations, while assuming a prudent level of portfolio risk. The assets of the pension plan are invested, either directly or through pooled funds, in a diversified portfolio of predominately equity securities and fixed maturities. We seek to obtain a rate of return that over time equals or exceeds the returns of the broad markets in which the plan assets are invested. The target allocation of plan assets is 55 percent to 65 percent invested in equity securities, with the remainder primarily invested in fixed maturities. We rebalance our pension assets to the target allocation as market conditions permit. We determined the expected long term rate of return assumption for each asset class based on an analysis of the historical returns and the expectations for future returns. The expected long term rate of return for the portfolio is a weighted aggregation of the expected returns for each asset class.

In order to minimize risk, the Plan maintains a listing of permissible and prohibited investments. In addition, the Plan has certain concentration limits and investment quality requirements imposed on permissible investments options. Investment risk is measured and monitored on an ongoing basis.

The following table presents the fair values of the pension plan assets, by valuation hierarchy. For additional information on how we classify these assets within the valuation hierarchy, refer to Note 4 to the Consolidated financial statements.

December 31, 2016				Pension Benefits
(in millions of U.S. dollars)	Level 1	Level 2	Level 3	Total
U.S. Plans				
Short-term investments	$ —	$ 43	$ —	$ 43
U.S. Treasury and agency	206	112	—	318
Foreign and corporate bonds	—	482	5	487
Equity securities	728	—	—	728
Derivative instruments	3	—	—	3
Total U.S. Plan assets (1)	$ 937	$ 637	$ 5	$ 1,579
Non-U.S. Plans				
Short-term investments	$ 2	$ —	$ —	$ 2
Foreign and corporate bonds	—	435	—	435
Equity securities	100	412	—	512
Total Non-U.S. Plan assets (1)	$ 102	$ 847	$ —	$ 949

(1) Excluded from the table above are $ 1.2 billion and $ 13 million of investments measured using NAV as a practical expedient related to the U.S. Plans and Non-U.S. Plans, respectively.

We had other postretirement benefit plan assets of $159 million at December 31, 2016, all of which are held in equity securities and categorized as Level 1.

We had pension benefit plan assets of $ 573 million at December 31, 2015, which are measured at fair value on a recurring basis. The assets comprised primarily Equity securities classified within Level 1 and Equity securities and Foreign and corporate bonds classified within Level 2.

Assets classified within Level 3 were $ 5 million and nil at December 31, 2016 and 2015, respectively, and the change in the balance during the year ended December 31, 2016 was insignificant.

Benefit payments were $213 million and $29 million for the years ended December 31, 2016 and 2015 , respectively. Expected future payments are as follows:

For the years ending December 31		
(in millions of U.S. dollars)	U.S. Plans	Non-U.S. Plans
2017	$ 132	$ 20
2018	143	23
2019	158	25
2020	167	26
2021	177	27
2022–2026	931	147

Defined contribution plans (including 401(k))
Under these plans, employees' contributions may be supplemented by Chubb matching contributions based on the level of employee contribution. These contributions are invested at the election of each employee in one or more of several investment

portfolios offered by a third-party investment advisor. Expenses for these plans totaled $150 million , $117 million , and $119 million for the years ended December 31, 2016 , 2015 , and 2014 , respectively.

14 . Other (income) expense

(in millions of U.S. dollars)	Year Ended December 31 2016	2015	2014
Equity in net (income) loss of partially-owned entities	**$ (264)**	$ (113)	$ (231)
(Gains) losses from fair value changes in separate account assets [1]	**(11)**	19	(2)
Federal excise and capital taxes	**19**	19	20
Acquisition-related costs [2]	**2**	9	15
Other	**32**	15	8
Other (income) expense	**$ (222)**	$ (51)	$ (190)

(1) Related to (gains) losses from fair value changes in separate account assets that do not qualify for separate account reporting under GAAP.
(2) Excludes integration costs related to the Chubb Corp acquisition.

Other (income) expense includes equity in net (income) loss of partially-owned entities, which includes our share of net (income) loss related to partially-owned investment companies (private equity) and partially-owned insurance companies. Also included in Other (income) expense are (Gains) losses from fair value changes in separate account assets that do not qualify for separate account reporting under GAAP. The offsetting movement in the separate account liabilities is included in Policy benefits in the Consolidated statements of operations. Certain federal excise and capital taxes incurred as a result of capital management initiatives are included in Other (income) expense as these are considered capital transactions and are excluded from underwriting results.

15 . Segment information

We implemented organizational changes in 2016 that resulted in new business segments: North America Commercial P&C Insurance, North America Personal P&C Insurance, North America Agricultural Insurance, Overseas General Insurance, Global Reinsurance, and Life Insurance. In addition, the results of all run-off asbestos and environmental (A&E) exposures, the results of our run-off Brandywine business, the results of Westchester specialty operations for 1996 and prior years, and certain other run-off exposures are now presented within Corporate. Prior period amounts of Chubb Limited (i.e., excluding the historical results of Chubb Corp) have been adjusted to conform to the new segment presentation.

- The North America Commercial P&C Insurance segment includes the business written by Chubb divisions that provide property and casualty (P&C) insurance and services to large, middle market and small commercial businesses in the U.S., Canada, and Bermuda. This segment includes our retail divisions: Major Accounts, Commercial Insurance, including Small Commercial Insurance; and our wholesale and specialty divisions: Westchester and Chubb Bermuda. These divisions write a variety of coverages, including traditional commercial property, marine, general casualty, workers' compensation, package policies, and risk management; specialty categories such as professional lines, marine and construction risk, environmental and cyber risk, excess casualty, as well as group accident and health (A&H) insurance.

- The North America Personal P&C Insurance segment includes the business written by Chubb Personal Risk Services division, which comprises Chubb high net worth personal lines business and ACE Private Risk Services, with operations in the U.S. and Canada. This segment provides affluent and high net worth individuals and families with homeowners, automobile and collector cars, valuable articles (including fine arts), personal and excess liability, travel insurance, and recreational marine insurance and services.

- The North America Agricultural Insurance segment includes the business written by Rain and Hail Insurance Service, Inc. which provides comprehensive multiple peril crop insurance (MPCI) and crop-hail insurance, and Chubb Agribusiness, which offers farm and ranch property as well as specialty P&C coverages, including commercial agriculture products.

- The Overseas General Insurance segment includes the business written by two Chubb divisions that provide P&C insurance and services in the 51 countries outside of North America where the company operates. Chubb International provides commercial P&C traditional and specialty lines serving large corporations, middle market and small customers, A&H and traditional and specialty personal lines through retail brokers, agents and other channels locally around the world. Chubb

Global Markets (CGM) provides commercial P&C excess and surplus lines and A&H through wholesale brokers in the London market and through Lloyd's. These divisions write a variety of coverages, including traditional commercial P&C, specialty categories such as financial lines, marine, energy, aviation, political risk and construction risk, as well as group A&H and traditional and specialty personal lines. The reinsurance operations of CGM are included in the Global Reinsurance segment.

- The Global Reinsurance segment primarily includes the reinsurance business written by Chubb Tempest Re. The Global Reinsurance segment also includes CGM's reinsurance operations. Chubb Tempest Re provides a broad range of traditional and specialty reinsurance coverages to a diverse array of primary P&C companies.

- The Life Insurance segment includes Chubb's international life operations written by Chubb Life, Chubb Tempest Life Re and the North American supplemental A&H and life business of Combined Insurance.

Corporate primarily includes loss and loss expenses of asbestos and environmental (A&E) run-off liabilities, and the results of our non-insurance companies including Chubb Limited, Chubb Group Management and Holdings Ltd, and Chubb INA Holdings Inc. Our exposure to A&E claims principally arises out of liabilities acquired when we purchased Westchester Specialty in 1998, CIGNA's P&C business in 1999, and legacy Chubb Corp run-off business in 2016.

In addition, revenue and expenses managed at the corporate level, including realized gains and losses, interest expense, the non-operating income of our partially-owned entities, and income taxes are reported within Corporate. Chubb integration expenses and other merger-related expenses (both included in Chubb integration expenses in the Consolidated statements of operations), and the one-time benefit recorded in 2016 related to the harmonization of our U.S. pension plans, are also reported within Corporate. Chubb integration expenses are one-time costs that are directly attributable to the achievement of the annualized savings, including employee severance, third-party consulting fees, and systems integration expenses. Other merger-related expenses are one-time costs directly attributable to the merger, including rebranding, employee retention costs and other professional and legal fees related to the Chubb Corp acquisition. These items will not be allocated to the segment level as they are one-time in nature and are not related to the ongoing business activities of the segment. The Chief Executive Officer does not manage segment results or allocate resources to segments when considering these costs and they are therefore excluded from our definition of segment income. Therefore, the segment income statement will only include underwriting income, net investment income, and other operating income and expense items such as each segment's share of the operating income (loss) related to partially-owned entities and miscellaneous income and expense items for which the segments are held accountable. Segment income also includes amortization of purchased intangibles related to business combination intangible assets acquired by the segment and other purchase accounting related intangible assets, including agency relationships, renewal rights, and client lists. The amortization of intangible assets purchased as part of the Chubb Corp acquisition is considered a Corporate cost as these are incurred by the overall company. We determined that this definition of segment income is appropriate and aligns with how the business is managed. The prior periods have been adjusted to reflect the new segment income measure. As we progress through the integration and refine our processes, we may continue to further refine our segments and segment income measures.

For segment reporting purposes, certain items have been presented in a different manner below than in the consolidated financial statements. Management uses underwriting income as the main measure of segment performance. Chubb calculates underwriting income by subtracting Losses and loss expenses, Policy benefits, Policy acquisition costs, and Administrative expenses from Net premiums earned. To calculate segment income, include net investment income, the operating portion of other (income) expense, and amortization of purchased intangibles. For the North America Agricultural Insurance segment, management includes gains and losses on crop derivatives as a component of underwriting income. For example, for the year ended December 31, 2016, underwriting income in our North America Agricultural Insurance segment was $ 341 million . This amount includes $ 5 million of realized losses related to crop derivatives which are reported in Net realized gains (losses) in the Corporate column below.

For the Life Insurance segment, management includes Net investment income and (Gains) losses from fair value changes in separate account assets that do not qualify for separate account reporting under GAAP as components of Life Insurance underwriting income. For example, for the year ended December 31, 2016, Life Insurance underwriting income of $ 282 million includes Net investment income of $ 283 million and gains from fair value changes in separate account assets of $ 11 million . The gains from fair value changes in separate account assets are reported in Other (income) expense in the table below.

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The following tables present the Statement of Operations by segment:

For the Year Ended December 31, 2016 (in millions of U.S. dollars)	North America Commercial P&C Insurance	North America Personal P&C Insurance	North America Agricultural Insurance	Overseas General Insurance	Global Reinsurance	Life Insurance	Corporate	Chubb Consolidated
Net premiums written	**$ 11,740**	**$ 4,153**	**$ 1,328**	**$ 8,124**	**$ 676**	**$ 2,124**	**$ —**	**$ 28,145**
Net premiums earned	**12,217**	**4,319**	**1,316**	**8,132**	**710**	**2,055**	**—**	**28,749**
Losses and loss expenses	**7,439**	**2,558**	**893**	**4,005**	**325**	**663**	**169**	**16,052**
Policy benefits	**—**	**—**	**—**	**—**	**—**	**588**	**—**	**588**
Policy acquisition costs	**2,023**	**966**	**83**	**2,136**	**187**	**509**	**—**	**5,904**
Administrative expenses	**1,125**	**363**	**(6)**	**1,057**	**52**	**307**	**183**	**3,081**
Underwriting income (loss)	**1,630**	**432**	**346**	**934**	**146**	**(12)**	**(352)**	**3,124**
Net investment income	**1,860**	**207**	**20**	**600**	**263**	**283**	**(368)**	**2,865**
Other (income) expense	**(2)**	**6**	**1**	**(11)**	**(4)**	**5**	**(217)**	**(222)**
Amortization expense (benefit) of purchased intangibles	**—**	**19**	**29**	**48**	**—**	**3**	**(80)**	**19**
Segment income (loss)	**3,492**	**614**	**336**	**1,497**	**413**	**263**	**(423)**	**6,192**
Net realized gains (losses) including OTTI							**(145)**	**(145)**
Interest expense							**605**	**605**
Chubb integration expenses							**492**	**492**
Income tax expense							**815**	**815**
Net income (loss)							**$ (2,480)**	**$ 4,135**

For the Year Ended December 31, 2015 (in millions of U.S. dollars)	North America Commercial P&C Insurance	North America Personal P&C Insurance	North America Agricultural Insurance	Overseas General Insurance	Global Reinsurance	Life Insurance	Corporate	Chubb Consolidated
Net premiums written	$ 5,715	$ 1,192	$ 1,346	$ 6,634	$ 828	$ 1,998	$ —	$ 17,713
Net premiums earned	5,634	948	1,364	6,471	849	1,947	—	17,213
Losses and loss expenses	3,661	590	1,088	3,052	290	601	202	9,484
Policy benefits	—	—	—	—	—	543	—	543
Policy acquisition costs	531	69	69	1,581	214	476	1	2,941
Administrative expenses	621	123	1	997	49	291	188	2,270
Underwriting income (loss)	821	166	206	841	296	36	(391)	1,975
Net investment income	1,032	25	23	534	300	265	15	2,194
Other (income) expense	(7)	2	1	(17)	(6)	23	(47)	(51)
Amortization expense of purchased intangibles	—	78	30	61	—	2	—	171
Segment income (loss)	1,860	111	198	1,331	602	276	(329)	4,049
Net realized gains (losses) including OTTI							(420)	(420)
Interest expense							300	300
Chubb integration expense							33	33
Income tax expense							462	462
Net income (loss)							$ (1,544)	$ 2,834

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)
Chubb Limited and Subsidiaries

For the Year Ended December 31, 2014 (in millions of U.S. dollars)	North America Commercial P&C Insurance	North America Personal P&C Insurance	North America Agricultural Insurance	Overseas General Insurance	Global Reinsurance	Life Insurance	Corporate	Chubb Consolidated
Net premiums written	$ 5,685	$ 578	$ 1,590	$ 6,999	$ 935	$ 2,012	$ —	$ 17,799
Net premiums earned	5,547	560	1,526	6,805	1,026	1,962	—	17,426
Losses and loss expenses	3,476	368	1,351	3,189	431	589	245	9,649
Policy benefits	—	—	—	—	—	517	—	517
Policy acquisition costs	518	116	81	1,625	257	478	—	3,075
Administrative expenses	599	74	9	1,026	54	285	198	2,245
Underwriting income (loss)	954	2	85	965	284	93	(443)	1,940
Net investment income	1,060	22	26	545	316	268	15	2,252
Other (income) expense	(12)	1	2	(18)	(4)	3	(162)	(190)
Amortization expense of purchased intangibles	—	—	31	74	—	3	—	108
Segment income (loss)	2,026	23	78	1,454	604	355	(266)	4,274
Net realized gains (losses) including OTTI							(507)	(507)
Interest expense							280	280
Income tax expense							634	634
Net income (loss)							$ (1,687)	$ 2,853

Underwriting assets are reviewed in total by management for purposes of decision-making. Other than Unpaid losses and loss expenses, Reinsurance recoverables, Goodwill and Other intangible assets, Chubb does not allocate assets to its segments.

The following table presents net premiums earned for each segment by line of business:

(in millions of U.S. dollars)	For the Year Ended December 31 2016	2015	2014
North America Commercial P&C Insurance			
Property & other short-tail lines	**$ 1,963**	$ 1,040	$ 1,113
Casualty & all other	**9,552**	4,175	4,021
A&H	**702**	419	413
Total North America Commercial P&C Insurance	**12,217**	5,634	5,547
North America Personal P&C Insurance			
Personal automobile	**699**	186	130
Personal homeowners	**3,007**	579	309
Personal other	**613**	183	121
Total North America Personal P&C Insurance	**4,319**	948	560
North America Agricultural Insurance	**1,316**	1,364	1,526
Overseas General Insurance			
Property & other short-tail lines	**2,133**	1,833	1,892
Casualty & all other	**2,177**	1,361	1,425
Personal lines	**1,626**	1,211	1,204
A&H	**2,196**	2,066	2,284
Total Overseas General Insurance	**8,132**	6,471	6,805
Global Reinsurance			
Property & other short-tail lines	**118**	155	246
Property catastrophe	**185**	219	253
Casualty & all other	**407**	475	527
Total Global Reinsurance	**710**	849	1,026
Life Insurance			
Life	**1,002**	931	981
A&H	**1,053**	1,016	981
Total Life Insurance	**2,055**	1,947	1,962
Total net premiums earned	**$ 28,749**	$ 17,213	$ 17,426

The following table presents net premiums earned by geographic region. Allocations have been made on the basis of location of risk:

	North America	Europe [(1)]	Asia Pacific/Far East	Latin America
2016	**70%**	**12%**	**11%**	**7%**
2015	60%	15%	15%	10%
2014	58%	16%	16%	10%

(1) Europe includes Eurasia and Africa region.

