
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 10-Q

☒ Quarterly report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the quarterly period ended September 30, 2022

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 Number: 001-15811

MARKEL CORPORATION
(Exact name of registrant as specified in its charter)

Virginia
(State or other jurisdiction of
incorporation or organization)

54-1959284
(I.R.S. Employer
Identification No.)

4521 Highwoods Parkway, Glen Allen, Virginia 23060-6148
(Address of principal executive offices) (Zip Code)

(804) 747-0136
(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of exchange on which registered
Common Stock, no par value	MKL	New York Stock Exchange

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 every Interactive Data File required to be submitted 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 such files). Yes ☒ No ☐

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

Large accelerated filer	☒	Accelerated filer	☐	Non-accelerated filer	☐
Smaller reporting company	☐	Emerging growth company	☐		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

Number of shares of the registrant's common stock outstanding at October 25, 2022: 13,450,401

Markel Corporation
Form 10-Q
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PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

MARKET CORPORATION AND SUBSIDIARIES CONSOLIDATED BALANCE SHEETS

	September 30, 2022 (unaudited)	December 31, 2021
<i>(dollars in thousands)</i>		
ASSETS		
Investments, at estimated fair value:		
Fixed maturity securities, available-for-sale (amortized cost of \$12,845,579 in 2022 and \$12,061,467 in 2021)	\$ 11,726,357	\$ 12,587,305
Equity securities (cost of \$3,005,729 in 2022 and \$2,867,899 in 2021)	6,950,357	9,023,927
Short-term investments, available-for-sale (estimated fair value approximates cost)	2,424,844	1,799,988
Total Investments	21,101,558	23,411,220
Cash and cash equivalents	3,540,690	3,978,490
Restricted cash and cash equivalents	1,255,178	902,457
Receivables	2,956,686	2,413,938
Reinsurance recoverables	8,258,499	7,293,555
Deferred policy acquisition costs	946,064	794,145
Prepaid reinsurance premiums	2,285,959	1,798,571
Goodwill	2,797,426	2,899,140
Intangible assets	1,686,212	1,822,486
Other assets	3,593,083	3,163,094
Total Assets	\$ 48,421,355	\$ 48,477,096
LIABILITIES AND EQUITY		
Unpaid losses and loss adjustment expenses	\$ 20,194,374	\$ 18,178,894
Life and annuity benefits	733,489	902,980
Unearned premiums	6,514,980	5,383,619
Payables to insurance and reinsurance companies	685,294	616,665
Senior long-term debt and other debt (estimated fair value of \$3,520,000 in 2022 and \$5,017,000 in 2021)	4,131,165	4,361,266
Other liabilities	3,290,291	3,832,084
Total Liabilities	35,549,593	33,275,508
Redeemable noncontrolling interests	513,043	461,378
Commitments and contingencies		
Shareholders' equity:		
Preferred stock	591,891	591,891
Common stock	3,482,828	3,441,079
Retained earnings	9,255,658	10,446,763
Accumulated other comprehensive income (loss)	(1,036,454)	237,617
Total Shareholders' Equity	12,293,923	14,717,350
Noncontrolling interests	64,796	22,860
Total Equity	12,358,719	14,740,210
Total Liabilities and Equity	\$ 48,421,355	\$ 48,477,096

See accompanying notes to consolidated financial statements.

MARKEL CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF INCOME (LOSS) AND COMPREHENSIVE INCOME (LOSS)
(Unaudited)

	Quarter Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
<i>(dollars in thousands, except per share data)</i>				
OPERATING REVENUES				
Earned premiums	\$ 1,956,830	\$ 1,630,500	\$ 5,549,704	\$ 4,696,232
Net investment income	107,731	91,264	274,123	284,095
Net investment gains (losses)	(281,483)	(25,833)	(2,194,525)	1,175,791
Products revenues	586,531	405,711	1,845,111	1,327,144
Services and other revenues	696,536	585,712	1,990,175	1,605,058
Total Operating Revenues	3,066,145	2,687,354	7,464,588	9,088,320
OPERATING EXPENSES				
Losses and loss adjustment expenses	1,185,313	948,241	3,216,495	2,643,114
Underwriting, acquisition and insurance expenses	643,272	569,756	1,843,106	1,644,863
Products expenses	580,830	374,407	1,726,367	1,173,135
Services and other expenses	540,569	513,994	1,692,203	1,442,342
Amortization of intangible assets	43,418	39,268	134,990	118,550
Total Operating Expenses	2,993,402	2,445,666	8,613,161	7,022,004
Operating Income (Loss)	72,743	241,688	(1,148,573)	2,066,316
Interest expense	(47,348)	(46,455)	(147,090)	(135,412)
Net foreign exchange gains	115,130	48,850	245,356	61,677
Income (Loss) Before Income Taxes	140,525	244,083	(1,050,307)	1,992,581
Income tax (expense) benefit	(17,995)	(54,415)	239,536	(419,898)
Net Income (Loss)	122,530	189,668	(810,771)	1,572,683
Net income attributable to noncontrolling interests	(57,161)	(1,598)	(93,062)	(18,809)
Net Income (Loss) to Shareholders	65,369	188,070	(903,833)	1,553,874
Preferred stock dividends	—	—	(18,000)	(18,000)
Net Income (Loss) to Common Shareholders	\$ 65,369	\$ 188,070	\$ (921,833)	\$ 1,535,874
OTHER COMPREHENSIVE LOSS				
Change in net unrealized gains (losses) on available-for-sale investments, net of taxes:				
Net holding losses arising during the period	\$ (424,929)	\$ (104,238)	\$ (1,263,839)	\$ (262,679)
Reclassification adjustments for net gains (losses) included in net income (loss)	591	224	2,289	(3,807)
Change in net unrealized gains (losses) on available-for-sale investments, net of taxes	(424,338)	(104,014)	(1,261,550)	(266,486)
Change in foreign currency translation adjustments, net of taxes	(8,872)	(4,437)	(14,395)	(330)
Change in net actuarial pension loss, net of taxes	303	586	1,808	1,832
Total Other Comprehensive Loss	(432,907)	(107,865)	(1,274,137)	(264,984)
Comprehensive Income (Loss)	(310,377)	81,803	(2,084,908)	1,307,699
Comprehensive income attributable to noncontrolling interests	(57,051)	(1,567)	(92,996)	(18,812)
Comprehensive Income (Loss) to Shareholders	\$ (367,428)	\$ 80,236	\$ (2,177,904)	\$ 1,288,887
NET INCOME (LOSS) PER COMMON SHARE				
Basic	\$ 3.51	\$ 15.12	\$ (72.31)	\$ 114.39
Diluted	\$ 3.50	\$ 15.09	\$ (72.31)	\$ 114.20

See accompanying notes to consolidated financial statements.

MARKEL CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(Unaudited)

	Preferred Stock	Common Stock	Retained Earnings	Accumulated Other Comprehensive Loss	Total Shareholders' Equity	Noncontrolling Interests	Total Equity	Redeemable Noncontrolling Interests
Quarter Ended September 30, 2022								
<i>(dollars in thousands)</i>								
June 30, 2022	\$ 591,891	\$ 3,478,153	\$ 9,289,820	\$ (603,657)	\$ 12,756,207	\$ 11,125	\$ 12,767,332	\$ 495,378
Net income			65,369	—	65,369	52,867	118,236	4,294
Other comprehensive loss			—	(432,797)	(432,797)	—	(432,797)	(110)
Comprehensive Income (Loss)					(367,428)	52,867	(314,561)	4,184
Repurchase of common stock	—	—	(81,799)	—	(81,799)	—	(81,799)	—
Restricted stock units expensed	—	4,661	—	—	4,661	—	4,661	—
Adjustment of redeemable noncontrolling interests	—	—	(17,730)	—	(17,730)	—	(17,730)	17,730
Other	—	14	(2)	—	12	804	816	(4,249)
September 30, 2022	<u>\$ 591,891</u>	<u>\$ 3,482,828</u>	<u>\$ 9,255,658</u>	<u>\$ (1,036,454)</u>	<u>\$ 12,293,923</u>	<u>\$ 64,796</u>	<u>\$ 12,358,719</u>	<u>\$ 513,043</u>
Nine Months Ended September 30, 2022								
<i>(dollars in thousands)</i>								
December 31, 2021	\$ 591,891	\$ 3,441,079	\$ 10,446,763	\$ 237,617	\$ 14,717,350	\$ 22,860	\$ 14,740,210	\$ 461,378
Net income (loss)			(903,833)	—	(903,833)	78,283	(825,550)	14,779
Other comprehensive loss			—	(1,274,071)	(1,274,071)	—	(1,274,071)	(66)
Comprehensive Income (Loss)					(2,177,904)	78,283	(2,099,621)	14,713
Repurchase of common stock	—	—	(208,090)	—	(208,090)	—	(208,090)	—
Preferred stock dividends	—	—	(18,000)	—	(18,000)	—	(18,000)	—
Restricted stock units expensed	—	37,531	—	—	37,531	—	37,531	—
Adjustment of redeemable noncontrolling interests	—	—	(62,168)	—	(62,168)	—	(62,168)	62,168
Adjustment to Metromont purchase price allocation	—	—	—	—	—	—	—	(18,681)
Disposition of Velocity	—	—	—	—	—	(22,059)	(22,059)	—
Redemption of Markel CATCo Re noncontrolling interests	—	—	—	—	—	(22,261)	(22,261)	—
Other	—	4,218	986	—	5,204	7,973	13,177	(6,535)
September 30, 2022	<u>\$ 591,891</u>	<u>\$ 3,482,828</u>	<u>\$ 9,255,658</u>	<u>\$ (1,036,454)</u>	<u>\$ 12,293,923</u>	<u>\$ 64,796</u>	<u>\$ 12,358,719</u>	<u>\$ 513,043</u>

See accompanying notes to consolidated financial statements.