16 . Earnings per share

(in millions of U.S. dollars, except share and per share data)	Year Ended December 31 2016	2015	2014
Numerator:			
Net income	**$ 4,135**	$ 2,834	$ 2,853
Denominator:			
Denominator for basic earnings per share:			
Weighted-average shares outstanding	**462,519,789**	325,589,361	335,609,899
Denominator for diluted earnings per share:			
Share-based compensation plans	**3,429,610**	3,246,017	3,376,388
Weighted-average shares outstanding and assumed conversions	**465,949,399**	328,835,378	338,986,287
Basic earnings per share	**$ 8.94**	$ 8.71	$ 8.50
Diluted earnings per share	**$ 8.87**	$ 8.62	$ 8.42
Potential anti-dilutive share conversions	**1,206,828**	1,601,668	1,024,788

Excluded from weighted-average shares outstanding and assumed conversions is the impact of securities that would have been anti-dilutive during the respective years. Shares outstanding in 2016 included 136,951,452 shares issued in connection with the Chubb Corp acquisition.

17 . Related party transactions

Starr Indemnity & Liability Company and its affiliates (collectively, Starr)
We have a number of agency and reinsurance agreements with Starr, the Chairman of which is related to a member of our senior management team. A number of these agreements pre-dated our acquisition of Chubb Corp; however, in connection with our acquisition of Chubb Corp on January 14, 2016, we obtained Chubb Corp's pre-existing business with Starr, which included agency agreements and agreements in which Chubb Corp was a reinsurer to Starr. Our Board has reviewed and approved our arrangements with Starr.

We have agency, claims services and underwriting services agreements with various Starr subsidiaries. Under the agency agreements, we secure the ability to sell our insurance policies through Starr as one of our non-exclusive agents for writing policies, contracts, binders, or agreements of insurance or reinsurance. Under the claims services agreements, Starr adjusts the claims under policies and arranges for third party treaty and facultative agreements covering such policies. Under the underwriting services agreements, Starr underwrites insurance policies on our behalf and we agree to reinsure such policies to Starr under one or more quota reinsurance agreements. For the years ended December 31, 2016 , 2015 , and 2014 we generated $658 million , $305 million , and $314 million , respectively, in gross premiums written through these agreements. In addition, we ceded $ 208 million , $ 78 million , and $ 84 million to Starr as part of our reinsurance program on the underlying business for the years ended December 31, 2016 , 2015 , and 2014 , respectively. We paid commissions to Starr of $145 million , $60 million , and $ 63 million and received commissions from Starr of $56 million , $19 million , and $20 million for the years ended December 31, 2016, 2015, and 2014, respectively, under these agreements. We incurred net Losses and loss expenses of $ 313 million , $ 137 million , and $ 91 million , for the years ended December 31, 2016 , 2015 , and 2014 , respectively, under these agreements.

Certain agency agreements also contain a profit-sharing arrangement based on loss ratios, triggered if Starr underwrites a minimum of $20 million of annual program business net written premiums on our behalf. No profit share commission has been payable yet under this arrangement. Another agency agreement contains a profit-sharing arrangement based on the earned premiums for the business underwritten by Starr (excluding workers' compensation) and the reinsurance recoveries associated with excess of loss reinsurance agreements placed by Starr for the business underwritten. No profit share commission under this arrangement has been payable yet.

Reinsurance recoverable on losses and loss expenses due from Starr was $412 million and $112 million as of December 31, 2016 and 2015, respectively, and the amount of ceded reinsurance premium payable included in Insurance and reinsurance balances payable in the consolidated balance sheet was $72 million and $18 million , respectively.

The Chubb Charitable Foundation – Bermuda
The Chubb Charitable Foundation is an unconsolidated not-for-profit organization whose primary purpose is to fund charitable causes in Bermuda. The Trustees are principally Chubb management. Chubb maintains a non-interest bearing demand note receivable from the Chubb Charitable Foundation – Bermuda (Borrower), the balance of which was $ 23 million and $ 24 million at December 31, 2016 and 2015 , respectively. The receivable is included in Other assets in the consolidated balance sheets. The Borrower has used the related proceeds to finance investments in Bermuda real estate, some of which have been rented to Chubb employees at rates established by independent, professional real estate appraisers. The Borrower uses income from the investments to both repay the note and to fund charitable activities. Accordingly, we report the demand note at the lower of its principal value or the fair value of assets held by the Borrower to repay the loan, including the real estate properties.

ABR Re
ABR Re is a variable interest entity of which we own 11.3 percent ; however, Chubb is not the primary beneficiary and does not consolidate ABR Re because Chubb does not have the power to control and direct ABR Re's most significant activities, including investing and underwriting. Our minority ownership interest is accounted fo r under the equity method of accounting. Chubb cedes premiums to ABR Re and recognizes the associated commissions. Refer to Note 3 e) for additional information on the results of operations related to ABR Re.

18 . Statutory financial information

Our subsidiaries file financial statements prepared in accordance with statutory accounting practices prescribed or permitted by insurance regulators. Statutory accounting differs from GAAP in the reporting of certain reinsurance contracts, investments, subsidiaries, acquisition expenses, fixed assets, deferred income taxes, and certain other items. Some jurisdictions impose complex regulatory requirements on insurance companies while other jurisdictions impose fewer requirements. In some jurisdictions, we must obtain licenses issued by governmental authorities to conduct local insurance business. These licenses may be subject to reserves and minimum capital and solvency tests. Jurisdictions may impose fines, censure, and/or criminal sanctions for violation of regulatory requirements. The 2016 amounts below are based on estimates.

Chubb's insurance and reinsurance subsidiaries are subject to insurance laws and regulations in the jurisdictions in which they operate. These regulations include restrictions that limit the amount of dividends or other distributions, such as loans or cash advances, available to shareholders without prior approval of the local insurance regulatory authorities. The amount of dividends available to be paid in 2017 without prior approval totals $3.7 billion .

The statutory capital and surplus of our insurance subsidiaries met regulatory requirements for 2016 , 2015 , and 2014 . The minimum amounts of statutory capital and surplus necessary to satisfy regulatory requirements was $22.8 billion and $ 14.5 billion for December 31, 2016 and 2015 , respectively. These minimum regulatory capital requirements were significantly lower than the corresponding amounts required by the rating agencies which review Chubb's insurance and reinsurance subsidiaries.

The following tables present the combined statutory capital and surplus and statutory net income (loss) of our Property and casualty and Life subsidiaries:

	December 31	
(in millions of U.S. dollars)	**2016**	2015
Statutory capital and surplus		
Property and casualty	**$ 37,946**	$ 19,680
Life	**$ 1,294**	$ 1,207

	Year Ended December 31		
(in millions of U.S. dollars)	**2016**	2015	2014
Statutory net income (loss)			
Property and casualty	**$ 7,042**	$ 2,712	$ 3,378
Life	**$ 46**	$ (148)	$ (248)

Several insurance subsidiaries follow accounting practices prescribed or permitted by the jurisdiction of domicile that differ from the applicable local statutory practice. The application of prescribed or permitted accounting practices does not have a material impact on Chubb's statutory surplus and income. As prescribed by the Restructuring discussed previously in Note 7 , certain of our U.S. subsidiaries discount certain A&E liabilities, which increased statutory capital and surplus by approximately $ 155 million and $144 million at December 31, 2016 and 2015 , respectively.

Federal Insurance Company (Federal), a direct subsidiary of Chubb INA Holdings Inc., has a permitted practice granted by the Indiana Department of Insurance that relates to its investments in foreign subsidiaries and affiliates. Under Statement of Statutory Accounting Principles No. 97, Investments in Subsidiary, Controlled and Affiliated Entities, A Replacement of SSAP No. 88, in order for a reporting entity to admit its investments in foreign subsidiaries and affiliates, audited financial statements of the subsidiary or affiliate must be obtained to support the carrying value. Such financial statements must be prepared in accordance with U.S. GAAP, or alternatively, in accordance with the local statutory requirements in the subsidiary's or affiliate's country of domicile, with an audited footnote reconciliation of net income and shareholder's equity as reported to a U.S. GAAP basis. With the explicit permission of the Indiana Department of Insurance, Federal obtains audited financial statements for its admitted foreign subsidiaries and affiliates, which had an aggregate carrying value of $ 308 million at December 31, 2016 prepared in accordance with their respective local statutory requirements and supplemented with a separate unaudited reconciliation of shareholder's equity as reported to a U.S. GAAP basis.

19 . Information provided in connection with outstanding debt of subsidiaries

In connection with the Chubb Corp acquisition, Chubb INA Holdings Inc. entered into a series of intercompany loans totaling $10 billion involving its parents, Chubb Group Holdings Inc. and Chubb Limited. The weighted-average interest rate is 3.3 percent with fixed interest rates ranging from 2.3 percent to 4.35 percent and various maturity dates from 2021 to 2046. As part of the acquisition, Chubb INA Holdings Inc. assumed $3.3 billion par value outstanding debt of Chubb Corp, fair valued at $3.8 billion at the acquisition date. Chubb INA Holdings Inc. assumed Chubb Corp's rights, duties and obligations and Chubb Limited fully and unconditionally guarantees Chubb INA Holding Inc.'s payment obligations under these debts.

The following tables present condensed consolidating financial information at December 31, 2016 and December 31, 2015 , and for the years ended December 31, 2016 , 2015 , and 2014 for Chubb Limited (Parent Guarantor) and Chubb INA Holdings Inc. (Subsidiary Issuer). The transactions noted above are reflected in the tables below. The Subsidiary Issuer is an indirect 100 percent-owned subsidiary of the Parent Guarantor. The Parent Guarantor fully and unconditionally guarantees certain of the debt of the Subsidiary Issuer. Condensed consolidating financial information of the Parent Guarantor and Subsidiary Issuer are presented on the equity method of accounting. The revenues and expenses and cash flows of the subsidiaries of the Subsidiary Issuer are presented in the Other Chubb Limited Subsidiaries column on a combined basis.

Condensed Consolidating Balance Sheet at December 31, 2016

(in millions of U.S. dollars)	Chubb Limited (Parent Guarantor)	Chubb INA Holdings Inc. (Subsidiary Issuer)	Other Chubb Limited Subsidiaries	Consolidating Adjustments and Eliminations	Chubb Limited Consolidated
Assets					
Investments	$ 27	$ 485	$ 98,582	$ —	$ 99,094
Cash [1]	1	1	1,965	(982)	985
Insurance and reinsurance balances receivable	—	—	10,498	(1,528)	8,970
Reinsurance recoverable on losses and loss expenses	—	—	24,496	(10,919)	13,577
Reinsurance recoverable on policy benefits	—	—	1,153	(971)	182
Value of business acquired	—	—	355	—	355
Goodwill and other intangible assets	—	—	22,095	—	22,095
Investments in subsidiaries	38,408	49,509	—	(87,917)	—
Due from subsidiaries and affiliates, net	10,482	—	—	(10,482)	—
Other assets	3	436	18,442	(4,353)	14,528
Total assets	$ 48,921	$ 50,431	$ 177,586	$ (117,152)	$ 159,786
Liabilities					
Unpaid losses and loss expenses	$ —	$ —	$ 70,683	$ (10,143)	$ 60,540
Unearned premiums	—	—	18,538	(3,759)	14,779
Future policy benefits	—	—	6,007	(971)	5,036
Due to subsidiaries and affiliates, net	—	10,209	273	(10,482)	—
Affiliated notional cash pooling programs [1]	363	619	—	(982)	—
Repurchase agreements	—	—	1,403	—	1,403
Short-term debt	—	500	—	—	500
Long-term debt	—	12,599	11	—	12,610
Trust preferred securities	—	308	—	—	308
Other liabilities	283	1,582	17,368	(2,898)	16,335
Total liabilities	646	25,817	114,283	(29,235)	111,511
Total shareholders' equity	48,275	24,614	63,303	(87,917)	48,275
Total liabilities and shareholders' equity	$ 48,921	$ 50,431	$ 177,586	$ (117,152)	$ 159,786

(1) Chubb maintains two notional multicurrency cash pools (Pools) with a third-party bank. Refer to Note 1 f) for additional information. At December 31, 2016 , the cash balance of one or more entities was negative; however, the overall Pool balances were positive.

Condensed Consolidating Balance Sheet at December 31, 2015

(in millions of U.S. dollars)	Chubb Limited (Parent Guarantor)	Chubb INA Holdings Inc. (Subsidiary Issuer)	Other Chubb Limited Subsidiaries	Consolidating Adjustments and Eliminations	Chubb Limited Consolidated
Assets					
Investments	$ 28	$ 7,839	$ 58,384	$ —	$ 66,251
Cash (1)	1	2	2,743	(971)	1,775
Insurance and reinsurance balances receivable	—	—	6,075	(752)	5,323
Reinsurance recoverable on losses and loss expenses	—	—	20,124	(8,738)	11,386
Reinsurance recoverable on policy benefits	—	—	1,129	(942)	187
Value of business acquired	—	—	395	—	395
Goodwill and other intangible assets	—	—	5,683	—	5,683
Investments in subsidiaries	29,612	18,386	—	(47,998)	—
Due from subsidiaries and affiliates, net	644	1,800	—	(2,444)	—
Other assets	8	457	14,434	(3,593)	11,306
Total assets	$ 30,293	$ 28,484	$ 108,967	$ (65,438)	$ 102,306
Liabilities					
Unpaid losses and loss expenses	$ —	$ —	$ 45,490	$ (8,187)	$ 37,303
Unearned premiums	—	—	10,243	(1,804)	8,439
Future policy benefits	—	—	5,749	(942)	4,807
Due to subsidiaries and affiliates, net	—	—	2,444	(2,444)	—
Affiliated notional cash pooling programs (1)	882	89	—	(971)	—
Repurchase agreements	—	—	1,404	—	1,404
Long-term debt	—	9,378	11	—	9,389
Trust preferred securities	—	307	—	—	307
Other liabilities	276	1,422	12,916	(3,092)	11,522
Total liabilities	1,158	11,196	78,257	(17,440)	73,171
Total shareholders' equity	29,135	17,288	30,710	(47,998)	29,135
Total liabilities and shareholders' equity	$ 30,293	$ 28,484	$ 108,967	$ (65,438)	$ 102,306

(1) Chubb maintains two notional multicurrency cash pools (Pools) with a third-party bank. Refer to Note 1 f) for additional information. At December 31, 2015 , the cash balance of one or more entities was negative; however, the overall Pool balances were positive.

Condensed Consolidating Statements of Operations and Comprehensive Income

For the Year Ended December 31, 2016 (in millions of U.S. dollars)	Chubb Limited (Parent Guarantor)	Chubb INA Holdings Inc. (Subsidiary Issuer)	Other Chubb Limited Subsidiaries	Consolidating Adjustments and Eliminations	Chubb Limited Consolidated
Net premiums written	$ —	$ —	$ 28,145	$ —	$ 28,145
Net premiums earned	—	—	28,749	—	28,749
Net investment income	3	11	2,851	—	2,865
Equity in earnings of subsidiaries	3,901	2,555	—	(6,456)	—
Net realized gains (losses) including OTTI	—	3	(148)	—	(145)
Losses and loss expenses	—	—	16,052	—	16,052
Policy benefits	—	—	588	—	588
Policy acquisition costs and administrative expenses	64	82	8,839	—	8,985
Interest (income) expense	(353)	908	50	—	605
Other (income) expense	(25)	35	(232)	—	(222)
Amortization of purchased intangibles	—	—	19	—	19
Chubb integration expenses	62	126	304	—	492
Income tax expense (benefit)	21	(416)	1,210	—	815
Net income	$ 4,135	$ 1,834	$ 4,622	$ (6,456)	$ 4,135
Comprehensive income	$ 4,556	$ 2,001	$ 5,045	$ (7,046)	$ 4,556

Condensed Consolidating Statements of Operations and Comprehensive Income

For the Year Ended December 31, 2015 (in millions of U.S. dollars)	Chubb Limited (Parent Guarantor)	Chubb INA Holdings Inc. (Subsidiary Issuer)	Other Chubb Limited Subsidiaries	Consolidating Adjustments and Eliminations	Chubb Limited Consolidated
Net premiums written	$ —	$ —	$ 17,713	$ —	$ 17,713
Net premiums earned	—	—	17,213	—	17,213
Net investment income	3	4	2,187	—	2,194
Equity in earnings of subsidiaries	2,673	1,038	—	(3,711)	—
Net realized gains (losses) including OTTI	—	(9)	(411)	—	(420)
Losses and loss expenses	—	—	9,484	—	9,484
Policy benefits	—	—	543	—	543
Policy acquisition costs and administrative expenses	63	28	5,120	—	5,211
Interest (income) expense	(32)	302	30	—	300
Other (income) expense	(208)	(4)	161	—	(51)
Amortization of purchased intangibles	—	—	171	—	171
Chubb integration expenses	3	29	1	—	33
Income tax expense (benefit)	16	(349)	795	—	462
Net income	$ 2,834	$ 1,027	$ 2,684	$ (3,711)	$ 2,834
Comprehensive income (loss)	$ 908	$ (192)	$ 757	$ (565)	$ 908

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Condensed Consolidating Statements of Operations and Comprehensive Income

For the Year Ended December 31, 2014 (in millions of U.S. dollars)	Chubb Limited (Parent Guarantor)	Chubb INA Holdings Inc. (Subsidiary Issuer)	Other Chubb Limited Subsidiaries	Consolidating Adjustments and Eliminations	Chubb Limited Consolidated
Net premiums written	$ —	$ —	$ 17,799	$ —	$ 17,799
Net premiums earned	—	—	17,426	—	17,426
Net investment income	2	2	2,248	—	2,252
Equity in earnings of subsidiaries	2,707	791	—	(3,498)	—
Net realized gains (losses) including OTTI	—	53	(560)	—	(507)
Losses and loss expenses	—	—	9,649	—	9,649
Policy benefits	—	—	517	—	517
Policy acquisition costs and administrative expenses	78	26	5,216	—	5,320
Interest (income) expense	(35)	277	38	—	280
Other (income) expense	(201)	27	(16)	—	(190)
Amortization of purchased intangibles	—	—	108	—	108
Income tax expense (benefit)	14	(94)	714	—	634
Net income	$ 2,853	$ 610	$ 2,888	$ (3,498)	$ 2,853
Comprehensive income	$ 2,892	$ 583	$ 2,926	$ (3,509)	$ 2,892

Condensed Consolidating Statement of Cash Flows

For the Year Ended December 31, 2016 (in millions of U.S. dollars)	Chubb Limited (Parent Guarantor)	Chubb INA Holdings Inc. (Subsidiary Issuer)	Other Chubb Limited Subsidiaries	Consolidating Adjustments and Eliminations	Chubb Limited Consolidated
Net cash flows from operating activities	**$ 3,618**	**$ 4,305**	**$ 5,536**	**$ (8,167)**	**$ 5,292**
Cash flows from investing activities					
Purchases of fixed maturities available for sale	—	(156)	(30,659)	—	(30,815)
Purchases of fixed maturities held to maturity	—	—	(282)	—	(282)
Purchases of equity securities	—	—	(146)	—	(146)
Sales of fixed maturities available for sale	—	66	16,611	—	16,677
Sales of equity securities	—	—	1,000	—	1,000
Maturities and redemptions of fixed maturities available for sale	—	66	9,283	—	9,349
Maturities and redemptions of fixed maturities held to maturity	—	—	958	—	958
Net change in short-term investments	—	7,943	4,407	—	12,350
Net derivative instruments settlements	—	(9)	(159)	—	(168)
Acquisition of subsidiaries (net of cash acquired of $71)	—	(14,282)	34	—	(14,248)
Capital contribution	(2,330)	(215)	(2,330)	4,875	—
Other	—	(3)	13	—	10
Net cash flows used for investing activities	(2,330)	(6,590)	(1,270)	4,875	(5,315)
Cash flows from financing activities					
Dividends paid on Common Shares	(1,173)	—	—	—	(1,173)
Proceeds from issuance of repurchase agreements	—	—	2,310	—	2,310
Repayment of repurchase agreements	—	—	(2,311)	—	(2,311)
Proceeds from share-based compensation plans, including windfall tax benefits	—	—	167	—	167
Advances (to) from affiliates	404	(572)	168	—	—
Dividends to parent company	—	—	(8,167)	8,167	—
Capital contribution	—	2,330	2,545	(4,875)	—
Net proceeds from (payments to) affiliated notional cash pooling programs (1)	(519)	530	—	(11)	—
Policyholder contract deposits	—	—	522	—	522
Policyholder contract withdrawals	—	—	(253)	—	(253)
Other	—	(4)	—	—	(4)
Net cash flows (used for) from financing activities	(1,288)	2,284	(5,019)	3,281	(742)
Effect of foreign currency rate changes on cash and cash equivalents	—	—	(25)	—	(25)
Net decrease in cash	—	(1)	(778)	(11)	(790)
Cash – beginning of year (1)	1	2	2,743	(971)	1,775
Cash – end of year (1)	$ 1	$ 1	$ 1,965	$ (982)	$ 985

(1) Chubb maintains two notional multi-currency cash pools (Pools) with a third-party bank. Refer to Note 1 f) for additional information. At December 31, 2016 and 2015 , the cash balance of one or more entities was negative; however, the overall Pool balances were positive.

Condensed Consolidating Statement of Cash Flows

For the Year Ended December 31, 2015 (in millions of U.S. dollars)	Chubb Limited (Parent Guarantor)	Chubb INA Holdings Inc. (Subsidiary Issuer)	Other Chubb Limited Subsidiaries	Consolidating Adjustments and Eliminations	Chubb Limited Consolidated
Net cash flows from operating activities	$ 3,125	$ 682	$ 3,836	$ (3,779)	$ 3,864
Cash flows from investing activities					
Purchases of fixed maturities available for sale	—	—	(16,053)	(18)	(16,071)
Purchases of fixed maturities held to maturity	—	—	(62)	—	(62)
Purchases of equity securities	—	—	(158)	—	(158)
Sales of fixed maturities available for sale	—	—	10,814	—	10,814
Sales of equity securities	—	—	183	—	183
Maturities and redemptions of fixed maturities available for sale	—	—	6,567	—	6,567
Maturities and redemptions of fixed maturities held to maturity	—	—	669	—	669
Net change in short-term investments	—	(7,588)	(628)	—	(8,216)
Net derivative instruments settlements	—	(9)	(12)	—	(21)
Acquisition of subsidiaries (net of cash acquired of $629)	—	—	264	—	264
Capital contribution	(2,670)	(625)	(2,791)	6,086	—
Other	—	(25)	(256)	18	(263)
Net cash flows used for investing activities	(2,670)	(8,247)	(1,463)	6,086	(6,294)
Cash flows from financing activities					
Dividends paid on Common Shares	(862)	—	—	—	(862)
Common Shares repurchased	—	—	(758)	—	(758)
Proceeds from issuance of long-term debt	—	6,090	—	—	6,090
Proceeds from issuance of repurchase agreements	—	—	2,029	—	2,029
Repayment of long-term debt	—	(1,150)	—	—	(1,150)
Repayment of repurchase agreements	—	—	(2,027)	—	(2,027)
Proceeds from share-based compensation plans, including windfall tax benefits	—	—	131	—	131
Advances (to) from affiliates	(228)	95	133	—	—
Dividends to parent company	—	—	(3,779)	3,779	—
Capital contribution	—	2,791	3,295	(6,086)	—
Net proceeds from (payments to) affiliated notional cash pooling programs (1)	636	(220)	—	(416)	—
Policyholder contract deposits	—	—	503	—	503
Policyholder contract withdrawals	—	—	(221)	—	(221)
Other	—	(40)	—	—	(40)
Net cash flows (used for) from financing activities	(454)	7,566	(694)	(2,723)	3,695
Effect of foreign currency rate changes on cash and cash equivalents	—	—	(145)	—	(145)
Net increase in cash	1	1	1,534	(416)	1,120
Cash – beginning of year (1)	—	1	1,209	(555)	655
Cash – end of year (1)	$ 1	$ 2	$ 2,743	$ (971)	$ 1,775

(1) Chubb maintains two notional multi-currency cash pools (Pools) with a third-party bank. Refer to Note 1 f) for additional information. At December 31, 2015 and 2014 , the cash balance of one or more entities was negative; however, the overall Pool balances were positive.

Condensed Consolidating Statement of Cash Flows

For the Year Ended December 31, 2014 (in millions of U.S. dollars)	Chubb Limited (Parent Guarantor)	Chubb INA Holdings Inc. (Subsidiary Issuer)	Other Chubb Limited Subsidiaries	Consolidating Adjustments and Eliminations	Chubb Limited Consolidated
Net cash flows from operating activities	$ 541	$ 210	$ 4,419	$ (674)	$ 4,496
Cash flows from investing activities					
Purchases of fixed maturities available for sale	—	—	(15,816)	263	(15,553)
Purchases of fixed maturities held to maturity	—	—	(267)	—	(267)
Purchases of equity securities	—	—	(251)	—	(251)
Sales of fixed maturities available for sale	—	—	7,750	(268)	7,482
Sales of equity securities	—	—	670	—	670
Maturities and redemptions of fixed maturities available for sale	—	—	6,413	—	6,413
Maturities and redemptions of fixed maturities held to maturity	—	—	875	—	875
Net change in short-term investments	—	(216)	(392)	5	(603)
Net derivative instruments settlements	—	53	(283)	—	(230)
Acquisition of subsidiaries (net of cash acquired of $20)	—	—	(766)	—	(766)
Capital contribution	—	(258)	—	258	—
Other	—	(8)	(266)	—	(274)
Net cash flows used for investing activities	—	(429)	(2,333)	258	(2,504)
Cash flows from financing activities					
Dividends paid on Common Shares	(862)	—	—	—	(862)
Common Shares repurchased	—	—	(1,429)	—	(1,429)
Proceeds from issuance of long-term debt	—	699	—	—	699
Proceeds from issuance of repurchase agreements	—	—	1,978	—	1,978
Repayment of long-term debt	—	(500)	(1)	—	(501)
Repayment of repurchase agreements	—	—	(1,977)	—	(1,977)
Proceeds from share-based compensation plans, including windfall tax benefits	—	—	127	—	127
Advances (to) from affiliates	260	(298)	38	—	—
Dividends to parent company	—	—	(674)	674	—
Capital contribution	—	—	258	(258)	—
Net proceeds from affiliated notional cash pooling programs (1)	61	309	—	(370)	—
Policyholder contract deposits	—	—	366	—	366
Policyholder contract withdrawals	—	—	(172)	—	(172)
Other		(6)	—	—	(6)
Net cash flows (used for) from financing activities	(541)	204	(1,486)	46	(1,777)
Effect of foreign currency rate changes on cash and cash equivalents	—	—	(139)	—	(139)
Net (decrease) increase in cash	—	(15)	461	(370)	76
Cash – beginning of year (1)	—	16	748	(185)	579
Cash – end of year (1)	$ —	$ 1	$ 1,209	$ (555)	$ 655

(1) Chubb maintains two notional multi-currency cash pools (Pools) with a third-party bank. Refer to Note 1 f) for additional information. At December 31, 2014 and 2013, the cash balance of one or more entities was negative; however, the overall Pool balances were positive.

20 . Condensed unaudited quarterly financial data

	Three Months Ended			
(in millions of U.S. dollars, except per share data)	March 31 2016	June 30 2016	September 30 2016	December 31 2016
Net premiums earned	**$ 6,597**	**$ 7,405**	**$ 7,688**	**$ 7,059**
Net investment income	**674**	**708**	**739**	**744**
Net realized gains (losses) including OTTI	**(394)**	**(216)**	**100**	**365**
Total revenues	**$ 6,877**	**$ 7,897**	**$ 8,527**	**$ 8,168**
Losses and loss expenses	**$ 3,674**	**$ 4,254**	**$ 4,269**	**$ 3,855**
Policy benefits	**$ 126**	**$ 146**	**$ 155**	**$ 161**
Net income	**$ 439**	**$ 726**	**$ 1,360**	**$ 1,610**
Basic earnings per share	**$ 0.98**	**$ 1.55**	**$ 2.90**	**$ 3.44**
Diluted earnings per share	**$ 0.97**	**$ 1.54**	**$ 2.88**	**$ 3.41**

	Three Months Ended			
(in millions of U.S. dollars, except per share data)	March 31 2015	June 30 2015	September 30 2015	December 31 2015
Net premiums earned	$ 3,927	$ 4,360	$ 4,719	$ 4,207
Net investment income	551	562	549	532
Net realized gains (losses) including OTTI	(89)	126	(397)	(60)
Total revenues	$ 4,389	$ 5,048	$ 4,871	$ 4,679
Losses and loss expenses	$ 2,122	$ 2,417	$ 2,643	$ 2,302
Policy benefits	$ 142	$ 153	$ 89	$ 159
Net income	$ 681	$ 942	$ 528	$ 683
Basic earnings per share	$ 2.08	$ 2.89	$ 1.63	$ 2.10
Diluted earnings per share	$ 2.05	$ 2.86	$ 1.62	$ 2.08

SCHEDULE I

Chubb Limited and Subsidiaries

SUMMARY OF INVESTMENTS – OTHER THAN INVESTMENTS IN RELATED PARTIES

December 31, 2016 (in millions of U.S. dollars)	Cost or Amortized Cost	Fair Value	Amount at Which Shown in the Balance Sheet
Fixed maturities available for sale			
U.S. Treasury and agency	$ 2,883	$ 2,870	$ 2,870
Foreign	20,929	21,440	21,440
Corporate securities	23,736	24,149	24,149
Mortgage-backed securities	14,066	14,007	14,007
States, municipalities, and political subdivisions	17,922	17,649	17,649
Total fixed maturities available for sale	79,536	80,115	80,115
Fixed maturities held to maturity			
U.S. Treasury and agency	655	661	655
Foreign	640	667	640
Corporate securities	2,771	2,795	2,771
Mortgage-backed securities	1,393	1,428	1,393
States, municipalities, and political subdivisions	5,185	5,119	5,185
Total fixed maturities held to maturity	10,644	10,670	10,644
Equity securities			
Industrial, miscellaneous, and all other	706	814	814
Short-term investments	3,002	3,002	3,002
Other investments	4,270	4,519	4,519
Total investments - other than investments in related parties	$ 98,158	$ 99,120	$ 99,094

SCHEDULE II

Chubb Limited and Subsidiaries

CONDENSED FINANCIAL INFORMATION OF REGISTRANT

BALANCE SHEETS (Parent Company Only)

(in millions of U.S. dollars)		**December 31 2016**		December 31 2015
Assets				
Investments in subsidiaries and affiliates on equity basis	**$**	**38,408**	$	29,612
Short-term investments		**2**		1
Other investments, at cost		**25**		27
Total investments		**38,435**		29,640
Cash		**1**		1
Due from subsidiaries and affiliates, net		**10,482**		644
Other assets		**3**		8
Total assets	**$**	**48,921**	$	30,293
Liabilities				
Affiliated notional cash pooling programs [1]	**$**	**363**	$	882
Accounts payable, accrued expenses, and other liabilities		**283**		276
Total liabilities		**646**		1,158
Shareholders' equity				
Common Shares		**11,121**		7,833
Common Shares in treasury		**(1,480)**		(1,922)
Additional paid-in capital		**15,335**		4,481
Retained earnings		**23,613**		19,478
Accumulated other comprehensive income (loss)		**(314)**		(735)
Total shareholders' equity		**48,275**		29,135
Total liabilities and shareholders' equity	**$**	**48,921**	$	30,293

(1) Chubb maintains two notional multicurrency cash pools (Pools) with a third-party bank. Refer to Note 1 f) for additional information.

The condensed financial information should be read in conjunction with the consolidated financial statements and notes thereto.

SCHEDULE II (continued)
Chubb Limited and Subsidiaries

CONDENSED FINANCIAL INFORMATION OF REGISTRANT

STATEMENTS OF OPERATIONS (Parent Company Only)

	Year Ended December 31		
(in millions of U.S. dollars)	**2016**	2015	2014
Revenues			
Investment income, including interest income	**$ 356**	$ 35	$ 37
Equity in net income of subsidiaries and affiliates	**3,901**	2,673	2,707
	4,257	2,708	2,744
Expenses			
Administrative and other (income) expense	**101**	(142)	(123)
Income tax expense	**21**	16	14
	122	(126)	(109)
Net income	**$ 4,135**	$ 2,834	$ 2,853
Comprehensive income	**$ 4,556**	$ 908	$ 2,892

The condensed financial information should be read in conjunction with the consolidated financial statements and notes thereto.

SCHEDULE II (continued)
Chubb Limited and Subsidiaries

CONDENSED FINANCIAL INFORMATION OF REGISTRANT

STATEMENTS OF CASH FLOWS (Parent Company Only)

	Year Ended December 31		
(in millions of U.S. dollars)	**2016**	2015	2014
Net cash flows from operating activities [1]	**$ 3,618**	$ 3,125	$ 541
Cash flows from investing activities			
Capital contribution	**(2,330)**	(2,670)	—
Net cash flows used for investing activities	**(2,330)**	(2,670)	—
Cash flows from financing activities			
Dividends paid on Common Shares	**(1,173)**	(862)	(862)
Advances (to) from affiliates	**404**	(228)	260
Net proceeds from (payments to) affiliated notional cash pooling programs [2]	**(519)**	636	61
Net cash flows used for financing activities	**(1,288)**	(454)	(541)
Net increase in cash	**—**	1	—
Cash – beginning of year	**1**	—	—
Cash – end of year	**$ 1**	$ 1	$ —

(1) Includes cash dividends received from subsidiaries of $3.4 billion, $2.9 billion, and $300 million in 2016, 2015, and 2014, respectively.
(2) Chubb maintains two notional multicurrency cash pools (Pools) with a third-party bank. Refer to Note 1 f) for additional information.
The condensed financial information should be read in conjunction with the consolidated financial statements and notes thereto.