MARKEL CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(Unaudited)

	Preferred Stock	Common Stock	Retained Earnings	Accumulated Other Comprehensive Income	Total Shareholders' Equity	Noncontrolling Interests	Total Equity	Redeemable Noncontrolling Interests
Quarter Ended September 30, 2021								
<i>(dollars in thousands)</i>								
June 30, 2021	\$ 591,891	\$ 3,451,968	\$ 9,526,191	\$ 427,223	\$ 13,997,273	\$ 23,078	\$ 14,020,351	\$ 228,401
Net income			188,070	—	188,070	558	188,628	1,040
Other comprehensive loss			—	(107,834)	(107,834)	—	(107,834)	(31)
Comprehensive Income					80,236	558	80,794	1,009
Repurchase of common stock	—	—	(61,551)	—	(61,551)	—	(61,551)	—
Restricted stock units expensed	—	4,181	—	—	4,181	—	4,181	—
Acquisition of Buckner	—	—	—	—	—	—	—	26,438
Adjustment of redeemable noncontrolling interests	—	—	19,930	—	19,930	—	19,930	(19,930)
Purchase of noncontrolling interest	—	(1,020)	—	—	(1,020)	—	(1,020)	(1,032)
Other	—	—	17	—	17	(175)	(158)	—
September 30, 2021	\$ 591,891	\$ 3,455,129	\$ 9,672,657	\$ 319,389	\$ 14,039,066	\$ 23,461	\$ 14,062,527	\$ 231,912

	Preferred Stock	Common Stock	Retained Earnings	Accumulated Other Comprehensive Income	Total Shareholders' Equity	Noncontrolling Interests	Total Equity	Redeemable Noncontrolling Interests
Nine Months Ended September 30, 2021								
<i>(dollars in thousands)</i>								
December 31, 2020	\$ 591,891	\$ 3,428,340	\$ 8,195,182	\$ 584,376	\$ 12,799,789	\$ 14,892	\$ 12,814,681	\$ 245,642
Cumulative effect of change in accounting policy			22,302	—	22,302	—	22,302	—
January 1, 2021	591,891	3,428,340	8,217,484	584,376	12,822,091	14,892	12,836,983	245,642
Net income			1,553,874	—	1,553,874	7,960	1,561,834	10,849
Other comprehensive income (loss)			—	(264,987)	(264,987)	—	(264,987)	3
Comprehensive Income					1,288,887	7,960	1,296,847	10,852
Repurchase of common stock	—	—	(122,377)	—	(122,377)	—	(122,377)	—
Preferred stock dividends	—	—	(18,000)	—	(18,000)	—	(18,000)	—
Restricted stock units expensed	—	27,783	—	—	27,783	—	27,783	—
Acquisition of Buckner	—	—	—	—	—	—	—	26,438
Adjustment of redeemable noncontrolling interests	—	—	41,553	—	41,553	—	41,553	(41,553)
Purchase of noncontrolling interest	—	(1,551)	—	—	(1,551)	—	(1,551)	(1,179)
Other	—	557	123	—	680	609	1,289	(8,288)
September 30, 2021	\$ 591,891	\$ 3,455,129	\$ 9,672,657	\$ 319,389	\$ 14,039,066	\$ 23,461	\$ 14,062,527	\$ 231,912

See accompanying notes to consolidated financial statements.

MARKEL CORPORATION AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

	Nine Months Ended September 30,	
	2022	2021
	<i>(dollars in thousands)</i>	
OPERATING ACTIVITIES		
Net income (loss)	\$ (810,771)	\$ 1,572,683
Adjustments to reconcile net income (loss) to net cash provided by operating activities	2,691,043	49,759
Net Cash Provided By Operating Activities	1,880,272	1,622,442
INVESTING ACTIVITIES		
Proceeds from sales, maturities, calls and prepayments of fixed maturity securities	557,742	491,319
Cost of fixed maturity securities purchased	(1,433,299)	(2,201,622)
Proceeds from sales of equity securities	164,277	157,891
Cost of equity securities purchased	(293,011)	(178,368)
Net change in short-term investments	(625,261)	(727,366)
Additions to property and equipment	(209,282)	(80,758)
Acquisitions, net of cash acquired	(14,000)	(241,210)
Consolidation of Markel CATCo Re, net	629,955	—
Distributions to Markel CATCo Re noncontrolling interests for buy-out transaction	(169,380)	—
Proceeds from sale of business, net	109,505	40,720
Other	(571)	6,903
Net Cash Used By Investing Activities	(1,283,325)	(2,732,491)
FINANCING ACTIVITIES		
Additions to senior long-term debt and other debt	757,941	989,067
Repayment of senior long-term debt and other debt	(982,852)	(370,157)
Repurchases of common stock	(208,090)	(122,377)
Dividends paid on preferred stock	(18,000)	(18,000)
Other	(40,053)	(39,149)
Net Cash Provided (Used) By Financing Activities	(491,054)	439,384
Effect of foreign currency rate changes on cash, cash equivalents, restricted cash and restricted cash equivalents	(190,972)	(38,973)
Decrease in cash, cash equivalents, restricted cash and restricted cash equivalents	(85,079)	(709,638)
Cash, cash equivalents, restricted cash and restricted cash equivalents at beginning of period	4,880,947	5,216,649
CASH, CASH EQUIVALENTS, RESTRICTED CASH AND RESTRICTED CASH EQUIVALENTS AT END OF PERIOD	\$ 4,795,868	\$ 4,507,011

See accompanying notes to consolidated financial statements.

MARKEL CORPORATION AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Summary of Significant Accounting Policies

Markel Corporation is a diverse financial holding company serving a variety of niche markets. Markel Corporation's principal business markets and underwrites specialty insurance products. Through its wholly owned subsidiary, Markel Ventures, Inc. (Markel Ventures), Markel Corporation also owns controlling interests in various businesses that operate outside of the specialty insurance marketplace. See note 2 for details regarding reportable segments.

a) Basis of Presentation. The consolidated balance sheet as of September 30, 2022 and the related consolidated statements of income (loss) and comprehensive income (loss) and changes in equity for the quarters and nine months ended September 30, 2022 and 2021, and the condensed consolidated statements of cash flows for the nine months ended September 30, 2022 and 2021 are unaudited. In the opinion of management, all adjustments necessary for fair presentation of such consolidated financial statements have been included. Except for the adjustment described in note 15, such adjustments consist only of normal, recurring items. Interim results are not necessarily indicative of results of operations for the entire year. The consolidated balance sheet as of December 31, 2021 was derived from Markel Corporation's audited annual consolidated financial statements.

The accompanying consolidated financial statements have been prepared in accordance with United States (U.S.) generally accepted accounting principles (GAAP) and include the accounts of Markel Corporation and its consolidated subsidiaries, as well as any variable interest entities (VIEs) that meet the requirements for consolidation (the Company). All significant intercompany balances and transactions have been eliminated in consolidation. The Company consolidates the results of its Markel Ventures subsidiaries on a one-month lag, with the exception of significant transactions or events that occur during the intervening period. Certain prior period amounts have been reclassified to conform to the current period presentation.

The preparation of financial statements in accordance with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses and the disclosure of contingent assets and liabilities. Actual results may differ materially from the estimates and assumptions used in preparing the consolidated financial statements.

The consolidated financial statements and notes are presented as permitted by Form 10-Q and do not contain certain information included in the Company's annual consolidated financial statements and notes. For a more complete description of the Company's business and accounting policies, readers are urged to review the Company's 2021 Annual Report on Form 10-K, as well as note 15 for details regarding a change to the Company's policy for accounting for deferred policy acquisition costs.

b) Recent Accounting Pronouncements

Accounting Standards Not Yet Adopted

In August 2018, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) No. 2018-12, *Financial Services—Insurance (Topic 944): Targeted Improvements to the Accounting for Long-Duration Contracts*. The FASB subsequently issued several ASUs as amendments to ASU No. 2018-12. The standard requires insurance companies with long duration contracts to: (1) review and, if there is a change, update the assumptions used to measure expected cash flows at least annually; (2) update the discount rate assumption at each reporting date; and (3) enhance certain qualitative and quantitative disclosures. ASU No. 2018-12 becomes effective for the Company during the first quarter of 2023 and will be applied using a modified retrospective approach that requires restatement of prior periods presented, including a cumulative adjustment to accumulated other comprehensive income as of January 1, 2021 (the transition date). The standard will, among other things, impact the discount rate used in estimating reserves for the Company's life and annuity reinsurance portfolio, which is in runoff. Currently, the discount rate assumption is locked-in for the life of the contracts, unless there is a loss recognition event. Based on the Company's current estimate, the adoption of ASU 2018-12 is expected to result in a decrease to accumulated other comprehensive income of less than \$25 million, net of taxes, as a result of changing the discount rate assumption as of the transition date. However, the cumulative impact of changes in the discount rate assumption upon adopting ASU 2018-12 in the first quarter of 2023 will be based on the discount rate assumption determined as of the January 1, 2023 adoption date. Based on increases in interest rates subsequent to the transition date, the Company expects that an update to the discount rate assumption as of September 30, 2022 would result in a cumulative increase to accumulated other comprehensive income. The Company is still determining the ultimate impact that adopting ASU No. 2018-12 will have on its consolidated financial statements.

In October 2021, the FASB issued ASU No. 2021-08, *Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers*, which becomes effective for the Company during the first quarter of 2023. ASU No. 2021-08 requires contract assets and liabilities accounted for under FASB Accounting Standards Codification (ASC) 606, *Revenue from Contracts with Customers*, to be recorded at the acquisition date as if the acquirer entered into those contracts itself on the contract inception dates, rather than at fair value. At adoption, ASU No. 2021-08 will not impact the Company's financial position, results of operations or cash flows, but prospectively, this ASU will impact amounts recorded by the Company for assets acquired and liabilities assumed in conjunction with certain acquisitions.

2. Segment Reporting Disclosures

The chief operating decision maker reviews the Company's ongoing underwriting operations on a global basis in the following two segments: Insurance and Reinsurance. In determining how to allocate resources and assess the performance of the Company's underwriting results, management considers many factors, including the nature of the insurance product sold, the type of account written and the type of customer served. The Insurance segment includes all direct business and facultative placements written on a risk-bearing basis within the Company's underwriting operations. The Reinsurance segment includes all treaty reinsurance written on a risk-bearing basis within the Company's underwriting operations. All investing activities related to the Company's insurance operations are included in the Investing segment.

The chief operating decision maker reviews and assesses Markel Ventures' performance in the aggregate, as a single operating segment. The Markel Ventures segment primarily consists of controlling interests in a diverse portfolio of businesses that operate in various industries.

The Company's other operations primarily consist of the results of the Company's insurance-linked securities operations and program services business. Other operations also include results for lines of business discontinued prior to, or in conjunction with, acquisitions, including development on asbestos and environmental loss reserves and results attributable to the run-off of life and annuity reinsurance business, which are monitored separately from the Company's ongoing underwriting operations. For purposes of segment reporting, none of these other operations are considered to be reportable segments.

Segment profit for each of the Company's underwriting segments is measured by underwriting profit. The property and casualty insurance industry commonly defines underwriting profit as earned premiums net of losses and loss adjustment expenses and underwriting, acquisition and insurance expenses. Underwriting profit does not replace operating income or net income computed in accordance with U.S. GAAP as a measure of profitability. Underwriting profit or loss provides a basis for management to evaluate the Company's underwriting performance. Segment profit for the Company's underwriting segments may also include other revenues and expenses that are attributable to the Company's underwriting operations that are not captured in underwriting profit. Segment profit for the Investing segment is measured by net investment income and net investment gains. Segment profit for the Markel Ventures segment is measured by operating income.

For management reporting purposes, the Company allocates assets to its underwriting operations and to its Investing and Markel Ventures segments and certain of its other operations, including its insurance-linked securities and program services operations. Underwriting assets include assets attributed to the Company's Insurance and Reinsurance segments, discontinued underwriting lines of business, as well as assets that are not specifically allocated to the Company's other operations. Generally, the Company manages its underwriting assets in the aggregate and therefore does not allocate assets to individual underwriting segments.

a) The following tables summarize the Company's segment disclosures.