SCHEDULE IV

Chubb Limited and Subsidiaries

SUPPLEMENTAL INFORMATION CONCERNING REINSURANCE

Premiums Earned

For the years ended December 31, 2016, 2015, and 2014 (in millions of U.S. dollars, except for percentages)	Direct Amount	Ceded To Other Companies	Assumed From Other Companies	Net Amount	Percentage of Amount Assumed to Net
2016					
Property and Casualty	**$ 26,919**	**$ 6,407**	**$ 3,284**	**$ 23,796**	**14%**
Accident and Health	**4,047**	**315**	**219**	**3,951**	**6%**
Life	**845**	**84**	**241**	**1,002**	**24%**
Total	**$ 31,811**	**$ 6,806**	**$ 3,744**	**$ 28,749**	**13%**
2015					
Property and Casualty	$ 14,895	$ 5,373	$ 3,259	$ 12,781	25%
Accident and Health	3,684	351	168	3,501	5%
Life	776	94	249	931	27%
Total	$ 19,355	$ 5,818	$ 3,676	$ 17,213	21%
2014					
Property and Casualty	$ 14,784	$ 4,940	$ 2,923	$ 12,767	23%
Accident and Health	3,971	434	141	3,678	4%
Life	800	91	272	981	28%
Total	$ 19,555	$ 5,465	$ 3,336	$ 17,426	19%

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SCHEDULE VI

Chubb Limited and Subsidiaries

SUPPLEMENTARY INFORMATION CONCERNING PROPERTY AND CASUALTY OPERATIONS

As of and for the years ended December 31, 2016, 2015, and 2014 (in millions of U.S. dollars)

	Deferred Policy Acquisition Costs	Net Reserves for Unpaid Losses and Loss Expenses	Unearned Premiums	Net Premiums Earned	Net Investment Income	Net Losses and Loss Expenses Incurred Related to		Amortization of Deferred Policy Acquisition Costs (1)	Net Paid Losses and Loss Expenses	Net Premiums Written
						Current Year	Prior Year			
2016	**$ 3,537**	**$ 47,832**	**$ 14,779**	**$ 27,747**	**$ 2,656**	**$ 17,256**	**$ (1,204)**	**$ 5,654**	**$ 15,715**	**$ 27,074**
2015	$ 2,219	$ 26,562	$ 8,439	$ 16,282	$ 2,007	$ 10,030	$ (546)	$ 2,692	$ 9,665	$ 16,734
2014	$ 2,057	$ 27,008	$ 8,222	$ 16,445	$ 2,071	$ 10,176	$ (527)	$ 2,805	$ 9,235	$ 16,787

(1) 2016 includes $1,559 million of amortization of the Unearned Premium Reserve (UPR) intangible asset established in connection with the Chubb Corp acquisition. This UPR intangible asset was amortized through Policy acquisition costs in the Consolidated statement of operations.

Exhibit 4.32

Procedures

regarding the

registration of shareholders in the share register

of

Chubb Limited ("the Company")

with registered office in Zurich, Switzerland

The purpose of these procedures (the " **Procedures** ") for registration of shareholders in the share register of the Company (the " **Share Register** ") is to ensure the Company’s compliance with and implement registration restrictions in article 8 of its articles of association (the " **Articles of Association** ") and to facilitate exercise of shareholder voting rights in light of the Company’s status as a U.S.-listed publicly-traded company.

I Background Considerations

1. The Board of Directors has issued these Procedures in view of the following considerations:

- No individual or legal entity may control voting rights with respect to 10% or more of the Company’s registered share capital (see article 8(c) and (d) articles of association of the Company).
- Registered Shares exceeding the limit of 10% shall be entered in the Share Register as shares without voting rights (see article 8(c) and (d) Articles of Association).
- When a shareholder does not agree to confirm, upon request, that it holds the shares in its own name and its own account, the Board of Directors shall cancel relevant Registered Shares or register them without voting rights, (see article 8(e) Articles of Association). Also, the registration of nominees is subject to disclosure of certain information about beneficial owners (see article 8(f) Articles of Association) (such confirmations and disclosures collectively the " **Beneficial Ownership Confirmations** ").
- The Board of Directors may in special cases approve exceptions to the above considerations (see article 8(g) Articles of Association).
- The Company is listed on the New York Stock Exchange. US securities laws provide for extensive disclosure obligations for beneficial owners of 5% or more of the Company's shares. These disclosure obligations enable the Board of Directors to monitor the 10% voting rights limit in the Company's Articles of Association.
- To the benefit of shareholders and the market for the Company’s stock, services operated by clearing organizations minimize the physical handling of securities certificates and foster efficient securities trading and settlement by effecting transfer of interests by means of computerized book entries. In order to provide such services, the securities subject to the services are transferred to, and held by, nominees of such clearing organizations (" **Clearing Nominees** ") (e.g. Cede & Co. as nominee for DTC, which facilitates the vast majority of our stock market trading).

II Requirements for Registration as Shareholder with Voting Rights

A. Registration in General

2. Pursuant to article 8(a) Articles of Association, the Company shall maintain the Share Register in accordance with article 686 of the Swiss Code of Obligations (" **CO** "). The Share Register shall be kept either by the Company itself or by a third party acting on behalf of the Company.

3. Nominees may be registered as shareholders with voting rights, consistent with article 8(f) Articles of Association and the exemptions set forth in section B.

4. The following additional requirements are subject to the exemptions set forth in section B:

i) The entry into the Share Register as shareholder with or without voting rights generally requires that the relevant shareholder duly submits an application when it first acquires Registered Shares (" **Initial Application** "). Unless revoked or otherwise required by the Board of Directors, the Initial Application will also be valid for subsequent acquisitions of Registered Shares by the same shareholder; and

ii) The entry in the Share Register of Registered Shares with voting rights requires the approval of the Board of Directors (article 8(b) Articles of Association). Non-recognized acquirers shall be entered in the Share Register as shareholders without voting rights. The corresponding shares shall be considered as not represented at the general meeting of shareholders.

B. Exemptions

B.1 Exemption from Application and Beneficial Ownership Confirmation Requirements

5. In view of the considerations in section I, the Board of Directors:

(i) directs that all acquirers of shares (the transfer of which have been duly recorded on the books of the Company's transfer agent) shall be registered as shareholders with voting rights without requiring an additional application, provided that the Registered Shares held (or, to the extent known, otherwise controlled) by such acquirers (or, to the extent known, the respective beneficial owners) do not exceed 10% of the registered share capital recorded in the Commercial Register; and

(ii) exempts applicants that seek registration as shareholders with voting rights from the requirement to declare that they have acquired their Registered Shares in their own name and their own account, unless specifically requested in which case the shareholder shall submit an application with the details set out in article 8(a) Articles of Association.

B.2 Exemption for Clearing Nominees

6. In view of the considerations in section I, the Board of Directors:

(i) directs that eligible Clearing Nominees are exempted from the registration limits according to articles 8(c) and (d) Articles of Association as well as from the 10% limit required under section B.1 so long as no beneficial owner holding through an eligible Clearing Nominee exceeds the 10% limit as defined. If the Board of Directors has a reasonable basis to believe a beneficial owner holding through such Clearing Nominee exceeds the 10% limit, then it may require the beneficial owner and its nominees (other than the Clearing Nominee) to submit an application with the details set out in article 8(a) Articles of Association and take the actions permitted in article 8(c)-(g);

(ii) directs that eligible Clearing Nominees shall be registered as shareholders with voting rights with regard to shares acquired in their capacity as Clearing Nominee without being required to file an application for voting rights nor disclose to the Company the names, addresses and share holdings of each person for whom it is holding shares, and further being entitled to rely on the exemptions under section B.1; and

(iii) determines that Cede & Co., the nominee of the Depository Trust Company, and any successor, is an eligible Clearing Nominee, and authorizes the Company's General Counsel to determine, in his or her discretion, the eligibility of other Clearing Nominees for purposes of this section.

III Share Registrar

7. The share registrar (the "Share Registrar") is responsible for the administration of the Share Register. The Company's transfer agent and Share Registrar shall be Computershare, Inc., or any substitute Share Registrar the Company's General Counsel may appoint from time to time.

IV Monitoring of the Share Register

8. The Company's General Counsel shall ensure that the Company's share register may be accessed from Switzerland any time. The Share Registrar shall inform the Company's General Counsel upon request about the composition of the registered shareholders, and the General Counsel shall inform the Chairman of the Board of Directors of any material changes.

9. If there is reason to believe that declarations of shareholders or nominees registered with voting rights are incomplete, incorrect or altered, the Company's General Counsel shall make necessary inquiries, including with regard to the beneficial owners of the shares, and propose measures to be taken to the Chairman of the Board of Directors.

10. None of the exemptions contained in these Procedures shall limit the rights of the Board of Directors under article 8(e) Articles of Association to subsequently request a shareholder to declare that it has acquired its shares in its own name and their own account, or to reintroduce, generally or on a case-by-case basis, a requirement to declare this before registration, (a) if there is a reasonable basis to believe that an acquirer could acquire more than 10% of the registered share capital (as defined in article 8(c) and (d) Articles of Association) or circumvent the Company's registration restrictions, or (b) if the holdings in the Company's shares cease to be subject to the disclosure requirements under US securities laws or any equivalent regulation. The Company's General Counsel is authorized to determine whether these conditions (a) or (b) apply and to make such requests, or to re-introduce such requirements, on the Board of Director's behalf as the Company's General Counsel may deem advisable.

V Cancellation of Entries in the Share Register

11. As provided in article 686a CO and article 8(g) Articles of Association, the Board of Directors may, after consultation with the person concerned, cancel entries in the Share Register with retroactive effect as of the date of registration if the registration was based on false information, if the acquirer or shareholder upon request does not expressly state that it has acquired or holds the shares in its own name and for its own account (article 8(e) Articles of Association), or the registered shareholder or nominee refuses to make the disclosures according to article 8(f) Articles of Association.

12. The Chairman of the Board of Directors shall be empowered to decide upon the cancellation of a registration of a shareholder (or a re-qualification as shareholder without voting rights) or a nominee.

13. The respective shareholder or nominee shall be informed immediately of the cancellation or change of the registration.

VI Implementation; Amendments

The Company's General Counsel is authorized and commissioned to implement these Procedures and any matters related thereto. The Board of Directors may amend these Procedures at any time, including in particular if the Board of Directors comes to different conclusions with respect to the risks of acquirers violating the thresholds stated in article 8(c) and (d) Articles of Association.
Bermuda

November 17, 2016

/s/ Joseph F. Wayland
Secretary

Exhibit 10.12

Chubb Limited
Outside Directors Compensation Parameters
February 2017

- Annual Retainer Fee of $290,000. Paid $170,000 in restricted stock and $120,000 cash or, at the election of the director, $290,000 in restricted stock. Includes expectation of service on up to two committees (not counting service on Executive Committee). No fees are payable for regular board or committee meetings.

- Annual premiums for committee chairs and lead director:

  - Audit-$35,000
  - Compensation-$25,000
  - Nominating & Governance-$20,000
  - Risk & Finance-$20,000
  - Lead director-$50,000

- Annual premiums for selected committee service (non-chair): None.

- Committee chair and lead director service premiums are payable in cash quarterly or, at the election of the director, in restricted stock annually.

- Meeting fees for “special” meetings (required to consider transactions or other special circumstances, as determined jointly by the Lead Director and Chairman): $2,000 per telephone meeting, $3,000 for ‘in person’ meetings. Payable in cash quarterly. Meeting fees as described in this paragraph shall be payable as determined by the Nominating & Governance Committee, but in all cases subject to availability, taking into account paid and allocable Retainer Fees and premiums described above, within the annual compensation cap approved by shareholders.

- Restricted stock will be awarded at beginning of the plan year (i.e. the date of the Annual General Meeting) and become non-forfeitable at end of the plan year, provided that the grantee has remained a Chubb director continuously during that plan year. Increases shall be paid on a pro-rated basis, based on date of award.

Exhibit 10.85

Chubb Limited

Performance Based Restricted Stock Award Terms

under the

Chubb Limited 2016 Long-Term Incentive Plan

The Participant has been granted a Performance Based Restricted Stock Award by Chubb Limited (the “Company”) under the Chubb Limited 2016 Long-Term Incentive Plan (the “Plan”). The shares of Stock granted as Covered Performance Shares and Premium Performance Shares pursuant to this Performance Based Restricted Stock Award shall be subject to the following Performance Based Restricted Stock Award Terms:

1. Terms of Award . The following words and phrases used in these Performance Based Restricted Stock Award Terms shall have the meanings set forth in this paragraph 1:

(a) The “Participant” is [**Insert Name]** , who is the individual recipient of the Performance Based Restricted Stock Award on the specified Grant Date.

(b) The “Grant Date” is [**Insert Date**].

(c) The “Commencement Date” is [**Insert Date**].

(d) The number of “Covered Performance Shares” is **[Insert Number]** , which is 60% **[75% for Chief Executive Officer][66% for Vice Chairman and COO]** of that portion of the Participant’s annual Long-Term Incentive Award which is granted in the form of restricted shares for the year in which the Grant Date occurs, as reflected in the corporate records and shown in the Record-Keeping System in the Participant’s individual account records.

(e) The number of Premium Performance Shares is [**Insert number equal to 65% of the number of Covered Performance Shares]** .

Other words and phrases used in these Performance Based Restricted Stock Award Terms are defined pursuant to paragraph 13 or elsewhere in these Performance Based Restricted Stock Award Terms.

2. Restricted Period . Subject to the limitations of these Performance Based Restricted Stock Award Terms, the “Restricted Period” for the Covered Performance Shares of the Performance Based Restricted Stock Award shall begin on the Grant Date and end on the Vesting Date as described below (but only if the Date of Termination has not occurred before the Vesting Date):

(a) If the Cumulative Performance of the Company during the Performance Period is 50 percent or greater than 50 percent, the Restricted Period shall end for any Covered Performance Shares on the later of the three-year anniversary of the Grant Date and the date the Committee certifies that the requisite Cumulative Performance has been achieved during the Performance Period (the date of certification is referred to as the “Certification Date” and the later of the three-year anniversary of the Grant Date and the Certification Date referred to as the “Vesting Date”). If the Cumulative Performance of the Company during the Performance Period is less than 50 percent, the Restricted Period shall end with respect to a number of the Covered Performance Shares determined by multiplying the total number of Covered Performance Shares by the Performance Percentage (as determined below) on the Vesting Date.

(b) The term “Performance Percentage” shall mean the applicable Performance Percentage determined based on the achievement of the Cumulative Performance over the Performance Period by Chubb Limited:

If the Satisfaction of Chubb Limited of the Cumulative Performance during the applicable Performance Period:	The Performance Percentage will be:
Does not exceed the 25%	0%
Exceeds 25%, but does not meet or exceed 50%	50%, as increased to the extent, if any, provided pursuant to the following provisions of this paragraph (b)
Meets or exceeds 50%	100%

If the performance of Chubb Limited exceeds 25 percent but does not meet or exceed 50 percent of the satisfaction of the Cumulative Performance during the applicable Performance Period, then the Performance Percentage will be a percentage between 50 percent and 100 percent, based on an interpolation of the Chubb Limited performance falling between the 25th percentile and 50th percentile of the satisfaction of the Cumulative Performance during the applicable Performance Period.

(c) For the avoidance of doubt, the Restricted Period shall end only on or after the Committee’s certification that the Cumulative Performance for the Performance Period has been satisfied. Any Covered Performance Shares that have not vested as of the end of the Restricted Period shall be forfeited by the Participant as of the Vesting Date.

3. Retirement . If the Participant’s Date of Termination occurs because of Retirement, then for any Covered Performance Shares and any Premium Performance Shares as to which the Restricted Period has not otherwise ended prior to the Date of Termination, the Participant shall become vested and the Restricted Period shall end for any Covered Performance Shares if and when the terms of paragraph 2 are satisfied with respect to such Covered Performance Shares and for any Premium Performance Shares if and when the terms of paragraphs 7 and 8 are satisfied with respect to such Premium Performance Shares, in each case, determined as though the Participant had remained employed and the Date of Termination had not occurred prior to the end of any applicable Restricted Period for purposes of this Agreement.

4. Death, Long-Term Disability and Change in Control . Notwithstanding the provisions of paragraph 2, the Restricted Period for Covered Performance Shares shall end prior to the date specified in the schedule set forth in paragraph 2 to the extent set forth below:

(a) For Covered Performance Shares as to which the Restricted Period has not ended prior to the Date of Termination, the Restricted Period for such Covered Performance Shares shall end upon the Participant’s Date of Termination, and the Covered Performance Shares shall fully vest upon the Date of Termination, if the Date of Termination occurs by reason of the Participant’s death.

(b) For Covered Performance Shares as to which the Restricted Period has not ended prior to the Date of Termination, the Restricted Period for such Covered Performance Shares shall end upon the Participant’s Date of Termination, and the Covered Performance Shares shall fully vest upon the Date of Termination, if the Date of Termination occurs by reason of the Participant’s Long-Term Disability.

(c) If the Participant's Date of Termination is a Change in Control Date of Termination, then, for Covered Performance Shares, if any, as to which the Restricted Period has not ended prior to the Participant’s Date of Termination, the Restricted Period for such Covered Performance Shares will end on the Change in Control Date of Termination and the Covered Performance Shares shall fully vest upon the Date of Termination; provided that if the Participant's Change in Control Date of Termination occurs within the 180-day period immediately preceding the date of a Change in

Control, then the Restricted Period for all unvested Covered Performance Shares held by the Participant on the Date of Termination will end, and those Covered Performance Shares will vest on the date of a Change in Control.