	Quarter Ended September 30, 2022					
<i>(dollars in thousands)</i>	Insurance	Reinsurance	Investing	Markel Ventures ⁽¹⁾	Other ⁽²⁾	Consolidated
Gross premium volume	\$ 2,299,325	\$ 179,455	\$ —	\$ —	\$ 995,991	\$ 3,474,771
Net written premiums	1,849,983	154,029	—	—	5,155	2,009,167
Earned premiums	1,695,029	260,535	—	—	1,266	1,956,830
Losses and loss adjustment expenses:						
Current accident year	(1,100,511)	(166,485)	—	—	—	(1,266,996)
Prior accident years	53,760	29,505	—	—	(1,582)	81,683
Underwriting, acquisition and insurance expenses:						
Amortization of policy acquisition costs	(362,137)	(68,662)	—	—	(383)	(431,182)
Other underwriting expenses	(200,604)	(11,638)	—	—	152	(212,090)
Underwriting profit (loss)	85,537	43,255	—	—	(547)	128,245
Net investment income	—	—	107,414	317	—	107,731
Net investment losses	—	—	(281,483)	—	—	(281,483)
Products revenues	—	—	—	586,531	—	586,531
Services and other revenues	—	—	—	629,215	67,321	696,536
Products expenses	—	—	—	(580,830)	—	(580,830)
Services and other expenses ⁽³⁾	—	—	—	(556,207)	15,638	(540,569)
Amortization of intangible assets ⁽⁴⁾	—	—	—	(18,567)	(24,851)	(43,418)
Segment profit (loss)	\$ 85,537	\$ 43,255	\$ (174,069)	\$ 60,459	\$ 57,561	\$ 72,743
Interest expense						(47,348)
Net foreign exchange gains						115,130
Income before income taxes						\$ 140,525
U.S. GAAP combined ratio ⁽⁵⁾	95 %	83 %			NM ⁽⁶⁾	93 %

⁽¹⁾ Products expenses and services and other expenses for the Markel Ventures segment include depreciation expense of \$23.7 million for the quarter ended September 30, 2022.

⁽²⁾ Other represents the total profit (loss) attributable to the Company's operations that are not included in a reportable segment as well as any amortization of intangible assets that is not allocated to a reportable segment. Amortization of intangible assets attributable to the Company's underwriting segments was \$9.6 million for the quarter ended September 30, 2022, however, the Company does not allocate amortization of intangible assets between the Insurance and Reinsurance segments.

⁽³⁾ Services and other expenses for Other for the quarter ended September 30, 2022 included \$53.4 million of favorable loss reserve development on the run-off of reinsurance contracts written by Markel CATCo Re Ltd., all of which was attributable to noncontrolling interests. See Note 11.

⁽⁴⁾ Segment profit for the Markel Ventures segment includes amortization of intangible assets attributable to Markel Ventures. Amortization of intangible assets is not allocated to the Company's Insurance and Reinsurance segments.

⁽⁵⁾ The U.S. GAAP combined ratio is a measure of underwriting performance and represents the relationship of incurred losses, loss adjustment expenses and underwriting, acquisition and insurance expenses to earned premiums.

⁽⁶⁾ NM - Ratio is not meaningful

	Quarter Ended September 30, 2021					
<i>(dollars in thousands)</i>	Insurance	Reinsurance	Investing	Markel Ventures ⁽¹⁾	Other ⁽²⁾	Consolidated
Gross premium volume	\$ 1,899,592	\$ 180,673	\$ —	\$ —	\$ 888,337	\$ 2,968,602
Net written premiums	1,545,428	141,642	—	—	(2,260)	1,684,810
Earned premiums	1,381,235	250,962	—	—	(1,697)	1,630,500
Losses and loss adjustment expenses:						
Current accident year	(866,481)	(221,872)	—	—	—	(1,088,353)
Prior accident years	124,133	16,292	—	—	(313)	140,112
Underwriting, acquisition and insurance expenses:						
Amortization of policy acquisition costs	(289,201)	(63,723)	—	—	—	(352,924)
Other underwriting expenses	(202,961)	(12,101)	—	—	(1,770)	(216,832)
Underwriting profit (loss)	146,725	(30,442)	—	—	(3,780)	112,503
Net investment income	—	—	91,261	3	—	91,264
Net investment losses	—	—	(25,833)	—	—	(25,833)
Products revenues	—	—	—	405,711	—	405,711
Services and other revenues	—	—	—	502,471	83,241	585,712
Products expenses	—	—	—	(374,407)	—	(374,407)
Services and other expenses	—	—	—	(465,268)	(48,726)	(513,994)
Amortization of intangible assets ⁽³⁾	—	—	—	(13,541)	(25,727)	(39,268)
Segment profit (loss)	\$ 146,725	\$ (30,442)	\$ 65,428	\$ 54,969	\$ 5,008	\$ 241,688
Interest expense						(46,455)
Net foreign exchange gains						48,850
Income before income taxes						\$ 244,083
U.S. GAAP combined ratio ⁽⁴⁾	89 %	112 %			NM ⁽⁵⁾	93 %

(1) Products expenses and services and other expenses for the Markel Ventures segment include depreciation expense of \$15.8 million for the quarter ended September 30, 2021.

(2) Other represents the total profit (loss) attributable to the Company's operations that are not included in a reportable segment as well as any amortization of intangible assets that is not allocated to a reportable segment. Amortization of intangible assets attributable to the Company's underwriting segments was \$10.3 million for the quarter ended September 30, 2021, however, the Company does not allocate amortization of intangible assets between the Insurance and Reinsurance segments.

(3) Segment profit for the Markel Ventures segment includes amortization of intangible assets attributable to Markel Ventures. Amortization of intangible assets is not allocated to the Company's Insurance and Reinsurance segments.

(4) The U.S. GAAP combined ratio is a measure of underwriting performance and represents the relationship of incurred losses, loss adjustment expenses and underwriting, acquisition and insurance expenses to earned premiums.

(5) NM - Ratio is not meaningful

	Nine Months Ended September 30, 2022					
<i>(dollars in thousands)</i>	Insurance	Reinsurance	Investing	Markel Ventures ⁽¹⁾	Other ⁽²⁾	Consolidated
Gross premium volume	\$ 6,479,789	\$ 1,044,827	\$ —	\$ —	\$ 2,628,491	\$ 10,153,107
Net written premiums	5,289,165	983,087	—	—	1,444	6,273,696
Earned premiums	4,742,178	808,656	—	—	(1,130)	5,549,704
Losses and loss adjustment expenses:						
Current accident year	(2,906,031)	(514,875)	—	—	—	(3,420,906)
Prior accident years	196,093	13,845	—	—	(5,527)	204,411
Underwriting, acquisition and insurance expenses:						
Amortization of policy acquisition costs	(996,369)	(209,541)	—	—	(415)	(1,206,325)
Other underwriting expenses	(596,426)	(37,708)	—	—	(2,647)	(636,781)
Underwriting profit (loss)	439,445	60,377	—	—	(9,719)	490,103
Net investment income	—	—	273,699	424	—	274,123
Net investment losses	—	—	(2,194,525)	—	—	(2,194,525)
Products revenues	—	—	—	1,845,111	—	1,845,111
Services and other revenues	—	—	—	1,682,318	307,857	1,990,175
Products expenses	—	—	—	(1,726,367)	—	(1,726,367)
Services and other expenses ⁽³⁾	—	—	—	(1,524,167)	(168,036)	(1,692,203)
Amortization of intangible assets ⁽⁴⁾	—	—	—	(60,077)	(74,913)	(134,990)
Segment profit (loss)	\$ 439,445	\$ 60,377	\$ (1,920,826)	\$ 217,242	\$ 55,189	\$ (1,148,573)
Interest expense						(147,090)
Net foreign exchange gains						245,356
Loss before income taxes						\$ (1,050,307)
U.S. GAAP combined ratio ⁽⁵⁾	91 %	93 %			NM ⁽⁶⁾	91 %

(1) Products expenses and services and other expenses for the Markel Ventures segment include depreciation expense of \$75.3 million for the nine months ended September 30, 2022.

(2) Other represents the total profit (loss) attributable to the Company's operations that are not included in a reportable segment as well as any amortization of intangible assets that is not allocated to a reportable segment. Amortization of intangible assets attributable to the Company's underwriting segments was \$29.0 million for the nine months ended September 30, 2022, however, the Company does not allocate amortization of intangible assets between the Insurance and Reinsurance segments.

(3) Services and other expenses for Other for the nine months ended September 30, 2022 included \$81.6 million of favorable loss reserve development on the run-off of reinsurance contracts written by Markel CATCo Re Ltd., all of which was attributable to noncontrolling interests. See Note 11.

(4) Segment profit for the Markel Ventures segment includes amortization of intangible assets attributable to Markel Ventures. Amortization of intangible assets is not allocated to the Company's Insurance and Reinsurance segments.

(5) The U.S. GAAP combined ratio is a measure of underwriting performance and represents the relationship of incurred losses, loss adjustment expenses and underwriting, acquisition and insurance expenses to earned premiums.

(6) NM - Ratio is not meaningful

Nine Months Ended September 30, 2021

<i>(dollars in thousands)</i>	Insurance	Reinsurance	Investing	Markel Ventures	Other ⁽²⁾	Consolidated
Gross premium volume	\$ 5,359,293	\$ 992,635	\$ —	\$ —	\$ 2,305,539	\$ 8,657,467
Net written premiums	4,427,301	893,082	—	—	(3,052)	5,317,331
Earned premiums	3,928,824	770,031	—	—	(2,623)	4,696,232
Losses and loss adjustment expenses:						
Current accident year	(2,448,034)	(561,226)	—	—	—	(3,009,260)
Prior accident years	397,723	(34,104)	—	—	2,527	366,146
Underwriting, acquisition and insurance expenses:						
Amortization of policy acquisition costs	(814,623)	(193,697)	—	—	—	(1,008,320)
Other underwriting expenses	(594,880)	(39,676)	—	—	(1,987)	(636,543)
Underwriting profit (loss)	469,010	(58,672)	—	—	(2,083)	408,255
Net investment income	—	—	284,087	8	—	284,095
Net investment gains	—	—	1,175,791	—	—	1,175,791
Products revenues	—	—	—	1,327,144	—	1,327,144
Services and other revenues	—	—	—	1,363,141	241,917	1,605,058
Products expenses	—	—	—	(1,173,135)	—	(1,173,135)
Services and other expenses	—	109	—	(1,260,957)	(181,494)	(1,442,342)
Amortization of intangible assets ⁽³⁾	—	—	—	(41,104)	(77,446)	(118,550)
Segment profit (loss)	\$ 469,010	\$ (58,563)	\$ 1,459,878	\$ 215,097	\$ (19,106)	\$ 2,066,316
Interest expense						(135,412)
Net foreign exchange gains						61,677
Income before income taxes						\$ 1,992,581
U.S. GAAP combined ratio ⁽⁴⁾	88 %	108 %			NM ⁽⁵⁾	91 %

- (1) Products expenses and services and other expenses for the Markel Ventures segment include depreciation expense of \$47.7 million for the nine months ended September 30, 2021.
- (2) Other represents the total profit (loss) attributable to the Company's operations that are not included in a reportable segment as well as any amortization of intangible assets that is not allocated to a reportable segment. Amortization of intangible assets attributable to the Company's underwriting segments was \$31.1 million for the nine months ended September 30, 2021, however, the Company does not allocate amortization of intangible assets between the Insurance and Reinsurance segments.
- (3) Segment profit for the Markel Ventures segment includes amortization of intangible assets attributable to Markel Ventures. Amortization of intangible assets is not allocated to the Company's Insurance and Reinsurance segments.
- (4) The U.S. GAAP combined ratio is a measure of underwriting performance and represents the relationship of incurred losses, loss adjustment expenses and underwriting, acquisition and insurance expenses to earned premiums.
- (5) NM - Ratio is not meaningful

b) The following table reconciles segment assets to the Company's consolidated balance sheets.