5. Qualifying Termination . Notwithstanding the provisions of paragraph 2, for Covered Performance Shares as to which the Restricted Period has not ended prior to the Date of Termination and the Date of Termination occurs by reason of the Participant's Qualifying Termination, vesting shall continue pursuant to the schedule set forth in paragraph 2 following the Date of Termination as though the Participant continued to be employed through the two-year anniversary of the Participant's Date of Termination, subject to the Participant not engaging in any Competitive Activity during such two-year period and subject to the Participant signing and not revoking a general release and waiver of all claims against the Company and such release is effective no later than the sixty-day anniversary of the Date of Termination. If such release is not effective within such sixty-day period or in the event that the Participant engages in a Competitive Activity prior to the last day of the Restricted Period, the Participant shall immediately forfeit any unvested Covered Performance Shares.

6. Transfer and Forfeiture of Shares . The transfer and forfeiture of shares shall be subject to the following:

(a) Except as provided in paragraphs 3, 4 and 5 above, the Participant will be vested in any Covered Performance Shares if the Date of Termination has not occurred prior to the last day of the Restricted Period with respect to those shares and the requirements of paragraph 2 have been satisfied. Upon vesting at the end of such Restricted Period, those shares will be delivered to the Participant free of all restrictions.

(b) Except as otherwise determined by the Committee and as provided in paragraphs 3, 4 and 5 above, the Participant shall forfeit any Covered Performance Shares as of the Date of Termination, if such Date of Termination occurs prior to the Vesting Date.

(c) Notwithstanding anything to the contrary in any agreement between the Participant and the Company or a Subsidiary, the Participant acknowledges and agrees that the Covered Performance Shares and Premium Performance Shares shall vest (and the Restricted Period shall end) only as provided by, and subject to the terms of, this Performance Based Restricted Stock Award.

7. Premium Performance Shares . The vesting of the Premium Performance Shares under this paragraph 7 will be based on the Cumulative Performance of Chubb Limited during the Performance Period and will be determined as follows:

(a) The Restricted Period shall end on the Vesting Date for the number of the Premium Performance Shares determined by multiplying the number of Premium Performance Shares by the Premium Award Performance Percentage (as determined below).

(b) The Premium Award Performance Percentage will be determined in accordance with the following schedule:

If the Cumulative Performance of Chubb Limited during the Performance Period:	The Premium Award Performance Percentage will be:
Does not meet or exceed 50%	0%
Meets or exceeds 50%, but does not exceed the 75%	0%, as increased to the extent, if any, provided pursuant to the following provisions of this paragraph (b) up to 77%
Exceeds 75% and the Total Shareholder Return of Chubb Limited during the Performance Period meets or exceeds the 55 th percentile of the Total Shareholder Return of the Peer Companies.	100%

If the Cumulative Performance of Chubb Limited meets or exceeds 50 percent but does not exceed 75 percent during the Performance Period, then the Premium Award Performance Percentage will be a percentage between 0 percent and 77 percent, based on an interpolation of the Chubb Limited Cumulative Performance falling between 50 percent and 75 percent of the Cumulative Performance during the Performance Period. If the Cumulative Performance of Chubb Limited exceeds 75 percent during the Performance Period but the Total Shareholder Return of Chubb Limited during the Performance Period does not meet or exceed the 55 th percentile of the Total Shareholder Return of the Peer Companies, then the Premium Award Performance Percentage will be 77 percent.

(c) Upon vesting at the end of such Restricted Period, those shares will be delivered to the Participant free of all restrictions. Except as provided in paragraph 3 for a Date of Termination that occurs because of Retirement, the Participant shall not be entitled to vesting of any Premium Performance Shares if the Date of Termination occurs before the Vesting Date for any reason.

8. Withholding . All deliveries and distributions and the vesting of shares of stock under these Performance Based Restricted Stock Award Terms are subject to withholding of all applicable taxes. At the election of the Participant, and subject to such rules and limitations as may be established by the Committee from time to time, such withholding obligations may be satisfied through the surrender of shares of Stock which the Participant already owns, or to which the Participant is otherwise entitled under the Plan; provided, however, that such shares may be used to satisfy not more than the Company’s minimum statutory withholding obligation (based on minimum statutory withholding rates for Federal and state tax purposes, including payroll taxes, that are applicable to such supplemental taxable income).

9. Transferability . Except as otherwise provided by the Committee, awards under these Performance Based Restricted Stock Award Terms may not be sold, assigned, transferred, pledged or otherwise encumbered prior to vesting and delivery.

10. Dividends . Dividends paid with respect to the Covered Performance Shares and the Premium Performance Shares with respect to record dates on or after the Grant Date for such shares but prior to the end of the Restricted Period for such shares shall be accumulated and distributed to the Participant on the date that the Restricted Period ends with respect to the share pursuant to which such dividend was paid; provided, however that no dividends or distributions shall be payable to or for the benefit of the Participant with respect to any Covered Performance Shares or Premium Performance Shares which the Participant has forfeited. Notwithstanding the foregoing, if the right to the payment of dividends with respect to a Covered Performance Share or a Premium Performance Share would otherwise constitute nonqualified deferred compensation subject to Section 457A of the Internal Revenue Code (“Code Section 457A”), then, (i) any dividends accumulated in relation to Covered Performance Shares and Premium Performance Shares as of the date that the right to receive such payments is no longer treated as subject to a substantial risk of forfeiture for purposes of Code Section 457A (the “457A Vesting Date”) shall be used to purchase additional Covered Performance Shares and Premium Performance Shares subject to the same vesting provisions of the original Covered Performance Shares and Premium Performance Shares to which such accumulated dividends relate and any remaining unused cash amounts that are not sufficient to purchase an additional share shall be distributed to the Participant and (ii) any dividends that are paid on or after the 457A Vesting Date but prior to the vesting of the Covered Performance Shares and Premium Performance Shares shall be used to purchase additional Covered Performance Shares and Premium Performance Shares subject to the same vesting provisions of the original Covered Performance Shares and Premium Performance Shares to which such dividends relate and any remaining unused cash amounts that are not sufficient to purchase an additional share shall be distributed to the Participant.

11. Voting . The Participant shall not be prevented from voting the Covered Performance Shares merely because those shares are subject to the restrictions imposed by these Performance Based

Restricted Stock Award Terms and the Plan; provided, however, that the Participant shall not be entitled to vote Covered Performance Shares with respect to record dates for any Covered Performance Shares occurring on or after the date, if any, on which the Participant has forfeited those shares. The Participant acknowledges and agrees that he or she shall not be entitled to vote any Premium Performance Shares if the record date for entitlement to voting occurs prior to the date on which such shares become vested pursuant to paragraphs 7 or 8.

12. Deposit of Performance Based Restricted Stock Award . Each certificate issued in respect of the Covered Performance Shares and Premium Performance Shares awarded under these Performance Based Restricted Stock Award Terms shall be registered in the name of the Participant and shall be deposited in a bank designated by the Committee.

13. Definitions . For purposes of these Performance Based Restricted Stock Award Terms, words and phrases shall be defined as follows:

(a) Cause . The term "Cause" shall mean - unless otherwise defined in an employment agreement between the Participant and the Company or Subsidiary - the occurrence of any of the following:

(i) a conviction of the Participant with respect to a (x) felony or (y) a misdemeanor involving moral turpitude; or

(ii) willful misconduct or gross negligence by the Participant resulting, in either case, in harm to the Company or any Subsidiary; or

(iii) failure by the Participant to carry out the lawful and reasonable directions of the Board or the Participant's immediate supervisor, as the case may be; or

(iv) refusal to cooperate or non-cooperation by the Participant with any governmental regulatory authority; or

(v) fraud, embezzlement, theft or dishonesty by the Participant against the Company or any Subsidiary or a material violation by the Participant of a policy or procedure of the Company, resulting, in any case, in harm to the Company or any Subsidiary.

(b) Change in Control . The term "Change in Control" shall be defined as set forth in the Plan.

(c) Change in Control Date Termination . The term "Change in Control Date of Termination" means the Participant's Date of Termination that occurs because the Company and/or any of the Related Companies terminates the Participant's employment with the Company and/or the Related Companies without Cause (other than due to death, a Long-Term Disability or a Retirement) or because the Participant terminates his or her employment for Good Reason, provided that such termination in accordance with this paragraph 13(c) occurs during the period commencing on the 180th day immediately preceding a Change in Control date and ending on the two-year anniversary of such Change in Control date.

(d) Combined Ratio . The "Combined Ratio" for a given period is determined as the sum of the loss and loss expense ratio, the policy acquisition cost ratio and the administrative expense ratio in relation to the P& C insurance business. For Chubb the Combined Ratio is determined as the P&C combined ratio disclosed in the 10-K for such period (or the average of the disclosed combined ratios for each year if the period is longer than one year). For Peer Group Companies for purposes of this Agreement, the Combined Ratio is determined as the combined ratio publicly disclosed for such company, on a comparable basis, for such period (or the average of the disclosed combined ratios for each year if the period is longer than one year).

(e) Competitive Activity - The term "Competitive Activity" means the Participant's: (i) engagement in an activity - whether as an employee, consultant, principal, member, agent, officer, director, partner or shareholder (except as a less than 1% shareholder of a publicly traded company) - that is competitive with any business of the Company or any Subsidiary conducted by the Company or such Subsidiary during the Participant's employment with the Company or the two-year period following the Date of Termination; (ii) solicitation of any client and/or customer of the Company or any affiliate with respect to an activity prohibited by subparagraph (d)(i); (iii) solicitation or employment of any employee of the Company or any affiliate for the purpose of causing such employee to terminate his or her employment with the Company or such affiliate; or (iv) failure to keep confidential all Company trade secrets, proprietary and confidential information.

(f) Cumulative Performance . The term "Cumulative Performance" means, as to Chubb Limited, a percentage equal to the sum of (A) and (B) where (A) equals the First Performance Goal multiplied by seven-tenths (0.70) and where (B) equals the Second Performance Goal multiplied by three-tenths (0.30). For example, if the First Performance Goal equals eighty percent (80%) and the Second Performance goal Equals fifty percent (50%), then the Cumulative Performance would equal seventy-one percent (71%) determined as the sum of (80%*.7) and (50% *.3). The determination of the Cumulative Performance and its parameters is subject to rules established by the Committee within 90 days of the beginning of the Performance Period.

(g) Date of Termination . A Participant's "Date of Termination" means, with respect to an employee, the date on which the Participant's employment with the Company and the Subsidiaries terminates for any reason, and with respect to a Director, the date immediately following the last day on which the Participant serves as a Director; provided that a Date of Termination shall not be deemed to occur by reason of a Participant's transfer of employment between the Company and a Subsidiary or between two Subsidiaries; further provided that a Date of Termination shall not be deemed to occur by reason of a Participant's cessation of service as a Director if immediately following such cessation of service the Participant becomes or continues to be employed by the Company or a Subsidiary, nor by reason of a Participant's termination of employment with the Company or a Subsidiary if immediately following such termination of employment the Participant becomes or continues to be a Director; and further provided that a Participant's employment shall not be considered terminated while the Participant is on a leave of absence from the Company or a Subsidiary approved by the Participant's employer.

(h) Director . The term "Director" means a member of the Board, who may or may not be an employee of the Company or a Subsidiary.

(i) First Performance Goal . The term "First Performance Goal" for the Performance Period means the achievement by Chubb Limited of growth in tangible book value per common shares outstanding as reported under GAAP during the Performance Period, as compared to the growth in tangible book value per common shares outstanding as reported under GAAP during the same Performance Period by the Peer Companies expressed as a percentile rank as compared to the Peer Group. The determination of the First Performance Goal and its parameters is subject to rules established by the Committee within 90 days of the beginning of the applicable Performance Period. The Committee, in its discretion, may adjust the reported tangible book value for Chubb Limited or the Peer Companies for the Performance Period; provided, however, that no such adjustment may result in an increase in the number of Covered Performance Shares and Premium Performance Shares which are earned and vested at the end of the Performance Period over the number of Covered Performance Shares and Premium Performance Shares that would have been earned and vested had the reported tangible book value for either Chubb Limited or the Peer Companies not been adjusted.

(j) Forfeiture Payment . The term "Forfeiture Payment" means the pre-tax proceeds from sales or other transfers, if any, of the number of shares of Stock that became vested during the Restrictive Covenant Period pursuant to this Agreement and that the Participant has sold or otherwise transferred prior to the date of repayment required pursuant to subparagraph 21(b). For purposes of this definition, pre-tax proceeds for any shares of Stock that were transferred by the Participant in a transaction other than a sale on the New York Stock Exchange means the Fair Market Value of such shares on the New York Stock Exchange as of the date of such transaction.

(k) Forfeiture Shares . The term "Forfeiture Shares" means the number of shares of Stock that became vested during the Restrictive Covenant Period pursuant to this Agreement and that remain held by the Participant as of the date of repayment required pursuant to subparagraph 21(b). It is the Participant's responsibility to ensure that the shares of Stock delivered as Forfeiture Shares are the shares of Stock delivered previously pursuant to this Agreement. In the absence of Company records or written documentation from Participant's broker demonstrating this fact, the Participant must deliver to the Company the Forfeiture Payment determined as of the date that such shares of Stock delivered pursuant to this Agreement are transferred from Participant's stock account or otherwise become indistinguishable from other shares of Stock that the Participant may hold.

(l) Good Reason . The term "Good Reason" shall mean - unless otherwise defined in an in-force employment agreement between the Participant and the Company or Subsidiary - the occurrence of any of the following within the 60-day period preceding a Date of Termination without the Participant's prior written consent:

(i) a material adverse diminution of the Participant's titles, authority, duties or responsibilities, or the assignment to the Participant of titles, authority, duties or responsibilities that are materially inconsistent with his or her titles, authority, duties and/or responsibilities in a manner materially adverse to the Participant; or

(ii) a reduction in the Participant's base salary or annual bonus opportunity (other than any reduction applicable to all similarly situated Executives generally); or

(iii) a failure of the Company to obtain the assumption in writing of its obligations under the Plan by any successor to all or substantially all of the assets of the Company within 45 days after a merger, consolidation, sale or similar transaction that qualifies as a Change in Control.

(m) Long-Term Disability . A Participant shall be considered to have a "Long-Term Disability" if the Participant is determined to be eligible for long-term disability benefits under the long-term disability plan in which the Participant participates and which is sponsored by the Company or a Subsidiary; or if the Participant does not participate in a long-term disability plan sponsored by the Company or a Subsidiary, then the Participant shall be considered to have a "Long-Term Disability" if the Committee determines, under standards comparable to those of the Company's long-term disability plan, that the Participant would be eligible for long-term disability benefits if he or she participated in such plan.

(n) Peer Companies . The term "Peer Companies" means the companies which are in the Chubb Financial Performance Peer Group as determined by the Committee within 90 days of the beginning of the Performance Period and for which financial information is available for all year(s) in the Performance Period.

(o) Performance Period . The term "Performance Period" shall mean the three-year period beginning on th e Com mencement Date and ending on the third anniversary of the Commencement Date.

(p) Qualifying Termination . The term "Qualifying Termination" means the Participant's Date of Termination that occurs because the Company and/or any of the Related Companies terminates the Participant's employment with the Company and/or the Related Companies without Cause. For the avoidance of doubt, the termination of the Participant's employment due to death or Long-Term Disability, or a voluntary termination of the Participant's employment by the Participant for any reason (including Good Reason or Retirement) shall not constitute a Qualifying Termination for the purposes of this Agreement.

(q) Restrictive Covenant Perio d . T he term "Restrictive Covenant Period" means the twenty-four month period following a Date of Termination due to a Qualifying Termination or a Retirement.

(r) Retirement . The term "Retirement" means the Participant's Date of Termination that occurs on or after the Participant has both completed at least ten years of service with the Company or a Subsidiary and attained at least age 62; provided, however, that a Date of Termination will not b e treated as a Retirement unless the Participant (i) has terminated employment in good standing with the Company or a Subsidiary, and (ii) executes an agreement and release as required by the Company which will include, without limitation, a general release, and non-competition and non-solicitation provisions. A Participant shall be deemed to have executed a release as described in clause (ii) above only if such release is returned by such time as is established by the Company; provided that to the extent benefits provided pursuant to the Plan would be considered to be provided under a nonqualified deferred compensation plan as that term is defined in Treas. Reg. §1.409A-1, such benefits shall be paid to the Participant only if the release is returned in time to permit the distribution of the benefits to satisfy the requirements of Section 409A of the Internal Revenue Code with respect to the time of payment.

(s) Second Performance Goal . The term "Second Performance Goal" for the Performance Period means the achievement by Chubb Limited of its Combined Ratio during the Performance Period, as compared to the Combined Ratio reported publicly during the same Performance Period by the Peer Companies expressed as a percentile rank as compared to the Peer Group. The determination of the Second Performance Goal and its parameters is subject to rules established by the Committee within 90 days of the beginning of the applicable Performance Period. The Committee, in its discretion, may adjust the Combined Ratio for Chubb Limited or the combined ratio reported publicly for the Peer Companies for the Performance Period; provided, however, that no such adjustment may result in an increase in the number of Covered Performance Shares and Premium Performance Shares which are earned and vested at the end of the Performance Period over the number of Covered Performance Shares and Premium Performance Shares that would have been earned and vested had the Combined Ratio for either Chubb Limited or the Peer Companies not been adjusted.