<i>(dollars in thousands)</i>	September 30, 2022	December 31, 2021
Segment assets:		
Investing	\$ 25,389,047	\$ 28,277,801
Underwriting	8,805,475	8,111,316
Markel Ventures	5,230,393	4,958,279
Total segment assets	39,424,915	41,347,396
Other operations	8,996,440	7,129,700
Total assets	\$ 48,421,355	\$ 48,477,096

3. Acquisitions and Dispositions

Velocity

In February 2022, the Company sold the majority of its controlling interest in its Velocity managing general agent companies (Velocity) for total cash consideration of \$181.3 million, which resulted in a gain of \$107.3 million that was included in services and other revenues. Velocity provides risk origination services for the Company's Nephila insurance-linked securities fund management operations, as well as for third parties. The Company retained a minority interest in Velocity that was recorded at fair value as of the transaction date (\$47.4 million) and is accounted for under the equity method.

Volante

In October 2022, the Company sold its controlling interest in its Volante managing general agent companies (Volante) for estimated total cash consideration of \$155 million. Volante underwrites and administers specialty insurance and reinsurance policies and provides delegated underwriting services to third-party providers of insurance capital. The Company will complete the accounting for the disposition in the fourth quarter of 2022.

Metromont LLC

In December 2021, the Company acquired 51% of Metromont LLC (Metromont), a precast concrete manufacturer and concrete building solutions provider for commercial projects. Under the terms of the acquisition agreement, the Company has the option to acquire the remaining equity interests and the remaining equity holders have the option to sell their interests to the Company in the future. The redemption value of the remaining equity interests is generally based on Metromont's earnings in specified periods preceding the redemption dates. Total consideration for the transaction was \$282.3 million, all of which was cash.

As of December 31, 2021, the purchase price was preliminarily allocated to the acquired assets and liabilities based on estimated fair value at the acquisition date, which was subsequently updated during the first quarter of 2022. During the first quarter of 2022, the Company decreased the allocation to redeemable noncontrolling interests by \$18.7 million with an offsetting decrease to goodwill of \$18.7 million, resulting in a preliminary purchase price allocation that reflected goodwill of \$200.6 million, intangible assets of \$143.9 million and redeemable noncontrolling interests of \$251.2 million. Goodwill is primarily attributable to expected future earnings and cash flow potential of Metromont, and it is expected to be deductible for income tax purposes. Results attributable to Metromont are included in the Company's Markel Ventures segment.

The Company has not completed the process of determining the fair value of the assets acquired and liabilities assumed. These valuations are required to be completed within 12 months from the acquisition date. As a result, the fair value recorded for these items is a provisional estimate and is subject to adjustment. Once completed, any adjustments resulting from the valuations may impact the individual amounts recorded for assets acquired and liabilities assumed, as well as the residual goodwill.

Buckner HeavyLift Cranes

In August 2021, the Company acquired 90% of the holding company for the Buckner HeavyLift Cranes companies (Buckner), a provider of crane rental services for large commercial contractors. Under the terms of the acquisition agreement, the Company has the option to acquire the remaining equity interests and the remaining equity holders have the option to sell their interests to the Company in the future. The redemption value of the remaining equity interests is generally based on Buckner's earnings in specified periods preceding the redemption dates. Total consideration for the transaction was \$237.9 million, all of which was cash.

As of December 31, 2021, the purchase price was preliminarily allocated to the acquired assets and liabilities of Buckner based on estimated fair value at the acquisition date. During the third quarter of 2022, the Company completed the process of determining the fair value of the assets acquired and liabilities assumed with Buckner. The Company recognized goodwill of \$109.9 million, intangible assets of \$60.0 million and fixed assets of \$290.4 million, primarily related to cranes. The final purchase price allocation reflected a decrease in the amount recognized for the cranes upon completion of a third-party valuation, which resulted in an increase to goodwill from the preliminary amount recognized. Goodwill is primarily attributable to expected future earnings and cash flow potential of Buckner, and it is not expected to be deductible for income tax purposes. Intangible assets include \$50.0 million of customer relationships and \$10.0 million of trade names, which are expected to be amortized over 7 years and 15 years, respectively. Additionally, the Company assumed long-term debt of \$165.1 million and recognized redeemable noncontrolling interests of \$26.4 million. Results attributable to Buckner are included in the Company's Markel Ventures segment.

4. Investments

a) The following tables summarize the Company's available-for-sale investments. Commercial and residential mortgage-backed securities include securities issued by U.S. government-sponsored enterprises and U.S. government agencies. The net unrealized holding gains (losses) in the tables below are presented before taxes and any reserve deficiency adjustments for life and annuity benefit reserves. See note 9.

	September 30, 2022			
	Amortized Cost	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Estimated Fair Value
<i>(dollars in thousands)</i>				
Fixed maturity securities:				
U.S. Treasury securities	\$ 3,145,087	\$ —	\$ (186,666)	\$ 2,958,421
U.S. government-sponsored enterprises	838,518	42	(113,378)	725,182
Obligations of states, municipalities and political subdivisions	3,975,846	3,479	(265,982)	3,713,343
Foreign governments	1,388,221	—	(215,332)	1,172,889
Commercial mortgage-backed securities	2,103,907	1	(171,243)	1,932,665
Residential mortgage-backed securities	582,833	127	(25,627)	557,333
Asset-backed securities	2,066	—	(54)	2,012
Corporate bonds	809,101	10	(144,599)	664,512
Total fixed maturity securities	12,845,579	3,659	(1,122,881)	11,726,357
Short-term investments	2,441,719	147	(17,022)	2,424,844
Investments, available-for-sale	\$ 15,287,298	\$ 3,806	\$ (1,139,903)	\$ 14,151,201

	December 31, 2021			
	Amortized Cost	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Estimated Fair Value
<i>(dollars in thousands)</i>				
Fixed maturity securities:				
U.S. Treasury securities	\$ 2,489,032	\$ 2,633	\$ (21,471)	\$ 2,470,194
U.S. government-sponsored enterprises	753,029	28,997	(6,439)	775,587
Obligations of states, municipalities and political subdivisions	4,007,211	266,575	(7,862)	4,265,924
Foreign governments	1,394,771	134,071	(9,488)	1,519,354
Commercial mortgage-backed securities	1,928,775	69,810	(8,152)	1,990,433
Residential mortgage-backed securities	699,136	27,084	(170)	726,050
Asset-backed securities	3,035	46	—	3,081
Corporate bonds	786,478	54,475	(4,271)	836,682
Total fixed maturity securities	12,061,467	583,691	(57,853)	12,587,305
Short-term investments	1,805,300	28	(5,340)	1,799,988
Investments, available-for-sale	\$ 13,866,767	\$ 583,719	\$ (63,193)	\$ 14,387,293

b) The following tables summarize gross unrealized investment losses on available-for-sale investments by the length of time that securities have continuously been in an unrealized loss position.

	September 30, 2022					
	Less than 12 months		12 months or longer		Total	
	Estimated Fair Value	Gross Unrealized Holding Losses	Estimated Fair Value	Gross Unrealized Holding Losses	Estimated Fair Value	Gross Unrealized Holding Losses
<i>(dollars in thousands)</i>						
Fixed maturity securities:						
U.S. Treasury securities	\$ 1,208,818	\$ (59,585)	\$ 1,749,603	\$ (127,081)	\$ 2,958,421	\$ (186,666)
U.S. government-sponsored enterprises	486,025	(63,103)	224,076	(50,275)	710,101	(113,378)
Obligations of states, municipalities and political subdivisions	2,955,371	(205,139)	253,651	(60,843)	3,209,022	(265,982)
Foreign governments	1,006,658	(177,900)	166,232	(37,432)	1,172,890	(215,332)
Commercial mortgage-backed securities	1,677,058	(122,811)	255,181	(48,432)	1,932,239	(171,243)
Residential mortgage-backed securities	510,227	(24,860)	3,899	(767)	514,126	(25,627)
Asset-backed securities	2,012	(54)	—	—	2,012	(54)
Corporate bonds	551,417	(118,451)	105,459	(26,148)	656,876	(144,599)
Total fixed maturity securities	8,397,586	(771,903)	2,758,101	(350,978)	11,155,687	(1,122,881)
Short-term investments	1,107,053	(17,022)	—	—	1,107,053	(17,022)
Total	\$ 9,504,639	\$ (788,925)	\$ 2,758,101	\$ (350,978)	\$ 12,262,740	\$ (1,139,903)

At September 30, 2022, the Company held 1,548 available-for-sale securities in an unrealized loss position with a total estimated fair value of \$12.3 billion and gross unrealized losses of \$1.1 billion. Of these 1,548 securities, 172 securities had been in a continuous unrealized loss position for one year or longer and had a total estimated fair value of \$2.8 billion and gross unrealized losses of \$351.0 million.

	December 31, 2021					
	Less than 12 months		12 months or longer		Total	
	Estimated Fair Value	Gross Unrealized Holding Losses	Estimated Fair Value	Gross Unrealized Holding Losses	Estimated Fair Value	Gross Unrealized Holding Losses
<i>(dollars in thousands)</i>						
Fixed maturity securities:						
U.S. Treasury securities	\$ 2,236,637	\$ (18,433)	\$ 97,173	\$ (3,038)	\$ 2,333,810	\$ (21,471)
U.S. government-sponsored enterprises	381,495	(5,640)	14,010	(799)	395,505	(6,439)
Obligations of states, municipalities and political subdivisions	393,249	(6,941)	23,589	(921)	416,838	(7,862)
Foreign governments	322,813	(8,596)	25,564	(892)	348,377	(9,488)
Commercial mortgage-backed securities	345,616	(7,765)	9,189	(387)	354,805	(8,152)
Residential mortgage-backed securities	12,828	(159)	269	(11)	13,097	(170)
Corporate bonds	193,786	(4,271)	—	—	193,786	(4,271)
Total fixed maturity securities	3,886,424	(51,805)	169,794	(6,048)	4,056,218	(57,853)
Short-term investments	228,870	(5,340)	—	—	228,870	(5,340)
Total	\$ 4,115,294	\$ (57,145)	\$ 169,794	\$ (6,048)	\$ 4,285,088	\$ (63,193)

At December 31, 2021, the Company held 277 available-for-sale securities in an unrealized loss position with a total estimated fair value of \$4.3 billion and gross unrealized losses of \$63.2 million. Of these 277 securities, 13 securities had been in a continuous unrealized loss position for one year or longer and had a total estimated fair value of \$169.8 million and gross unrealized losses of \$6.0 million.

The Company completes a detailed analysis each quarter to assess whether the decline in the fair value of any investment below its cost basis is the result of a credit loss. All available-for-sale securities with unrealized losses are reviewed. The Company considers many factors in completing its quarterly review of securities with unrealized losses for credit-related impairment to determine whether a credit loss exists, including the extent to which fair value is below cost, the implied yield to maturity, rating downgrades of the security and whether or not the issuer has failed to make scheduled principal or interest payments. The Company also takes into consideration information about the financial condition of the issuer and industry factors that could negatively impact the capital markets.

If the decline in fair value of an available-for-sale security below its amortized cost is considered to be the result of a credit loss, the Company compares the estimated present value of the cash flows expected to be collected to the amortized cost of the security. The extent to which the estimated present value of the cash flows expected to be collected is less than the amortized cost of the security represents the credit loss, which is recorded as an allowance and recognized in net income. The allowance is limited to the difference between the fair value and the amortized cost of the security. Any remaining decline in fair value represents the non-credit portion of the impairment, which is recognized in other comprehensive income. The Company did not have an allowance for credit losses as of September 30, 2022 or December 31, 2021.

Quarterly, the Company also considers whether it intends to sell an available-for-sale security or if it is more likely than not that it will be required to sell a security before recovery of its amortized cost. In these instances, a decline in fair value is recognized in net income based on the fair value of the security at the time of assessment, resulting in a new cost basis for the security. As of September 30, 2022, the Company did not intend to sell or believe it would be required to sell any available-for-sale securities in an unrealized loss position before recovery of their amortized cost.

c) The amortized cost and estimated fair value of fixed maturity securities at September 30, 2022 are shown below by contractual maturity.

<i>(dollars in thousands)</i>	Amortized Cost	Estimated Fair Value
Due in one year or less	\$ 1,392,651	\$ 1,357,060
Due after one year through five years	3,943,834	3,649,795
Due after five years through ten years	2,993,861	2,618,759
Due after ten years	1,826,427	1,608,733
	10,156,773	9,234,347
Commercial mortgage-backed securities	2,103,907	1,932,665
Residential mortgage-backed securities	582,833	557,333
Asset-backed securities	2,066	2,012
Total fixed maturity securities	\$ 12,845,579	\$ 11,726,357

d) The following table presents the components of net investment income.

<i>(dollars in thousands)</i>	Quarter Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Interest:				
Tax-exempt municipal bonds	\$ 12,673	\$ 14,293	\$ 39,408	\$ 43,631
Taxable municipal bonds	17,488	16,320	52,613	49,236
Other taxable bonds	42,316	39,705	123,520	119,718
Short-term investments, including overnight deposits	17,633	633	24,634	2,179
Dividends on equity securities	25,962	23,400	74,289	68,583
Income (loss) from equity method investments	(5,509)	882	(35,002)	13,825
Other	1,103	(335)	7,041	(947)
	111,666	94,898	286,503	296,225
Investment expenses	(3,935)	(3,634)	(12,380)	(12,130)
Net investment income	\$ 107,731	\$ 91,264	\$ 274,123	\$ 284,095

e) The following table presents the components of net investment gains (losses) and the change in net unrealized gains (losses) included in other comprehensive loss. Gross realized investment gains and losses on fixed maturity securities, short-term investments and other investments were not material to the consolidated financial statements and are presented on a net basis in the following table.

<i>(dollars in thousands)</i>	Quarter Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Fixed maturity securities, short-term investments and other investments:				
Net realized investment gains (losses)	\$ 2,032	\$ (2,578)	\$ 6,001	\$ 5,233
Equity securities:				
Change in fair value of securities sold during the period	2,553	(400)	(29,015)	22,254
Change in fair value of securities held at the end of the period	(286,068)	(22,855)	(2,171,511)	1,148,304
Total change in fair value	(283,515)	(23,255)	(2,200,526)	1,170,558
Net investment gains (losses)	\$ (281,483)	\$ (25,833)	\$ (2,194,525)	\$ 1,175,791
Change in net unrealized gains (losses) on available-for-sale investments included in other comprehensive loss:				
Fixed maturity securities	\$ (530,161)	\$ (133,244)	\$ (1,645,060)	\$ (391,528)
Short-term investments	(8,186)	(4,855)	(11,563)	(3,076)
Reserve deficiency adjustment for life and annuity benefit reserves (see note 9)	—	6,428	56,560	56,690
Net decrease	\$ (538,347)	\$ (131,671)	\$ (1,600,063)	\$ (337,914)

f) The Company's equity method investments, which totaled \$483.1 million and \$459.7 million as of September 30, 2022 and December 31, 2021, respectively, are included in other assets on the consolidated balance sheets.

The Company's most significant equity method investment is an investment in Hagerty, Inc. (Hagerty), which is accounted for on a quarter lag. Hagerty is an automotive enthusiast brand offering integrated membership products and programs as well as a specialty insurance provider focused on the global automobile enthusiast market. The Company's ownership interest in Hagerty was 23% as of September 30, 2022 and December 31, 2021. The Company's investment is comprised of Class A common shares, which are listed for trading on the New York Stock Exchange, as well as Class V common shares, associated with the Company's original investment in 2019, that have special voting rights and can be converted on a one-for-one basis into Class A common shares. The Company accounts for its investment under the equity method as it is deemed to have the ability to exercise significant influence over Hagerty's operating and financial policies through a combination of its voting interest, its right to designate a board member and business it conducts with Hagerty. As of September 30, 2022 and December 31, 2021, the carrying value of the Company's investment in Hagerty was \$239.0 million and \$256.6 million, respectively.

As of September 30, 2022 and December 31, 2021, the estimated value of the Company's investment, based on the closing stock price of Hagerty's Class A common shares, was \$701.2 million and \$1.1 billion, respectively. See note 12 for further details regarding related party transactions with Hagerty.

5. Fair Value Measurements

FASB ASC 820, *Fair Value Measurements and Disclosures*, establishes a three-level hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The fair value hierarchy gives the highest priority to quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). If the inputs used to measure the assets or liabilities fall within different levels of the hierarchy, the classification is based on the lowest level input that is significant to the fair value measurement of the asset or liability.

Classification of assets and liabilities within the hierarchy considers the markets in which the assets and liabilities are traded and the reliability and transparency of the assumptions used to determine fair value. The hierarchy requires the use of observable market data when available. The levels of the hierarchy are defined as follows:

- Level 1 – Inputs to the valuation methodology are quoted prices (unadjusted) for identical assets or liabilities traded in active markets.
- Level 2 – Inputs to the valuation methodology include quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable for the asset or liability and market-corroborated inputs.
- Level 3 – Inputs to the valuation methodology are unobservable for the asset or liability and are significant to the fair value measurement.

In accordance with ASC 820, the Company determines fair value based on the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In determining fair value, the Company uses various methods, including the market, income and cost approaches. The Company uses valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs. The following section describes the valuation methodologies used by the Company to measure assets and liabilities at fair value, including an indication of the level within the fair value hierarchy in which each asset or liability is generally classified.

Available-for-sale investments and equity securities. Available-for-sale investments and equity securities are recorded at fair value on a recurring basis. Available-for-sale investments include fixed maturity securities and short-term investments. Short-term investments include certificates of deposit, commercial paper, discount notes and treasury bills with original maturities of one year or less. Fair value is determined by the Company after considering various sources of information, including information provided by a third-party pricing service. The pricing service provides prices for substantially all of the Company's fixed maturity securities and equity securities. In determining fair value, the Company generally does not adjust the prices obtained from the pricing service. The Company obtains an understanding of the pricing service's valuation methodologies and related inputs, which include, but are not limited to, reported trades, benchmark yields, issuer spreads, bids, offers, duration, credit ratings, estimated cash flows and prepayment speeds. The Company validates prices provided by the pricing service by reviewing prices from other pricing sources and analyzing pricing data in certain instances.

The Company has evaluated the various types of securities in its investment portfolio to determine an appropriate fair value hierarchy level based upon trading activity and the observability of market inputs. Level 1 investments include those traded on an active exchange, such as the New York Stock Exchange. Level 2 investments include U.S. Treasury securities, U.S. government-sponsored enterprises, municipal bonds, foreign government bonds, commercial mortgage-backed securities, residential mortgage-backed securities, asset-backed securities and corporate debt securities. Level 3 investments include the Company's investments in insurance-linked securities funds that are not traded on an active exchange and are valued using unobservable inputs.

Fair value for available-for-sale investments and equity securities is measured based upon quoted prices in active markets, if available. Due to variations in trading volumes and the lack of quoted market prices, fixed maturity securities are classified as Level 2 investments. The fair value of fixed maturity securities is normally derived through recent reported trades for identical or similar securities, making adjustments through the reporting date based upon available market observable data previously described. If there are no recent reported trades, the fair value of fixed maturity securities may be derived through the use of matrix pricing or model processes, where future cash flow expectations are developed based upon collateral performance and discounted at an estimated market rate. Significant inputs used to determine the fair value of obligations of states, municipalities and political subdivisions, corporate bonds and obligations of foreign governments include reported trades, benchmark yields, issuer spreads, bids, offers, credit information and estimated cash flows. Significant inputs used to determine the fair value of commercial mortgage-backed securities, residential mortgage-backed securities and asset-backed securities include the type of underlying assets, benchmark yields, prepayment speeds, collateral information, tranche type and volatility, estimated cash flows, credit information, default rates, recovery rates, issuer spreads and the year of issue.

Due to the significance of unobservable inputs required in measuring the fair value of the Company's investments in certain insurance-linked securities funds, these investments are classified as Level 3 within the fair value hierarchy. The fair value of the securities is derived using their reported net asset value (NAV) as the primary input, as well as other observable and unobservable inputs as deemed necessary by management. Management has obtained an understanding of the inputs, assumptions, process and controls used to determine NAV, which is calculated by an independent third party. Unobservable inputs to the NAV calculations include assumptions around premium earnings patterns and loss reserve estimates for the underlying securitized reinsurance contracts. The Company's valuation policies and procedures for Level 3 investments are determined by management. Fair value measurements are analyzed quarterly to ensure the change in fair value from prior periods is reasonable relative to management's understanding of the underlying investments, recent market trends and external market data.

Senior long-term debt and other debt. Senior long-term debt and other debt is carried at amortized cost with the estimated fair value disclosed on the consolidated balance sheets. Senior long-term debt and other debt is classified as Level 2 within the fair value hierarchy due to variations in trading volumes and the lack of quoted market prices. Fair value is generally derived through recent reported trades for identical securities, making adjustments through the reporting date, if necessary, based upon available market observable data including U.S. Treasury securities and implied credit spreads. Significant inputs used to determine the fair value of senior long-term debt and other debt include reported trades, benchmark yields, issuer spreads, bids and offers.