(t) Total Shareholder Return . The term "Total Shareholder Return" means the total return per share of stock to the Company's shareholders or the shareholders of the applicable Peer Company, inclusive of dividends paid (regardless of whether paid in cash or property, which dividends shall be deemed reinvested in the stock), during the Performance Period. The value of the applicable company's stock at the beginning and end of the Performance Period shall be established based on the average of the averages of the high and low trading prices of the applicable stock on the principal exchange on which the stock trades for the 15 trading days occurring immediately prior to the beginning or end of the Performance Period, as the case may be. The Committee shall make or shall cause to be made such appropriate adjustments to the calculation of total shareholder return for such entity (including adjusting the average at the beginning of the Performance Period) as shall be necessary or appropriate to avoid an artificial increase or decrease in such return as a result of a stock split (including a reverse stock split), recapitalization, or other similar event affecting the capital structure of such entity that does not involve the issuance of the entity's securities in exchange for money, property, or other consideration.

14. Plan Definitions . Except where the context clearly implies or indicates the contrary, a word, term, or phrase used in the Plan is similarly used in these Performance Based Restricted Stock Award Terms.

15. Heirs and Successors . These Performance Based Restricted Stock Terms shall be binding upon, and inure to the benefit of, the Company and its successors and assigns, and upon any person acquiring, whether by merger, consolidation, purchase of assets or otherwise, all or substantially all of the Company's assets and business. If any benefits deliverable to the Participant under these Performance Based Restricted Stock Terms have not been delivered at the time of the Participant's death, such benefits shall be delivered to the Designated Beneficiary, in accordance with the provisions of these Performance Based Restricted Stock Terms and the Plan. The "Designated Beneficiary" shall be the beneficiary or beneficiaries designated by the Participant in a writing filed with the Committee in such form and at such time as the Committee shall require. If a deceased Participant fails to designate a beneficiary, or if the Designated Beneficiary does not survive the Participant, any rights that would have been exercisable by the Participant and any benefits distributable to the Participant shall be distributed to the legal representative of the estate of the Participant. If a deceased Participant designates a beneficiary and the

Designated Beneficiary survives the Participant but dies before the complete distribution of benefits to the Designated Beneficiary under these Performance Based Restricted Stock Terms, then any benefits distributable to the Designated Beneficiary shall be distributed to the legal representative of the estate of the Designated Beneficiary.

16. Administration. The authority to manage and control the operation and administration of these Performance Based Restricted Stock Award Terms shall be vested in the Committee, and the Committee shall have all powers with respect to these Performance Based Restricted Stock Award Terms as it has with respect to the Plan. Any interpretation of these Performance Based Restricted Stock Award Terms by the Committee and any decision made by it with respect to these Performance Based Restricted Stock Award Terms are final and binding on all persons.

17. Plan and Corporate Records Govern. Notwithstanding anything in these Performance Based Restricted Stock Award Terms to the contrary, these Performance Based Restricted Stock Award Terms shall be subject to the terms of the Plan, a copy of which may be obtained by the Participant from the office of the Secretary of the Company; and these Performance Based Restricted Stock Award Terms are subject to all interpretations, amendments, rules and regulations promulgated by the Committee from time to time pursuant to the Plan. Notwithstanding anything in the Performance Based Restricted Stock Terms to the contrary, in the event of any discrepancies between the corporate records regarding this award and the Record-Keeping System, the corporate records shall control.

18. Not An Employment Contract. The Performance Based Restricted Stock Award will not confer on the Participant any right with respect to continuance of employment or other service with the Company or any Subsidiary, nor will it interfere in any way with any right the Company or any Subsidiary would otherwise have to terminate or modify the terms of such Participant's employment or other service at any time.

19. Notices. Any written notices provided for in these Performance Based Restricted Stock Award Terms or the Plan shall be in writing and shall be deemed sufficiently given if either hand delivered or if sent by fax or overnight courier, or by postage paid first class mail. Notices sent by mail shall be deemed received three business days after mailing but in no event later than the date of actual receipt. Notices shall be directed, if to the Participant, at the Participant's address indicated by the Company's records, or if to the Company, at the Company's principal executive office.

20. Fractional Shares. In lieu of issuing a fraction of a share, resulting from an adjustment of the Performance Based Restricted Stock Award pursuant to paragraph 5.2(f) of the Plan or otherwise, the Company will be entitled to pay to the Participant an amount equal to the fair market value of such fractional share.

21. Competitive Activity.

(a) The Committee may cancel, rescind, suspend, withhold or otherwise limit or restrict the Performance Based Restricted Stock Award at any time if the Participant engages in any "Competitive Activity".

(b) Immediately prior to the vesting of the shares of Stock pursuant to this Agreement, the Participant shall certify, to the extent required by the Committee, in a manner acceptable to the Committee, that the Participant is not engaging and has not engaged in any Competitive Activity. In the event a Participant has engaged in any Competitive Activity during the Restrictive Covenant Period, then the Participant shall be required to transfer the Forfeiture Shares to the Company and, if applicable, pay the Forfeiture Payment to the Company, in such manner and on such terms and conditions as may be required by the Committee, and the Company shall be entitled to set-off such amounts against any amount owed to the Participant by the Company and/or Subsidiary.

22. Amendment. These Performance Based Restricted Stock Award Terms may be amended in accordance with the provisions of the Plan, and may otherwise be amended by written agreement of the Participant and the Company without the consent of any other person.

IN WITNESS WHEREOF, the Company has caused these presents to be executed in its name and on its behalf, all as of the Grant Date.

CHUBB LIMITED

By:
Its:

I hereby agree to all the terms, restrictions and conditions set forth in the Agreement:

Participant

Exhibit 10.85

Chubb Limited

Performance Based Restricted Stock Award Terms

under the

Chubb Limited 2016 Long-Term Incentive Plan

The Participant has been granted a Performance Based Restricted Stock Award by Chubb Limited (the "Company") under the Chubb Limited 2016 Long-Term Incentive Plan (the "Plan"). The shares of Stock granted as Covered Performance Shares and Premium Performance Shares pursuant to this Performance Based Restricted Stock Award shall be subject to the following Performance Based Restricted Stock Award Terms:

1. Terms of Award . The following words and phrases used in these Performance Based Restricted Stock Award Terms shall have the meanings set forth in this paragraph 1:

(a) The "Participant" is [**Insert Name]** , who is the individual recipient of the Performance Based Restricted Stock Award on the specified Grant Date.

(b) The "Grant Date" is [**Insert Date**].

(c) The "Commencement Date" is [**Insert Date**].

(d) The number of "Covered Performance Shares" is **[Insert Number]** , which is 60% of that portion of the Participant's annual Long-Term Incentive Award which is granted in the form of restricted shares for the year in which the Grant Date occurs, as reflected in the corporate records and shown in the Record-Keeping System in the Participant's individual account records.

(e) The number of Premium Performance Shares is [**Insert number equal to 65% of the number of Covered Performance Shares]** .

Other words and phrases used in these Performance Based Restricted Stock Award Terms are defined pursuant to paragraph 11 or elsewhere in these Performance Based Restricted Stock Award Terms.

2. Restricted Period . Subject to the limitations of these Performance Based Restricted Stock Award Terms, the "Restricted Period" for the Covered Performance Shares of the Performance Based Restricted Stock Award shall begin on the Grant Date and end on the Vesting Date as described below (but only if the Date of Termination has not occurred before the Vesting Date):

(a) If the Cumulative Performance of the Company during the Performance Period is 50 percent or greater than 50 percent, the Restricted Period shall end for any Covered Performance Shares on the later of the three-year anniversary of the Grant Date and the date the Committee certifies that the requisite Cumulative Performance has been achieved during the Performance Period (the date of certification is referred to as the "Certification Date" and the later of the three-year anniversary of the Grant Date and the Certification Date referred to as the "Vesting Date"). If the Cumulative Performance of the Company during the Performance Period is less than 50 percent, the Restricted Period shall end with respect to a number of the Covered Performance Shares determined by multiplying the total number of Covered Performance Shares by the Performance Percentage (as determined below) on the Vesting Date.

(b) The term “Performance Percentage” shall mean the applicable Performance Percentage determined based on the achievement of the Cumulative Performance over the Performance Period by Chubb Limited:

If the Satisfaction of Chubb Limited of the Cumulative Performance during the applicable Performance Period:	The Performance Percentage will be:
Does not exceed the 25%	0%
Exceeds 25%, but does not meet or exceed 50%	50%, as increased to the extent, if any, provided pursuant to the following provisions of this paragraph (b)
Meets or exceeds 50%	100%

If the performance of Chubb Limited exceeds 25 percent but does not meet or exceed 50 percent of the satisfaction of the Cumulative Performance during the applicable Performance Period, then the Performance Percentage will be a percentage between 50 percent and 100 percent, based on an interpolation of the Chubb Limited performance falling between the 25th percentile and 50th percentile of the satisfaction of the Cumulative Performance during the applicable Performance Period.

(c) For the avoidance of doubt, the Restricted Period shall end only on or after the Committee’s certification that the Cumulative Performance for the Performance Period has been satisfied. Any Covered Performance Shares that have not vested as of the end of the Restricted Period shall be forfeited by the Participant as of the Vesting Date.

3. Retirement . If the Participant’s Date of Termination occurs because of Retirement, then for any Covered Performance Shares and any Premium Performance Shares as to which the Restricted Period has not otherwise ended prior to the Date of Termination, the Participant shall become vested and the Restricted Period shall end for any Covered Performance Shares if and when the terms of paragraph 2 are satisfied with respect to such Covered Performance Shares and for any Premium Performance Shares if and when the terms of paragraph 6 are satisfied with respect to such Premium Performance Shares, in each case, determined as though the Participant had remained employed and the Date of Termination had not occurred prior to the end of any applicable Restricted Period for purposes of this Agreement.

4. Death, Long-Term Disability and Change in Control . Notwithstanding the provisions of paragraph 2, the Restricted Period for Covered Performance Shares shall end prior to the date specified in the schedule set forth in paragraph 2 to the extent set forth below:

(a) For Covered Performance Shares as to which the Restricted Period has not ended prior to the Date of Termination, the Restricted Period for such Covered Performance Shares shall end upon the Participant’s Date of Termination, and the Covered Performance Shares shall fully vest upon the Date of Termination, if the Date of Termination occurs by reason of the Participant’s death.

(b) For Covered Performance Shares as to which the Restricted Period has not ended prior to the Date of Termination, the Restricted Period for such Covered Performance Shares shall end upon the Participant’s Date of Termination, and the Covered Performance Shares shall fully vest upon the Date of Termination, if the Date of Termination occurs by reason of the Participant’s Long-Term Disability.

(c) For Covered Performance Shares as to which the Restricted Period has not ended prior to the date of a Change in Control, the Restricted Period for such Covered Performance Shares shall end upon a Change in Control, and the Covered Performance Shares shall vest upon the Change in Control, provided that such Change in Control occurs on or before the Date of Termination.

5. Transfer and Forfeiture of Shares. The transfer and forfeiture of shares shall be subject to the following:

(a) Except as provided in paragraphs 3 and 4 above, the Participant will be vested in any Covered Performance Shares if the Date of Termination has not occurred prior to the last day of the Restricted Period with respect to those shares and the requirements of paragraph 2 have been satisfied. Upon vesting at the end of such Restricted Period, those shares will be delivered to the Participant free of all restrictions.

(b) Except as otherwise determined by the Committee and as provided in paragraphs 3 and 4 above, the Participant shall forfeit any Covered Performance Shares as of the Date of Termination, if such Date of Termination occurs prior to the Vesting Date.

(c) Notwithstanding anything to the contrary in any employment agreement between the Participant and the Company or a Subsidiary or any severance plan maintained by the Company or a Subsidiary in which the Participant participates, the Participate acknowledges and agrees that the Covered Performance Shares and Premium Performance Shares shall vest (and the Restricted Period shall end) only as provided by, and subject to the terms of, this Performance Based Restricted Stock Award.

6. Premium Performance Shares. The vesting of the Premium Performance Shares under this paragraph 6 will be based on the Cumulative Performance of Chubb Limited during the Performance Period and will be determined as follows:

(a) The Restricted Period shall end on the Vesting Date for the number of the Premium Performance Shares determined by multiplying the number of Premium Performance Shares by the Premium Award Performance Percentage (as determined below).

(b) The Premium Award Performance Percentage will be determined in accordance with the following schedule:

If the Cumulative Performance of Chubb Limited during the Performance Period:	The Premium Award Performance Percentage will be:
Does not meet or exceed 50%	0%
Meets or exceeds 50%, but does not exceed the 75%	0%, as increased to the extent, if any, provided pursuant to the following provisions of this paragraph (b) up to 77%
Exceeds 75% and the Total Shareholder Return of Chubb Limited during the Performance Period meets or exceeds the 55th percentile of the Total Shareholder Return of the Peer Companies.	100%

If the Cumulative Performance of Chubb Limited meets or exceeds 50 percent but does not exceed 75 percent during the Performance Period, then the Premium Award Performance Percentage will be a percentage between 0 percent and 77 percent, based on an interpolation of the Chubb Limited Cumulative Performance falling between 50 percent and 75 percent of the Cumulative Performance during the Performance Period. If the Cumulative Performance of Chubb Limited exceeds 75 percent during the Performance Period but the Total Shareholder Return of Chubb Limited during the Performance Period does not meet or exceed the 55th percentile of the Total Shareholder Return of the Peer Companies, then the Premium Award Performance Percentage will be 77 percent.

(c) Upon vesting at the end of such Restricted Period, those shares will be delivered to the Participant free of all restrictions. Except as provided in paragraph 3 for a Date of Termination that occurs because of Retirement, the Participant shall not be entitled to vesting of any Premium Performance Shares if the Date of Termination occurs before the Vesting Date for any reason.

7. Withholding. All deliveries and distributions and the vesting of shares of stock under these Performance Based Restricted Stock Award Terms are subject to withholding of all applicable taxes. At the election of the Participant, and subject to such rules and limitations as may be established by the Committee from time to time, such withholding obligations may be satisfied through the surrender of shares of Stock which the Participant already owns, or to which the Participant is otherwise entitled under the Plan; provided, however, that such shares may be used to satisfy not more than the Company's minimum statutory withholding obligation (based on minimum statutory withholding rates for Federal and state tax purposes, including payroll taxes, that are applicable to such supplemental taxable income).

8. Transferability. Except as otherwise provided by the Committee, awards under these Performance Based Restricted Stock Award Terms may not be sold, assigned, transferred, pledged or otherwise encumbered prior to vesting and delivery.

9. Dividends. Dividends paid with respect to the Covered Performance Shares and the Premium Performance Shares with respect to record dates on or after the Grant Date for such shares but prior to the end of the Restricted Period for such shares shall be accumulated and distributed to the Participant on the date that the Restricted Period ends with respect to the share pursuant to which such dividend was paid; provided, however that no dividends or distributions shall be payable to or for the benefit of the Participant with respect to any Covered Performance Shares or Premium Performance Shares which the Participant has forfeited. Notwithstanding the foregoing, if the right to the payment of dividends with respect to a Covered Performance Share or a Premium Performance Share would otherwise constitute nonqualified deferred compensation subject to Section 457A of the Internal Revenue Code ("Code Section 457A"), then, (i) any dividends accumulated in relation to Covered Performance Shares and Premium Performance Shares as of the date that the right to receive such payments is no longer treated as subject to a substantial risk of forfeiture for purposes of Code Section 457A (the "457A Vesting Date") shall be used to purchase additional Covered Performance Shares and Premium Performance Shares subject to the same vesting provisions of the original Covered Performance Shares and Premium Performance Shares to which such accumulated dividends relate and any remaining unused cash amounts that are not sufficient to purchase an additional share shall be distributed to the Participant and (ii) any dividends that are paid on or after the 457A Vesting Date but prior to the vesting of the Covered Performance Shares and Premium Performance Shares shall be used to purchase additional Covered Performance Shares and Premium Performance Shares subject to the same vesting provisions of the original Covered Performance Shares and Premium Performance Shares to which such dividends relate and any remaining unused cash amounts that are not sufficient to purchase an additional share shall be distributed to the Participant.

10. Voting. The Participant shall not be prevented from voting the Covered Performance Shares merely because those shares are subject to the restrictions imposed by these Performance Based Restricted Stock Award Terms and the Plan; provided, however, that the Participant shall not be entitled to vote Covered Performance Shares with respect to record dates for any Covered Performance Shares occurring on or after the date, if any, on which the Participant has forfeited those shares. The Participant acknowledges and agrees that he or she shall not be entitled to vote any Premium Performance Shares if the record date for entitlement to voting occurs prior to the date on which such shares become vested pursuant to paragraphs 7 or 8.

11. Deposit of Performance Based Restricted Stock Award. Each certificate issued in respect of the Covered Performance Shares and Premium Performance Shares awarded under these Performance Based Restricted Stock Award Terms shall be registered in the name of the Participant and shall be deposited in a bank designated by the Committee.