The following tables present the balances of assets measured at fair value on a recurring basis by level within the fair value hierarchy.

<i>(dollars in thousands)</i>	September 30, 2022			
	Level 1	Level 2	Level 3	Total
Assets:				
Investments:				
Fixed maturity securities, available-for-sale:				
U.S. Treasury securities	\$ —	\$ 2,958,421	\$ —	\$ 2,958,421
U.S. government-sponsored enterprises	—	725,182	—	725,182
Obligations of states, municipalities and political subdivisions	—	3,713,343	—	3,713,343
Foreign governments	—	1,172,889	—	1,172,889
Commercial mortgage-backed securities	—	1,932,665	—	1,932,665
Residential mortgage-backed securities	—	557,333	—	557,333
Asset-backed securities	—	2,012	—	2,012
Corporate bonds	—	664,512	—	664,512
Total fixed maturity securities, available-for-sale	—	11,726,357	—	11,726,357
Equity securities:				
Insurance, banks and other financial institutions	2,614,609	—	921	2,615,530
Industrial, consumer and all other	4,334,827	—	—	4,334,827
Total equity securities	6,949,436	—	921	6,950,357
Short-term investments, available-for-sale	2,277,172	147,672	—	2,424,844
Total investments	\$ 9,226,608	\$ 11,874,029	\$ 921	\$ 21,101,558

<i>(dollars in thousands)</i>	December 31, 2021			
	Level 1	Level 2	Level 3	Total
Assets:				
Investments:				
Fixed maturity securities, available-for-sale:				
U.S. Treasury securities	\$ —	\$ 2,470,194	\$ —	\$ 2,470,194
U.S. government-sponsored enterprises	—	775,587	—	775,587
Obligations of states, municipalities and political subdivisions	—	4,265,924	—	4,265,924
Foreign governments	—	1,519,354	—	1,519,354
Commercial mortgage-backed securities	—	1,990,433	—	1,990,433
Residential mortgage-backed securities	—	726,050	—	726,050
Asset-backed securities	—	3,081	—	3,081
Corporate bonds	—	836,682	—	836,682
Total fixed maturity securities, available-for-sale	—	12,587,305	—	12,587,305
Equity securities:				
Insurance, banks and other financial institutions	3,307,755	—	56,472	3,364,227
Industrial, consumer and all other	5,659,700	—	—	5,659,700
Total equity securities	8,967,455	—	56,472	9,023,927
Short-term investments, available-for-sale	1,619,496	180,492	—	1,799,988
Total investments	\$ 10,586,951	\$ 12,767,797	\$ 56,472	\$ 23,411,220

The following table summarizes changes in Level 3 investments measured at fair value on a recurring basis.

<i>(dollars in thousands)</i>	Quarter Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Equity securities, beginning of period	\$ 4,380	\$ 41,066	\$ 56,472	\$ 58,493
Purchases	—	18,900	—	18,900
Sales	(3,528)	—	(56,335)	(15,015)
Net investment gains (losses)	69	(3,341)	784	(5,753)
Equity securities, end of period	\$ 921	\$ 56,625	\$ 921	\$ 56,625

As of September 30, 2022, the Company's remaining Level 3 investment relates to its investment in Lodgepine Fund Limited, an insurance-linked securities fund managed through the Company's Lodgepine operations, which are currently in run-off.

Previously, Level 3 investments also included the Company's investment in an insurance-linked securities fund managed by Markel CATCo Investment Management Ltd. (MCIM). During the first quarter of 2022, the Company's remaining investment was redeemed (\$41.3 million) in conjunction with a buy-out transaction that provided for an accelerated return of all remaining capital to investors. See note 11 for further details about the Company's Markel CATCo operations and the buy-out transaction.

Except as disclosed in note 3, the Company did not have any assets or liabilities measured at fair value on a non-recurring basis during the nine months ended September 30, 2022 and 2021.

6. Products, Services and Other Revenues

The amount of revenues from contracts with customers was \$1.2 billion and \$933.0 million for the quarters ended September 30, 2022 and 2021, respectively, and \$3.5 billion and \$2.8 billion for the nine months ended September 30, 2022 and 2021, respectively.

The following tables present revenues from contracts with customers by segment and type, all of which are included in products revenues and services and other revenues in the consolidated statements of income (loss) and comprehensive income (loss), along with a reconciliation to total products revenues and services and other revenues.

<i>(dollars in thousands)</i>	Quarter Ended September 30,					
	2022			2021		
	Markel Ventures	Other	Total	Markel Ventures	Other	Total
Products	\$ 575,277	\$ —	\$ 575,277	\$ 394,444	\$ —	\$ 394,444
Services	614,519	11,529	626,048	487,942	30,027	517,969
Investment management	—	15,641	15,641	—	20,571	20,571
Total revenues from contracts with customers	1,189,796	27,170	1,216,966	882,386	50,598	932,984
Program services and other fronting	—	40,033	40,033	—	32,298	32,298
Other	25,950	118	26,068	25,796	345	26,141
Total	\$ 1,215,746	\$ 67,321	\$ 1,283,067	\$ 908,182	\$ 83,241	\$ 991,423

<i>(dollars in thousands)</i>	Nine Months Ended September 30,					
	2022			2021		
	Markel Ventures	Other	Total	Markel Ventures	Other	Total
Products	\$ 1,809,276	\$ —	\$ 1,809,276	\$ 1,294,407	\$ —	\$ 1,294,407
Services	1,633,353	41,547	1,674,900	1,313,054	95,908	1,408,962
Investment management	—	55,197	55,197	—	57,693	57,693
Total revenues from contracts with customers	3,442,629	96,744	3,539,373	2,607,461	153,601	2,761,062
Program services and other fronting	—	103,096	103,096	—	87,314	87,314
Disposition gain	—	107,293	107,293	—	—	—
Other	84,800	724	85,524	82,824	1,002	83,826
Total	\$ 3,527,429	\$ 307,857	\$ 3,835,286	\$ 2,690,285	\$ 241,917	\$ 2,932,202

Receivables from contracts with customers were \$649.6 million and \$626.1 million as of September 30, 2022 and December 31, 2021, respectively.

7. Unpaid Losses and Loss Adjustment Expenses

The following table presents a reconciliation of consolidated beginning and ending reserves for losses and loss adjustment expenses.

<i>(dollars in thousands)</i>	Nine Months Ended September 30,	
	2022	2021
Net reserves for losses and loss adjustment expenses, beginning of year	\$ 11,302,577	\$ 10,485,717
Effect of foreign currency rate changes on beginning of year balance	(275,364)	(52,117)
Adjusted net reserves for losses and loss adjustment expenses, beginning of year	11,027,213	10,433,600
Incurred losses and loss adjustment expenses:		
Current accident year	3,420,906	3,009,260
Prior accident years	(204,411)	(366,171)
Total incurred losses and loss adjustment expenses	3,216,495	2,643,089
Payments:		
Current accident year	350,684	365,640
Prior accident years	1,880,471	1,678,164
Total payments	2,231,155	2,043,804
Effect of foreign currency rate changes on current year activity	(7,499)	(1,339)
Net reserves for losses and loss adjustment expenses of Markel CATCo Re (see note 11)	375,222	—
Net reserves for losses and loss adjustment expenses of insurance companies sold	—	(2,762)
Net reserves for losses and loss adjustment expenses, end of period	12,380,276	11,028,784
Reinsurance recoverables on unpaid losses	7,814,098	6,582,415
Gross reserves for losses and loss adjustment expenses, end of period	\$ 20,194,374	\$ 17,611,199

For the nine months ended September 30, 2022, current accident year losses and loss adjustment expenses included \$70.0 million of net losses and loss adjustment expenses attributed to Hurricane Ian, all of which were within the Company's Insurance segment. These losses and loss adjustment expenses were net of ceded losses of \$100.0 million. The Company also had gross losses and loss adjustment expenses of \$850.0 million within its program services and other fronting operations attributed to Hurricane Ian, all of which were ceded to third-party reinsurers managed through the Company's insurance-linked securities operations, which hold sufficient investor collateral to support the Company's related reinsurance recoverables. See note 12 for further details regarding related party transactions with third parties managed through the Company's insurance-linked securities operations.

The gross and net losses and loss adjustment expenses attributed to Hurricane Ian as of September 30, 2022 represent the Company's best estimates based upon information currently available. The estimates for these losses are based on preliminary industry loss estimates and output from industry, broker and proprietary models, as well as policy and reinsurance contract level reviews and analysis of the Company's ceded reinsurance contracts. Due to limited claims activity, these estimates are based on various assumptions about coverage, liability and reinsurance and are therefore subject to change. While the Company believes its net reserves for Hurricane Ian as of September 30, 2022 are adequate, it continues to closely monitor reported claims and will adjust the estimates of gross and net losses as new information becomes available.

For the nine months ended September 30, 2022, current accident year losses and loss adjustment expenses also included \$35.0 million of net losses and loss adjustment expenses attributed to the Russia-Ukraine conflict. These losses and loss adjustment expenses were net of ceded losses of \$70.0 million. All of the gross and net losses and loss adjustment expenses attributed to the Russia-Ukraine conflict were recognized in the first quarter of 2022. There were no additional losses recognized or adjustments to the Company's initial loss estimates in the second or third quarters of 2022.

Both the gross and net loss estimates for incurred losses attributed to the Russia-Ukraine conflict continue to represent the Company's best estimates as of September 30, 2022 based upon information currently available. The Company's estimates for these losses are based on reported claims, detailed underwriting, actuarial and claims reviews of policies and in-force assumed reinsurance contracts for potential exposures, as well as analysis of ceded reinsurance contracts and analysis provided by the Company's brokers and claims counsel. These estimates include various assumptions about what areas within the affected regions have incurred losses, the nature and extent of such losses, which remain difficult to verify, as well as assumptions about coverage, liability and reinsurance. Due to the inherent uncertainty associated with the assumptions surrounding the Russia-Ukraine conflict, these estimates may be subject to a wide range of variability. Additionally, as the Russia-Ukraine conflict is ongoing, the Company believes it is possible that additional losses could be incurred in subsequent periods. Given the significant levels of ceded reinsurance on certain of the Company's impacted policies, a significant portion of any additional incurred losses may be ceded. Additionally, increases in ceded losses may require payment of additional reinstatement premiums. Further, if coverage under the Company's existing ceded reinsurance contracts is exhausted, the Company may need to purchase additional reinsurance to ensure that its net retained risks on the impacted product lines are within the Company's corporate risk tolerances.

While the Company believes the gross and net reserves for losses and loss adjustment expenses for the Russia-Ukraine conflict as of September 30, 2022 are adequate based on information currently available, the Company continues to closely monitor reported claims, ceded reinsurance contract attachment, government actions and areas impacted by the conflict and may adjust the estimates of gross and net losses as new information becomes available. Any such adjustments or additional incurred losses may be material to the Company's results of operations, financial condition and cash flows.

For the nine months ended September 30, 2021, current accident year losses and loss adjustment expenses included \$182.3 million of net losses and loss adjustment expenses from Winter Storm Uri, the floods in Europe and Hurricane Ida (2021 Catastrophes).

For the nine months ended September 30, 2022, prior accident years losses and loss adjustment expenses included \$204.4 million of favorable development on prior years loss reserves, which included \$155.0 million of favorable development on the Company's workers' compensation, property, marine and energy and programs product lines within its Insurance segment and \$41.7 million of favorable development on the Company's property and credit and surety product lines within its Reinsurance segment.

For the nine months ended September 30, 2021, prior accident years losses and loss adjustment expenses included \$366.2 million of favorable development on prior years loss reserves, which included \$324.8 million of favorable development on the Company's general liability, property, workers' compensation, professional liability and marine and energy product lines within the Insurance segment. Favorable development on prior years loss reserves for the nine months ended September 30, 2021 was partially offset by \$30.6 million of adverse development on the Company's property product lines within the Reinsurance segment, due in part to losses related to COVID-19.

The Company's loss estimates for COVID-19 continue to represent the Company's best estimate as of September 30, 2022 based on information currently available, however, the assumptions on which these estimates are based are subject to a wide range of variability. The Company is closely monitoring reported claims, ceded reinsurance contract attachment, government actions and judicial decisions and may adjust the estimates of gross and net losses as new information becomes available. Such adjustments may be material to the Company's results of operations, financial condition and cash flows. For additional details on the Company's COVID-19 loss estimates, readers are urged to review the Company's 2021 Annual Report on Form 10-K.

8. Reinsurance

The following tables summarize the effect of reinsurance and retrocessional reinsurance on premiums written and earned.

(dollars in thousands)	Quarter Ended September 30,							
	2022				2021			
	Direct	Assumed	Ceded	Net Premiums	Direct	Assumed	Ceded	Net Premiums
Underwriting:								
Written	\$ 2,133,822	\$ 349,650	\$ (473,885)	\$ 2,009,587	\$ 1,776,716	\$ 303,551	\$ (393,195)	\$ 1,687,072
Earned	1,899,816	408,561	(351,118)	1,957,259	1,599,931	363,665	(331,397)	1,632,199
Program services and other fronting:								
Written	663,631	327,668	(991,719)	(420)	711,182	177,153	(890,597)	(2,262)
Earned	729,312	218,439	(948,180)	(429)	634,520	103,008	(739,227)	(1,699)
Consolidated:								
Written	2,797,453	677,318	(1,465,604)	2,009,167	2,487,898	480,704	(1,283,792)	1,684,810
Earned	\$ 2,629,128	\$ 627,000	\$ (1,299,298)	\$ 1,956,830	\$ 2,234,451	\$ 466,673	\$ (1,070,624)	\$ 1,630,500

(dollars in thousands)	Nine Months Ended September 30,							
	2022				2021			
	Direct	Assumed	Ceded	Net Premiums	Direct	Assumed	Ceded	Net Premiums
Underwriting:								
Written	\$ 6,065,936	\$ 1,466,036	\$ (1,255,226)	\$ 6,276,746	\$ 5,082,494	\$ 1,269,578	\$ (1,031,546)	\$ 5,320,526
Earned	5,370,481	1,194,504	(1,012,485)	5,552,500	4,542,680	1,081,494	(925,176)	4,698,998
Program services and other fronting:								
Written	2,025,195	595,940	(2,624,185)	(3,050)	2,056,328	249,067	(2,308,590)	(3,195)
Earned	2,036,016	332,415	(2,371,227)	(2,796)	1,800,489	141,676	(1,944,931)	(2,766)
Consolidated:								
Written	8,091,131	2,061,976	(3,879,411)	6,273,696	7,138,822	1,518,645	(3,340,136)	5,317,331
Earned	\$ 7,406,497	\$ 1,526,919	\$ (3,383,712)	\$ 5,549,704	\$ 6,343,169	\$ 1,223,170	\$ (2,870,107)	\$ 4,696,232

Substantially all of the premiums written and earned in the Company's program services and other fronting operations for the quarters and nine months ended September 30, 2022 and 2021 were ceded. The percentage of consolidated ceded earned premiums to gross earned premiums was 40% for the quarters ended September 30, 2022 and 2021 and 38% for the nine months ended September 30, 2022 and 2021. The percentage of consolidated assumed earned premiums to net earned premiums was 32% and 28% for the quarter and nine months ended September 30, 2022, respectively, and 29% and 26% for the quarter and nine months ended September 30, 2021, respectively.

Substantially all of the incurred losses and loss adjustment expenses in the Company's program services and other fronting operations were ceded. These losses totaled \$1.3 billion and \$2.3 billion for the quarter and nine months ended September 30, 2022, respectively, and \$620.1 million and \$1.7 billion for the quarter and nine months ended September 30, 2021, respectively.

The following table summarizes the effect of reinsurance and retrocessional reinsurance on losses and loss adjustment expenses in the Company's underwriting operations.

(dollars in thousands)	Quarter Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Gross losses and loss adjustment expenses	\$ 1,423,526	\$ 1,238,974	\$ 3,760,566	\$ 3,306,035
Ceded losses and loss adjustment expenses	(238,220)	(290,834)	(544,109)	(660,479)
Net losses and loss adjustment expenses	\$ 1,185,306	\$ 948,140	\$ 3,216,457	\$ 2,645,556

9. Life and Annuity Benefits

Life and annuity benefits are compiled on a reinsurance contract-by-contract basis and are discounted using standard actuarial techniques and cash flow models. Since the development of the life and annuity reinsurance reserves is based upon cash flow projection models, the Company must make estimates and assumptions based on cedent experience, industry mortality tables, and expense and investment experience, including a provision for adverse deviation. The assumptions used to determine policy benefit reserves are generally locked-in for the life of the contract unless an unlocking event occurs. Loss recognition testing is performed to determine if existing policy benefit reserves, together with the present value of future gross premiums and expected investment income earned thereon, are adequate to cover the present value of future benefits, settlement and maintenance costs. If the existing policy benefit reserves are not sufficient, the locked-in assumptions are revised to current best estimate assumptions and a charge to earnings for life and annuity benefits is recognized at that time.

Life and annuity benefits are also adjusted to the extent unrealized gains on the investments supporting the policy benefit reserves would result in a reserve deficiency if those gains were realized. As of December 31, 2021, the cumulative increase to life and annuity benefits attributable to unrealized gains on the underlying investment portfolio totaled \$56.6 million, all of which reversed during the first quarter of 2022 as a result of an increase in the market yield on the investment securities supporting the policy benefit reserves. As the market yield continued to increase through September 30, 2022, there was no adjustment to life and annuity benefits in the third quarter of 2022. During the quarter and nine months ended September 30, 2021, the Company decreased life and annuity benefits by \$6.4 million and \$56.7 million, respectively and increased the change in net unrealized holding gains included in other comprehensive loss by a corresponding amount.

10. Senior Long-Term Debt and Other Debt

In July 2022, the Company retired its 4.90% unsecured senior notes due July 1, 2022 (\$350.0 million aggregate principal outstanding at December 31, 2021).

The Company maintains a corporate revolving credit facility which provides up to \$300 million of capacity for future acquisitions, investments and stock repurchases, and for other working capital and general corporate purposes. At the Company's discretion, up to \$200 million of the total capacity may be used for letters of credit. The Company may increase the capacity of the facility by up to \$200 million subject to obtaining commitments for the increase and certain other terms and conditions. At September 30, 2022 and December 31, 2021, the Company had no borrowings outstanding under this revolving credit facility. This facility expires in April 2024.

Various of the Company's Markel Ventures subsidiaries maintain revolving credit facilities or lines of credit, which provide up to \$550 million of aggregate capacity for working capital and other general operational purposes. A portion of the capacity on certain of these credit facilities may be used as security for letters of credit and other obligations. At September 30, 2022 and December 31, 2021, the Company had \$253.2 million and \$94.3 million, respectively, of borrowings outstanding under these credit facilities.

To the extent that the Company or any of its subsidiaries are not in compliance with the covenants under their respective credit facilities, access to such credit facilities could be restricted. At September 30, 2022, the Company and all of the Company's subsidiaries were in compliance with all covenants contained in their respective credit facilities.

11. Variable Interest Entities

MCIM, a wholly-owned consolidated subsidiary of the Company, is an insurance-linked securities investment fund manager and reinsurance manager headquartered in Bermuda. Results attributable to MCIM are not included in a reportable segment.

MCIM serves as the insurance manager for Markel CATCo Re Ltd. (Markel CATCo Re), a Bermuda Class 3 reinsurance company, and as the investment manager for Markel CATCo Reinsurance Fund Ltd., a Bermuda exempted mutual fund company comprised of multiple segregated accounts (Markel CATCo Funds). Voting shares in Markel CATCo Reinsurance Fund Ltd. and Markel CATCo Re are held by MCIM, which has the power to direct the activities that most significantly impact the economic performance of these entities. The Markel CATCo Funds issued multiple classes of nonvoting, redeemable preference shares to investors, and the Markel CATCo Funds are primarily invested in nonvoting preference shares of Markel CATCo Re. The underwriting results of Markel CATCo Re are attributed to investors through its nonvoting preference shares. Both Markel CATCo Re and the Markel CATCo Funds were placed into run-off in July 2019.

In March 2022, the Company completed a buy-out transaction with Markel CATCo Re and the Markel CATCo Funds that provided for an accelerated return of all remaining capital to investors in the Markel CATCo Funds. Under the terms of the transaction, the Company provided cash funding of \$45.1 million to purchase substantially all of the Markel CATCo Funds' interests in Markel CATCo Re. See note 14 for further details regarding the terms of the buy-out transaction. As part of the transaction, substantially all of the preference shares held by investors in the Markel CATCo Funds were redeemed, including preference shares previously held by the Company. See note 5 for details regarding the Company's investment in the Markel CATCo Funds.

During June 2022, the Company received a return of \$24.9 million of the capital it provided in March 2022 and the related preference shares were redeemed. As of September 30, 2022, the Company's investment in preference shares of Markel CATCo Re totaled \$20.1 million, which comprised 25% of the equity of Markel CATCo Re. Through that investment, the Company has exposure to adverse loss development on reinsurance contracts previously written by Markel CATCo Re for loss events that occurred from 2014 to 2020. If loss reserves held by Markel CATCo Re are sufficient to settle claims on the remaining open contracts, the Company will receive a full return of the remaining \$20.1 million in capital provided in March 2022. Favorable development on loss reserves held by Markel CATCo Re, less operating expenses, will be distributed to the Markel CATCo Funds, and ultimately to investors in the Markel CATCo Funds.

Markel CATCo Re is considered a VIE, as the equity at risk does not have the right to receive residual returns that exceed the capital provided by the Company in the buy-out transaction. As a result of the preference shares acquired by the Company in the buy-out transaction, and the voting shares held by its consolidated subsidiary, MCIM, the Company consolidates Markel CATCo Re as its primary beneficiary. Results attributed to the run-off of Markel CATCo Re are reported with the Company's other ILS operations, within services and other revenues and expenses, and are not included in a reportable segment.

The Company's consolidated balance sheet includes the following amounts attributable to Markel CATCo Re.