12. Definitions. For purposes of these Performance Based Restricted Stock Award Terms, words and phrases shall be defined as follows:

(a) Change in Control. The term “Change in Control” shall be defined as set forth in the Plan.

(b) Combined Ratio. The “Combined Ratio” for a given period is determined as the sum of the loss and loss expense ratio, the policy acquisition cost ratio and the administrative expense ratio in relation to the P& C insurance business. For Chubb the Combined Ratio is determined as the P&C combined ratio disclosed in the 10-K for such period (or the average of the disclosed combined ratios for each year if the period is longer than one year). For Peer Group Companies for purposes of this Agreement, the Combined Ratio is determined as the combined ratio publicly disclosed for such company, on a comparable basis, for such period (or the average of the disclosed combined ratios for each year if the period is longer than one year).

(c) Cumulative Performance. The term “Cumulative Performance” means, as to Chubb Limited, a percentage equal to the sum of (A) and (B) where (A) equals the First Performance Goal multiplied by seven-tenths (0.70) and where (B) equals the Second Performance Goal multiplied by three-tenths (0.30). For example, if the First Performance Goal equals eighty percent (80%) and the Second Performance goal Equals fifty percent (50%), then the Cumulative Performance would equal seventy-one percent (71%) determined as the sum of (80%*.7) and (50% *.3). The determination of the Cumulative Performance and its parameters is subject to rules established by the Committee within 90 days of the beginning of the Performance Period.

(d) Date of Termination. A Participant’s “Date of Termination” means, with respect to an employee, the date on which the Participant’s employment with the Company and the Subsidiaries terminates for any reason, and with respect to a Director, the date immediately following the last day on which the Participant serves as a Director; provided that a Date of Termination shall not be deemed to occur by reason of a Participant’s transfer of employment between the Company and a Subsidiary or between two Subsidiaries; further provided that a Date of Termination shall not be deemed to occur by reason of a Participant’s cessation of service as a Director if immediately following such cessation of service the Participant becomes or continues to be employed by the Company or a Subsidiary, nor by reason of a Participant’s termination of employment with the Company or a Subsidiary if immediately following such termination of employment the Participant becomes or continues to be a Director; and further provided that a Participant’s employment shall not be considered terminated while the Participant is on a leave of absence from the Company or a Subsidiary approved by the Participant’s employer.

(e) Director. The term “Director” means a member of the Board, who may or may not be an employee of the Company or a Subsidiary.

(f) First Performance Goal. The term “First Performance Goal” for the Performance Period means the achievement by Chubb Limited of growth in tangible book value per common shares outstanding as reported under GAAP during the Performance Period, as compared to the growth in tangible book value per common shares outstanding as reported under GAAP during the same Performance Period by the Peer Companies expressed as a percentile rank as compared to the Peer Group. The determination of the First Performance Goal and its parameters is subject to rules established by the Committee within 90 days of the beginning of the applicable Performance Period. The Committee, in its discretion, may adjust the reported tangible book value for Chubb Limited or the Peer Companies for the Performance Period; provided, however, that no such adjustment may result in an increase in the number of Covered Performance Shares and Premium Performance Shares which are earned and vested at the end of the Performance Period over the number of Covered Performance Shares and Premium Performance Shares that would have been earned and vested had the reported tangible book value for either Chubb Limited or the Peer Companies not been adjusted.

(g) Long-Term Disability. A Participant shall be considered to have a “Long-Term Disability” if the Participant is determined to be eligible for long-term disability benefits under the long-term disability plan in which the Participant participates and which is sponsored by the Company or a

Subsidiary; or if the Participant does not participate in a long-term disability plan sponsored by the Company or a Subsidiary, then the Participant shall be considered to have a "Long-Term Disability" if the Committee determines, under standards comparable to those of the Company's long-term disability plan, that the Participant would be eligible for long-term disability benefits if he or she participated in such plan.

(h) Peer Companies . The term "Peer Companies" means the companies which are in the Chubb Financial Performance Peer Group as determined by the Committee within 90 days of the beginning of the Performance Period and for which financial information is available for all year(s) in the Performance Period.

(i) Performance Period . The term "Performance Period" shall mean the three-year period beginning on th e Com mencement Date and ending on the third anniversary of the Commencement Date.

(j) Retirement . The term "Retirement" means the Participant's Date of Termination that occurs on or after the Participant has both completed at least ten years of service with the Company or a Subsidiary and attained at least age 62; provided, however, that a Date of Termination will not b e treated as a Retirement unless the Participant (i) has terminated employment in good standing with the Company or a Subsidiary, and (ii) executes an agreement and release as required by the Company which will include, without limitation, a general release, and non-competition and non-solicitation provisions. A Participant shall be deemed to have executed a release as described in clause (ii) above only if such release is returned by such time as is established by the Company; provided that to the extent benefits provided pursuant to the Plan would be considered to be provided under a nonqualified deferred compensation plan as that term is defined in Treas. Reg. §1.409A-1, such benefits shall be paid to the Participant only if the release is returned in time to permit the distribution of the benefits to satisfy the requirements of Section 409A of the Internal Revenue Code with respect to the time of payment.

(k) Second Performance Goal . The term "Second Performance Goal" for the Performance Period means the achievement by Chubb Limited of its Combined Ratio during the Performance Period, as compared to the Combined Ratio reported publicly during the same Performance Period by the Peer Companies expressed as a percentile rank as compared to the Peer Group. The determination of the Second Performance Goal and its parameters is subject to rules established by the Committee within 90 days of the beginning of the applicable Performance Period. The Committee, in its discretion, may adjust the Combined Ratio for Chubb Limited or the combined ratio reported publicly for the Peer Companies for the Performance Period; provided, however, that no such adjustment may result in an increase in the number of Covered Performance Shares and Premium Performance Shares which are earned and vested at the end of the Performance Period over the number of Covered Performance Shares and Premium Performance Shares that would have been earned and vested had the Combined Ratio for either Chubb Limited or the Peer Companies not been adjusted.

(l) Total Shareholder Return . The term "Total Shareholder Return" means the total return per share of stock to the Company's shareholders or the shareholders of the applicable Peer Company, inclusive of dividends paid (regardless of whether paid in cash or property, which dividends shall be deemed reinvested in the stock), during the Performance Period. The value of the applicable company's stock at the beginning and end of the Performance Period shall be established based on the average of the averages of the high and low trading prices of the applicable stock on the principal exchange on which the stock trades for the 15 trading days occurring immediately prior to the beginning or end of the Performance Period, as the case may be. The Committee shall make or shall cause to be made such appropriate adjustments to the calculation of total shareholder return for such entity (including adjusting the average at the beginning of the Performance Period) as shall be necessary or appropriate to avoid an artificial increase or decrease in such return as a result of a stock split (including a reverse stock split), recapitalization, or other similar event affecting the capital structure of such entity that does not involve the issuance of the entity's securities in exchange for money, property, or other consideration.

13. Plan Definitions. Except where the context clearly implies or indicates the contrary, a word, term, or phrase used in the Plan is similarly used in these Performance Based Restricted Stock Award Terms.

14. Heirs and Successors. These Performance Based Restricted Stock Terms shall be binding upon, and inure to the benefit of, the Company and its successors and assigns, and upon any person acquiring, whether by merger, consolidation, purchase of assets or otherwise, all or substantially all of the Company's assets and business. If any benefits deliverable to the Participant under these Performance Based Restricted Stock Terms have not been delivered at the time of the Participant's death, such benefits shall be delivered to the Designated Beneficiary, in accordance with the provisions of these Performance Based Restricted Stock Terms and the Plan. The "Designated Beneficiary" shall be the beneficiary or beneficiaries designated by the Participant in a writing filed with the Committee in such form and at such time as the Committee shall require. If a deceased Participant fails to designate a beneficiary, or if the Designated Beneficiary does not survive the Participant, any rights that would have been exercisable by the Participant and any benefits distributable to the Participant shall be distributed to the legal representative of the estate of the Participant. If a deceased Participant designates a beneficiary and the Designated Beneficiary survives the Participant but dies before the complete distribution of benefits to the Designated Beneficiary under these Performance Based Restricted Stock Terms, then any benefits distributable to the Designated Beneficiary shall be distributed to the legal representative of the estate of the Designated Beneficiary.

15. Administration. The authority to manage and control the operation and administration of these Performance Based Restricted Stock Award Terms shall be vested in the Committee, and the Committee shall have all powers with respect to these Performance Based Restricted Stock Award Terms as it has with respect to the Plan. Any interpretation of these Performance Based Restricted Stock Award Terms by the Committee and any decision made by it with respect to these Performance Based Restricted Stock Award Terms are final and binding on all persons.

16. Plan and Corporate Records Govern. Notwithstanding anything in these Performance Based Restricted Stock Award Terms to the contrary, these Performance Based Restricted Stock Award Terms shall be subject to the terms of the Plan, a copy of which may be obtained by the Participant from the office of the Secretary of the Company; and these Performance Based Restricted Stock Award Terms are subject to all interpretations, amendments, rules and regulations promulgated by the Committee from time to time pursuant to the Plan. Notwithstanding anything in the Performance Based Restricted Stock Terms to the contrary, in the event of any discrepancies between the corporate records regarding this award and the Record-Keeping System, the corporate records shall control.

17. Not An Employment Contract. The Performance Based Restricted Stock Award will not confer on the Participant any right with respect to continuance of employment or other service with the Company or any Subsidiary, nor will it interfere in any way with any right the Company or any Subsidiary would otherwise have to terminate or modify the terms of such Participant's employment or other service at any time.

18. Notices. Any written notices provided for in these Performance Based Restricted Stock Award Terms or the Plan shall be in writing and shall be deemed sufficiently given if either hand delivered or if sent by fax or overnight courier, or by postage paid first class mail. Notices sent by mail shall be deemed received three business days after mailing but in no event later than the date of actual receipt. Notices shall be directed, if to the Participant, at the Participant's address indicated by the Company's records, or if to the Company, at the Company's principal executive office.

19. Fractional Shares. In lieu of issuing a fraction of a share, resulting from an adjustment of the Performance Based Restricted Stock Award pursuant to paragraph 5.2(f) of the Plan or otherwise, the

Company will be entitled to pay to the Participant an amount equal to the fair market value of such fractional share.

20. Amendment . These Performance Based Restricted Stock Award Terms may be amended in accordance with the provisions of the Plan, and may otherwise be amended by written agreement of the Participant and the Company without the consent of any other person.

IN WITNESS WHEREOF, the Company has caused these presents to be executed in its name and on its behalf, all as of the Grant Date.

CHUBB LIMITED

By:

Its:

I hereby agree to all the terms, restrictions and conditions set forth in the Agreement:

Participant

Exhibit 12.1

Chubb Limited
Ratio of Earnings to Fixed Charges

	Years Ended December 31				
(in millions of U.S. dollars, except ratios)	**2016**	2015	2014	2013	2012
Net income	**$ 4,135**	$ 2,834	$ 2,853	$ 3,758	$ 2,706
Add:					
Provision for income taxes [(1)]	**815**	462	634	480	270
Fixed charges	**675**	342	322	318	287
Earnings for computation	**$ 5,625**	$ 3,638	$ 3,809	$ 4,556	$ 3,263
Fixed charges					
Interest expense [(1) (2)]	**$ 605**	$ 300	$ 280	$ 275	$ 250
Portion of rental expense deemed to be interest	**70**	42	42	43	37
Total fixed charges	**$ 675**	$ 342	$ 322	$ 318	$ 287
Ratio of earnings to fixed charges	**8.3**	10.6	11.8	14.4	11.4

(1) Chubb Limited recognizes accruals for interest and penalties, if any, related to unrecognized tax benefits in income tax expense (i.e., excluded from interest expense).

(2) 2016 includes a $48 million benefit related to amortization of the purchase accounting fair value adjustment to long-term debt assumed in connection with the Chubb Corp acquisition.

Exhibit 21.1 Set forth below are subsidiaries of Chubb and their respective jurisdiction of ownership and percentage ownership, in each case as of December 31, 2016. Any legal entity name changes occurring subsequent to December 31, 2016 through the date of this filing have been reflected below. Each of the named subsidiaries is not necessarily a significant subsidiary as defined in Rule 1-02(w) of Regulation S-X, and Chubb has several additional subsidiaries not named below. The unnamed subsidiaries, considered in the aggregate as a single subsidiary, would not constitute a significant subsidiary at the end of the year covered by this report.

Name	Jurisdiction of Organization	Percentage Ownership
Chubb Limited	Switzerland	Publicly held
Chubb Insurance (Switzerland) Limited	Switzerland	100%
Chubb Reinsurance (Switzerland) Limited	Switzerland	100%
Chubb Group Management and Holdings Ltd.	Bermuda	100%
Chubb Bermuda Insurance Ltd.	Bermuda	100%
Paget Reinsurance Ltd.	Bermuda	100%
ACE Capital Title Reinsurance Company	USA (New York)	100%
Green & Grey Financial Solutions International, Ltd.	Bermuda	100%
Corporate Officers & Directors Assurance Ltd.	Bermuda	100%
Oasis Real Estate Company Ltd.	Bermuda	100%
Sovereign Risk Insurance Limited	Bermuda	100%
Sovereign Risk Insurance (Dubai) Limited	UAE (Dubai)	100%
Chubb Realty Holdings Limited	Bermuda	100%
Chubb Market Company Limited	England & Wales	100%
Chubb Group Holdings Limited	England & Wales	100%
Chubb Tarquin	England & Wales	100%
Chubb Capital V Limited	England & Wales	100%
Chubb Leadenhall Limited	England & Wales	100%
ACE Underwriting Agencies Limited	England & Wales	100%
Chubb London Group Limited	England & Wales	100%
Chubb Capital I Limited	England & Wales	100%
Chubb Capital III Limited	England & Wales	100%
Chubb Capital IV Limited	England & Wales	100%
Chubb London Holdings Limited	England & Wales	100%
Chubb Capital II Limited	England & Wales	100%
Chubb London Investments Limited	England & Wales	100%
Chubb European Group Limited	England & Wales	100%
Chubb London Limited	England & Wales	100%
Chubb Underwriting Agencies Limited	England & Wales	100%
Chubb London Services Limited	England & Wales	100%
Chubb Capital VI Limited	England & Wales	100%
Chubb Intermediaries Bermuda Ltd	Bermuda	100%
Chubb Services Limited	Cayman Islands	100%
Oasis Insurance Services Ltd.	Bermuda	100%
Chubb Tempest Life Reinsurance Ltd	Bermuda	100%
ACE Europe Life Limited	England & Wales	100%
Chubb Tempest Reinsurance Ltd	Bermuda	100%
ACE Tempest Re Escritório de Representação no Brasil Ltda.	Brazil	100%
ABR Reinsurance Capital Holdings Ltd.	Bermuda	11.26%

Oasis Investments Limited	Bermuda	67% 33% (Chubb Bermuda Insurance Ltd.)
Oasis Investments 2 Ltd.	Bermuda	67% 33% (Chubb Bermuda Insurance Ltd.)
Chubb Group Holdings Inc.	USA (Delaware)	100%
Chubb (CR) Holdings	England & Wales	100%
Chubb Capital VII Limited	England & Wales	100%
Chubb (RGB) Holdings Limited	England & Wales	100%
Chubb (CIDR) Limited	England & Wales	100%
Ridge Underwriting Agencies Limited	England & Wales	100%
Chubb Asset Management Inc.	USA (Delaware)	100%
ACE Life Insurance Company	USA (Connecticut)	100%
Chubb INA Holdings Inc.	USA (Delaware)	80% 20% (Chubb Limited)
Chubb Atlantic Indemnity Ltd.	Bermuda	100%
DHC Corporation	USA (Delaware)	100%
Chubb do Brasil Companhia de Seguros	Brazil	99.999%
Chubb & Son Inc.	USA (New York)	100%
Chubb Services Corporation	USA (Illinois)	100%
Chubb Insurance Solutions Agency, Inc.	USA (New Jersey)	100%
Chubb Global Financial Services Corporation	USA (Delaware)	100%
Harbor Island Indemnity Ltd.	Bermuda	100%
Chubb Investment Holdings (Hong Kong) Ltd.	Hong Kong	100%
MI Insurance Brokers Ltd.	Hong Kong	49%
Chubb Investment Services Limited	UK	100%
Chubb Custom Market Inc.	USA (New Jersey)	100%
Chubb Financial Solutions, Inc.	USA (Delaware)	100%
Transit Air Services, Inc.	USA (New Jersey)	100%
Chubb Multinational Manager Inc.	USA (New York)	100%
Chubb Computer Services, Inc.	USA (New Jersey)	100%
Chubb Re, Inc.	USA (New Jersey)	100%
Chubb Executive Risk Inc.	USA (Delaware)	100%
Executive Risk Management Associates	USA (Connecticut)	70% 30% (Sullivan Kelly, Inc.)
Sullivan Kelly, Inc.	USA (California)	100%
Bellemead Development Corporation	USA (Delaware)	100%
Bellemead/Marina Del Rey Corp.	USA (Delaware)	100%
Halifax Plantation Golf Management, Inc.	USA (Florida)	100%
Halifax Plantation, Inc.	USA (Florida)	100%
Halifax Plantation Golf, Inc.	USA (Florida)	100%
Halifax Plantation Realty, Inc.	USA (Florida)	100%
1717 Naperville Corp.	USA (Illinois)	100%

1250 Diehl Corp.	USA (Illinois)	100%
Federal Insurance Company	USA (Indiana)	100%
Chubb Indemnity Insurance Company	USA (New York)	100%
Chubb National Insurance Company	USA (Indiana)	100%
Chubb Insurance Company of New Jersey	USA (New Jersey)	100%
Chubb Lloyds Insurance Company of Texas	USA (Texas)	100%
Chubb Custom Insurance Company	USA (New Jersey)	100%
Great Northern Insurance Company	USA (Indiana)	100%
Pacific Indemnity Company	USA (Wisconsin)	100%
Texas Pacific Indemnity Company	USA (Texas)	100%
Executive Risk Indemnity Inc.	USA (Delaware)	100%
Executive Risk Specialty Insurance Company	USA (Connecticut)	100%
Vigilant Insurance Company	USA (New York)	100%
Chubb Financial Solutions (Bermuda) Ltd.	Bermuda	100%
Chubb Investment Holdings Inc.	USA (New Jersey)	100%
Chubb Seguros Mexico Holdings Inc.	USA (Delaware)	100%
Chubb Fianzas Holdings Inc.	USA (Delaware)	100%
Chubb Argentina de Seguros, S.A.	Argentina	99.99%
PT Asuransi Chubb Indonesia	Indonesia	80% 0.03% (Chubb INA Holdings Inc.)
Chubb Insurance Company Limited	China	100%
Chubb de Mexico Compania Afianzadora, S.A. de C.V.	Mexico	99.99% 0.01% (Chubb Global Financial Services Corporation)
Chubb European Investment Holdings, SLP	UK	100%
Chubb Europe Finance Ltd.	UK	100%
Chubb de Chile Compania de Seguros Generales, S.A.	Chile	99.97% 0.03% (Chubb INA Holdings Inc.)
Federal Insurance Company Escritorio de Representacao No Brasil Ltd.	Brazil	99.99% 0.01% (Chubb & Son, Inc.)
Chubb de Mexico Compania de Seguros, S.A. de C.V.	Mexico	99.9429%
Chubb Direct Marketing Company Ltd.	Korea	100%
Chubb Life Insurance Korea Company Ltd.	Korea	100%
Combined Insurance Company of America	USA (Illinois)	100%
Combined Insurance Company of Europe Limited	Ireland	100%
Combined Life Insurance Company of New York	USA (New York)	100%
CoverHound, Inc.	USA (Delaware)	24.5%

Huatai Insurance Group Company, Limited	China	5.8293% 9.7755% (Chubb Tempest Reinsurance Ltd.) 4.3952% (Chubb US Holdings, Inc.)
Huatai Property & Casualty Insurance Co., Ltd	China	100%
Huatai Life Insurance Company, Limited	China	79.5746% 20% (Chubb INA Holdings Inc.)
INA Corporation	USA (Pennsylvania)	100%
INA Tax Benefits Reporting, Inc.	USA (Delaware)	100%
INA Financial Corporation	USA (Delaware)	100%
Brandywine Holdings Corporation	USA (Delaware)	100%
Cravens, Dargan & Company, Pacific Coast	USA (Delaware)	100%
Century Indemnity Company	USA (Pennsylvania)	100%
Century International Reinsurance Company Ltd.	Bermuda	100%
INA Holdings Corporation	USA (Delaware)	100%
INA International Holdings, LLC	USA (Delaware)	100%
Chubb INA Properties, Inc.	USA (Delaware)	100%
Conference Facilities, Inc.	USA (Pennsylvania)	100%
Chubb INA Financial Institution Solutions Inc.	USA (Delaware)	100%
American Lenders Facilities, Inc.	USA (California)	100%
ESIS, Inc.	USA (Pennsylvania)	100%
ESIS Canada Inc.	Canada (Ontario)	100%
ESIS Environmental Health and Safety Consulting (Shanghai) Company Limited	China	100%
ESIS Asia Pacific PTE. Ltd.	Singapore	100%
ESIS Academy PTE. Ltd.	Singapore	100%
Proclaim America, Inc.	USA (Texas)	100%
NewMarkets Insurance Agency, Inc.	USA (Delaware)	100%
Chubb INA Excess and Surplus Insurance Services, Inc.	USA (Pennsylvania)	100%
Chubb Excess and Surplus Insurance Services Inc.	USA (California)	100%
Chubb Alternative Risk Solutions Inc.	USA (Delaware)	100%
Indemnity Insurance Company of North America	USA (Pennsylvania)	100%
ACE American Insurance Company	USA (Pennsylvania)	100%
Penn Millers Holding Corporation	USA (Pennsylvania)	100%
PMMHC Corp.	USA (Pennsylvania)	100%
Penn Millers Insurance Company	USA (Pennsylvania)	100%
Penn Millers Agency, Inc.	USA (Pennsylvania)	100%

Pacific Employers Insurance Company	USA (Pennsylvania)	100%
Illinois Union Insurance Company	USA (Illinois)	100%
Rain and Hail Insurance Service Incorporated	USA (Iowa)	100%
Agri General Insurance Company	USA (Iowa)	100%
Rain and Hail L.L.C.	USA (Iowa)	100%
Agri General Insurance Service, Inc.	USA (Iowa)	100%
Rain and Hail Insurance Service International, Inc.	USA (Iowa)	100%
Rain and Hail Insurance Service, Ltd.	Canada	100%
Rain and Hail Insurance Service de Mexico, S.A. de C.V.	Mexico	100%
Rain and Hail Financial, Inc.	USA (Iowa)	100%
INAMAR Insurance Underwriting Agency, Inc.	USA (New Jersey)	100%
INAMAR Insurance Underwriting Agency, Inc. of Texas	USA (Texas)	100%
Insurance Company of North America	USA (Pennsylvania)	100%
Bankers Standard Insurance Company	USA (Pennsylvania)	100%
ACE Property and Casualty Insurance Company	USA (Pennsylvania)	100%
ACE Fire Underwriters Insurance Company	USA (Pennsylvania)	100%
Atlantic Employers Insurance Company	USA (New Jersey)	100%
ACE Insurance Company of the Midwest	USA (Indiana)	100%
Chubb Tempest Re USA LLC	USA (Connecticut)	100%
Chubb Structured Products Inc.	USA (Delaware)	100%
Recovery Services International, Inc.	USA (Delaware)	100%
Chubb INA International Holdings, Ltd.	USA (Delaware)	100%
Chubb Europe Services Ltd.	UK	100%
Chubb Managing Agent Ltd.	UK	100%
Chubb Insurance Service Company Ltd.	UK	100%
Chubb Capital Ltd.	UK	100%
Combined Life Insurance Company of Australia, Ltd.	Australia	100%
Chubb Arabia Cooperative Insurance Company	Saudi Arabia	30%
Chubb Servicios Panama S.A.	Panama	100%
Chubb Life Insurance Company Ltd.	Bermuda	100%
Chubb Insurance Malaysia Berhad	Malaysia	100%
FM HoldCo LLC	USA (Delaware)	100%
ACE Fianzas Monterrey, S.A.	Mexico	99.95% 0.05% (AFIA Finance Corporation)
Operadora FMA, S.A. de C.V.	Mexico	100%
INACOMB S.A. de C.V.	Mexico	100%
Chubb Holdings Australia Pty Limited	Australia	100%
Chubb Insurance Australia Limited	Australia	100%
Chubb Insurance Company of Australia Limited	Australia	100%
PT. Chubb Life Insurance Indonesia	Indonesia	98.21%
Chubb Life Insurance Vietnam Company Limited	Vietnam	100%

Chubb Life Fund Management Company Limited	Vietnam	100%
Chubb Insurance Vietnam Company Limited	Vietnam	100%
ACE Seguradora S.A.	Brazil	99.99% 0.01% (Chubb Brazil Holdings, Ltd.)
ACE Serviçios para Seguradoras e Resseguradoras Ltda	Brazil	99% 1% (AFIA Finance Corporation)
Servicios ACEINA, S.A. de C.V.	Mexico	99.9% 0.1% (AFIA Finance Corporation)
ACE Seguros S.A.	Argentina	96.8621% 3.12% (AFIA Finance Corporation)
ACE INA International Holdings Ltd. Agencia Chile	Chile	100%
ACE Seguros de Vida S.A.	Chile	97.9% 2.1% (AFIA Finance Corporation Agencia en Chile)
Ventas Personales Limitada	Chile	99% 1% (AFIA Finance Corporation Agencia en Chile)
ACE Seguros S.A.	Chile	93.33% 3.77% (AFIA Finance Corporation, Agencia en Chile) 2.8% (AFIA Finance Corp. Chile Limitada)
ACE Servicios Regionales Limitada	Chile	99% 1% (AFIA Finance Corporation Agencia en Chile)
PT Chubb General Insurance Indonesia	Indonesia	80% 20% (PT Adi Citra Mandiri)
PT Jaya Proteksi Takaful	Indonesia	51%
PT Jaya Prima Auto Center	Indonesia	75%
Chubb INA Overseas Holdings, Inc.	USA (Delaware)	100%
ACE European Holdings Limited	England & Wales	100%
Chubb Underwriting (DIFC) Limited	Dubai International Financial Centre	100%
ACE European Holdings No 2 Limited	England & Wales	100%
Chubb Bermuda International Insurance Ireland Designated Activity Company	Ireland	100%

Chubb Insurance Investment Holdings Ltd.	UK	100%
Chubb Insurance Company of Europe SE	UK	99.999298% 0.000702% (ACE European Holdings No 2 Limited)
Masterpiece Netherlands B.V.	Netherlands	100%
Symmetry Private Insurance Limited	England & Wales	19.35%
Chubb Insurance S.A.-N.V.	Belgium	99.94923% 0.05076% (Chubb INA International Holdings, Ltd.)
ACE European Group Limited	England & Wales	69.1277% 30.8723% (ACE European Holdings Ltd.)
Chubb Pension Trustee Limited	England & Wales	100%
Chubb Russia Investments Limited	England & Wales	100%
Russian Reinsurance Company	Russia	23.34%
LLC Chubb Life Insurance Company	Russia	100%
LLC Chubb Insurance Company	Russia	100%
ACE Seguradora S.A.	Macau	99.9897%
Chubb Holdings Limited	Cayman Islands	100%
ACE Insurance Company Egypt S.A.E.	Egypt	98.014% 0.551% (ACE INA Services UK Ltd) 0.551% (ACE European Holdings Ltd)
Chubb Life Insurance - Egypt Ltd. S.A.E.	Egypt	98.35% 0.98% (Chubb Holdings Limited) 0.67% (AFIA Finance Corporation)
ACE INA Berhad	Malaysia	100%
Chubb Seguros Colombia S.A.	Colombia	100%
Chubb Seguros Ecuador S.A.	Ecuador	100%
ACE Seguros S.A.	Mexico	100%
Chubb Seguros Panama S.A.	Panama	100%
Chubb Peru S.A. Compania de Seguros y Reaseguros	Peru	100%
Nam Ek Company Limited	Thailand	49%
Eksupsiri Company Limited	Thailand	50.99% 49% (Chubb International Holdings Ltd)
Chubb Life Assurance Public Company Limited	Thailand	75.01% 24.99% (Oriental Equity Holdings)
Chubb Samaggi Insurance Public Company Limited	Thailand	99.212%

Siam Marketing & Analytics Company Limited	Thailand	50.99% 49% (Chubb Asia Pacific Services Pte. Limited)
Siam Liberty Insurance Broker Co., Ltd.	Thailand	74.8% 24.99% (AFIA Finance Corporation)
Chubb Insurance South Africa Limited	South Africa	100%
Chubb Insurance New Zealand Limited	New Zealand	100%
Chubb Brazil Holdings, Ltd.	Delaware	100%
ACE Corretora de Seguros Ltda.	Brazil	99% 1% (Chubb INA International Holdings, Ltd.)
ACE Resseguradora S.A.	Brazil	99.99% 0.01% (Chubb INA International Holdings, Ltd.)
Chubb International Management Corporation	USA (Pennsylvania)	100%
Cover Direct, Inc.	USA (Delaware)	100%
PT Adi Citra Mandiri	Indonesia	100%
Chubb INA G.B. Holdings Ltd	USA (Delaware)	100%
ACE INA Services U.K. Limited	UK	100%
Century Inversiones, S.A.	Panama	100%
ACE Arabia Insurance Company Limited B.S.C. (C)	Bahrain	50%
Chubb Insurance Pakistan Limited	Pakistan	100%
ACE INA Overseas Insurance Company Ltd.	Bermuda	100%
Chubb Canada Holdings Inc.	USA (Delaware)	31.53% 68.47% (Chubb INA International Holdings Ltd.)
Chubb Holdings Canada Ltd.	Canada	100%
Chubb Insurance Company of Canada	Canada	100%
Chubb Life Insurance Company of Canada	Canada	100%
Chubb Tempest Re Canada Inc.	Canada	100%
Chubb Insurance Singapore Limited	Singapore	100%
Chubb Insurance Japan	Japan	100%
Chubb SSI Japan	Japan	100%
H.S. Life Small Amount & Short Term Ins. Co. Ltd.	Japan	14.92%
ACE Marketing Group, C.A.	Venezuela	100%
Chubb Insurance Company of Puerto Rico	Puerto Rico	100%
Chubb Insurance Agency Inc.	Puerto Rico	100%
Chubb Insurance Hong Kong Limited	Hong Kong	100%
Chubb Alternative Risk Ltd.	Bermuda	100%
DELPANAMA S.A.	Panama	100%
INAMEX S.A.	Mexico	100%
Oriental Equity Holdings Limited	British Virgin Islands	100%
AFIA Finance Corporation	USA (Delaware)	100%
AFIA Finance Corporation Agencia en Chile	Chile	100%

AFIA Venezolana C.A.	Venezuela	100%
ACE Servicios S.A.	Argentina	95% 5% (ACE INA Int'l Holdings)
AFIA Finance Corp. Chile Limitada	Chile	98% 2% (ACE INA Int'l Holdings)
Pembroke Reinsurance, Inc.	USA (Delaware)	100%
RIYAD Insurance Co. Ltd.	Bermuda	80%
Chubb Asia Pacific Services Pte. Ltd.	Singapore	100%
Chubb IT Development Center Sdn. Bhd	Malaysia	100%
AFIA (INA) Corporation Limited	USA (Delaware)	100%
AFIA	Unincorporated Association	60% 40% AFIA (Chubb)
AFIA (Chubb) Corporation, Limited	USA (Delaware)	100%
INAVEN, C.A. "Venezuela"	Venezuela	100%
Ally Insurance Holdings LLC	USA (Delaware)	100%
ABA Seguros, S.A. de C.V.	Mexico	100%
ABA Servicios Corporativos, S.A. de C.V.	Mexico	100%
ABA Mexico Holdings LLC	USA (Delaware)	100%
ABA Garantias S.A. de C.V.	Mexico	100%
Chubb US Holdings Inc.	USA (Delaware)	100%
Rhea International Marketing (L), Inc.	Malaysia	60%
Westchester Fire Insurance Company (F/K/A ACE Indemnity Insurance Company)	USA (Pennsylvania)	100%
Westchester Surplus Lines Insurance Company	USA (Georgia)	100%
Westchester Specialty Insurance Services, Inc.	USA (Nevada)	100%

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-3 (Nos. 333-200838 and 333-207570) and Form S-8 (Nos. 333-211644, 333-208998, 333-188949, 333-182062, 333-153239, 333-116532, 333-1404, 333-46301, 333-93867, 333-72301, 333-61038, 333-134504, and 333-168795) of Chubb Limited of our report dated February 28, 2017 relating to the financial statements, financial statement schedules, and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
PricewaterhouseCoopers LLP
Philadelphia, Pennsylvania
February 28, 2017

Exhibit 31.1

CERTIFICATION PURSUANT TO
SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002

I, Evan G. Greenberg, certify that:

1) I have reviewed this annual report on Form 10-K of Chubb Limited;

2) Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3) Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4) The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5) The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's Board of Directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2017

/s/ Evan G. Greenberg

Evan G. Greenberg
Chairman, President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION PURSUANT TO
SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002

I, Philip V. Bancroft, certify that:

1) I have reviewed this annual report on Form 10-K of Chubb Limited;

2) Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3) Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4) The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5) The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s Board of Directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: February 27, 2017

/s/ Philip V. Bancroft

Philip V. Bancroft

Executive Vice President and Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

The undersigned officer of Chubb Limited (the Corporation) hereby certifies that the Corporation’s Annual Report on Form 10-K for the year ended December 31, 2016 , fully complies with the applicable reporting requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a)) and that the information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Corporation.

Dated: February 27, 2017

/s/ Evan G. Greenberg

Evan G. Greenberg
Chairman, President and Chief Executive Officer

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

The undersigned officer of Chubb Limited (the Corporation) hereby certifies that the Corporation’s Annual Report on Form 10-K for the year ended December 31, 2016 , fully complies with the applicable reporting requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a)) and that the information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Corporation.

Dated: February 27, 2017	/s/ Philip V. Bancroft
	Philip V. Bancroft
	Executive Vice President and Chief Financial Officer