<i>(dollars in thousands)</i>		September 30, 2022
Assets		
Cash and cash equivalents	\$	83,103
Restricted cash and cash equivalents		355,905
Other assets and receivables due from cedents		44,102
Total Assets	\$	483,110
Liabilities and Equity		
Unpaid losses and loss adjustment expenses	\$	375,222
Other liabilities		27,448
Total Liabilities		402,670
Shareholders' equity		21,139
Noncontrolling interests		59,301
Total Equity		80,440
Total Liabilities and Equity	\$	483,110

In connection with the buy-out transaction, the Company also entered into a tail risk cover with Markel CATCo Re. Through this contract, the Company has \$142.7 million of uncollateralized exposure to adverse development on loss reserves held by Markel CATCo Re for loss exposures in excess of limits that the Company believes are unlikely to be exceeded.

12. Related Party Transactions

The Company engages in certain related party transactions in the normal course of business at arm's length.

Insurance-Linked Securities

Within the Company's insurance-linked securities operations, the Company provides investment and insurance management services through Nephila Holdings Ltd. (together with its subsidiaries, Nephila). Nephila serves as the investment manager to several Bermuda, Ireland and U.S. based private funds (the Nephila Funds). To provide access for investors in the Nephila Funds to the insurance, reinsurance and weather markets, Nephila also acts as an insurance manager to certain Bermuda Class 3 and 3A reinsurance companies and Lloyd's of London Syndicate 2357 (Syndicate 2357) (collectively, the Nephila Reinsurers). Nephila receives management fees for investment and insurance management services provided through its insurance-linked securities operations based on the net asset value of the accounts managed, and, for certain funds, incentive fees based on the annual performance of the funds managed. Prior to the disposition of Velocity in February 2022, Nephila also provided managing general agent services to the Nephila Reinsurers in exchange for commissions. For the quarter and nine months ended September 30, 2022, total revenues attributed to unconsolidated entities managed by Nephila were \$17.1 million and \$57.0 million, respectively. For the quarter and nine months ended September 30, 2021, total revenues attributed to unconsolidated entities managed by Nephila were \$32.8 million and \$103.5 million, respectively.

Through the Company's program services operations and other fronting arrangements, the Company has programs with Nephila through which the Company writes insurance policies that are ceded to Syndicate 2357 and certain other Nephila Reinsurers. Through these programs, Nephila utilizes certain of the Company's licensed insurance companies to write U.S. catastrophe-exposed property risk that is then ceded to Nephila Reinsurers. Gross premiums written through these programs with Nephila were \$398.9 million and \$889.6 million for the quarter and nine months ended September 30, 2022, respectively, and \$283.7 million and \$587.7 million for the quarter and nine months ended September 30, 2021, respectively, all of which were ceded to Nephila Reinsurers. As of September 30, 2022 and December 31, 2021, reinsurance recoverables on the consolidated balance sheets included \$1.3 billion and \$751.0 million, respectively, due from Nephila Reinsurers. Under these programs, the Company bears underwriting risk for annual aggregate agreement year losses in excess of a limit the Company believes is unlikely to be exceeded. To the extent losses under these programs exceed the prescribed limits, the Company is obligated to pay such losses to the cedents without recourse to the Nephila Reinsurers. While the Company believes losses under these programs are unlikely, those losses, if incurred, could be material to the Company's consolidated results of operations and financial condition.

The Company has also entered into other assumed and ceded reinsurance transactions with the Nephila Reinsurers in the normal course of business, which are not material to the Company's consolidated financial statements.

Hagerty

The Company holds a minority ownership interest in Hagerty, which operates primarily as a managing general agent and also includes Hagerty Re, a Bermuda Class 3 reinsurance company. Through the Company's underwriting operations, the Company underwrites insurance for Hagerty, and a portion of this insurance is ceded to Hagerty Re. For the quarter and nine months ended September 30, 2022, the Company's gross written premiums attributable to Hagerty were \$197.0 million and \$540.4 million, respectively, of which \$130.4 million and \$357.7 million, respectively, were ceded to Hagerty Re. For the quarter and nine months ended September 30, 2021, the Company's gross written premiums attributable to Hagerty were \$170.1 million and \$467.6 million, respectively, of which \$96.6 million and \$265.4 million, respectively, were ceded to Hagerty Re.

13. Shareholders' Equity

a) The Company has 50,000,000 shares of no par value common stock authorized. The following table presents a rollforward of changes in common shares issued and outstanding.

<i>(in thousands)</i>	Quarter Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Issued and outstanding common shares, beginning of period	13,538	13,734	13,632	13,783
Issuance of common shares	—	1	2	4
Repurchase of common shares	(67)	(50)	(163)	(102)
Issued and outstanding common shares, end of period	13,471	13,685	13,471	13,685

b) The Company also has 10,000,000 shares of no par value preferred stock authorized, of which 600,000 shares were issued and outstanding at September 30, 2022 and December 31, 2021. The Company declared and paid dividends on preferred shares of \$18.0 million, or \$30 per share, in the second quarter of 2022 and 2021.

c) Net income (loss) per common share was determined by dividing adjusted net income (loss) to common shareholders by the applicable weighted average common shares outstanding. Basic common shares outstanding include restricted stock units that are no longer subject to any contingencies for issuance, but for which corresponding shares have not been issued. Diluted net income (loss) per common share is computed by dividing adjusted net income (loss) to common shareholders by the weighted average number of common shares and dilutive potential common shares outstanding during the period. The following table presents net income (loss) per common share and diluted net income (loss) per common share.

<i>(in thousands, except per share amounts)</i>	Quarter Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Net income (loss) to common shareholders	\$ 65,369	\$ 188,070	\$ (921,833)	\$ 1,535,874
Adjustment of redeemable noncontrolling interests	(17,730)	19,930	(62,168)	41,553
Adjusted net income (loss) to common shareholders	\$ 47,639	\$ 208,000	\$ (984,001)	\$ 1,577,427
Basic common shares outstanding	13,564	13,758	13,609	13,790
Dilutive potential common shares from restricted stock units and restricted stock ⁽¹⁾	31	27	—	23
Diluted common shares outstanding	13,595	13,785	13,609	13,813
Basic net income (loss) per common share	\$ 3.51	\$ 15.12	\$ (72.31)	\$ 114.39
Diluted net income (loss) per common share ⁽¹⁾	\$ 3.50	\$ 15.09	\$ (72.31)	\$ 114.20

⁽¹⁾ The impact of 28 thousand shares from restricted stock units and restricted stock was excluded from the computation of diluted net loss per common share for the nine months ended September 30, 2022 because the effect would have been anti-dilutive.

14. Commitments and Contingencies

a) In March 2022, the Company completed a buy-out transaction with Markel CATCo Re and the Markel CATCo Funds, which are currently in run-off, that provided for an accelerated return of all remaining capital to investors in the Markel CATCo Funds. Under the terms of the transaction, the Company provided cash funding of \$45.1 million to purchase substantially all of the Markel CATCo Funds' investments in Markel CATCo Re and also provided tail risk cover of \$142.7 million to Markel CATCo Re to allow for the release of collateral to investors. In order to complete the transaction, the Company also made \$101.9 million in additional payments, net of insurance proceeds, to or for the benefit of investors, which were recognized as an expense to the Company in the first quarter of 2022 and included in services and other expenses for the nine months ended September 30, 2022. In conjunction with the buy-out transaction, all investors holding securities in the Markel CATCo Funds, the Markel CATCo Group Companies (MCIM, the Markel CATCo Funds and Markel CATCo Re), Markel Corporation and each of their related parties, among others, granted mutual releases of all claims related to the transaction, the Markel CATCo Group Companies' businesses and the investors' investments in the Funds, including any pending litigation. See note 11 for further details about the Company's Markel CATCo operations and the buy-out transaction.

b) Contingencies arise in the normal course of the Company's operations and are not expected to have a material impact on the Company's financial condition or results of operations.

15. Immaterial Correction to Prior Period Financial Statements for Accounting Policy Change

The Company defers and amortizes costs directly related to the successful acquisition of new or renewal insurance contracts over the related policy period, generally one year. Previously, the Company did not defer salaries and benefits associated with the successful acquisition of insurance contracts, as such amounts were quantified and assessed each period and were deemed not to be material to the consolidated financial statements. Effective January 1, 2022, the Company changed its accounting policy to defer salaries and benefits associated with the successful acquisition of insurance contracts in accordance with the requirements of FASB ASC 944, *Financial Services—Insurance*.

To reflect the change in accounting policy, the Company made a cumulative adjustment to increase deferred policy acquisition costs by \$28.2 million, increase deferred tax liabilities by \$5.9 million and increase retained earnings by \$22.3 million as of January 1, 2020, which is the beginning of the earliest year that will be presented in the consolidated financial statements included in the Company's 2022 Annual Report on Form 10-K. These increases in deferred policy acquisition costs, deferred tax liabilities and retained earnings are also reflected as increases to the previously reported amounts in the Company's consolidated balance sheet as of December 31, 2021 and as an adjustment to retained earnings as of January 1, 2021 in the accompanying consolidated statement of changes in equity for the nine months ended September 30, 2021. The Company considered both the quantitative and qualitative factors within the provisions of U.S. Securities and Exchange Commission Staff Accounting Bulletin (SAB) No. 99, *Materiality*, and SAB No. 108, *Considering the Effect of Prior Year Misstatements when Quantifying Misstatements in Current Year Financial Statements* and determined that the impact of the change in accounting policy was not material to the Company's previously issued consolidated financial statements. The Company did not adjust the amounts previously presented in the consolidated statements of income and comprehensive income for the years ended December 31, 2020 and 2021 for the change in accounting policy as the effects were not material. The cumulative income statement effect for those periods was recognized in the first quarter of 2022 and included in the consolidated statement of loss and comprehensive loss for the nine months ended September 30, 2022.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis should be read in conjunction with the consolidated financial statements and related notes included under Item 1 Financial Statements and our 2021 Annual Report on Form 10-K. The accompanying consolidated financial statements and related notes have been prepared in accordance with United States (U.S.) generally accepted accounting principles (GAAP) and include the accounts of Markel Corporation and its consolidated subsidiaries, as well as any variable interest entities that meet the requirements for consolidation. See note 1(b) of the notes to consolidated financial statements for details of recently issued accounting pronouncements that we have not yet adopted and the expected effects on our consolidated financial position, results of operations and cash flows. This section is divided into the following sections:

- Our Business
- Results of Operations
- Financial Condition
- Critical Accounting Estimates
- Safe Harbor and Cautionary Statement

Our Business

We are a diverse financial holding company serving a variety of niche markets. We aspire to build one of the world's great companies and deploy three financial engines in pursuit of this goal.

Insurance - Our principal business markets and underwrites specialty insurance products using multiple platforms that enable us to best match risk and capital.

Investments - Our investing activities are primarily related to our underwriting operations. The majority of our investable assets come from premiums paid by policyholders and the remainder is comprised of shareholder funds.

Markel Ventures - Through our Markel Ventures operations, we own controlling interests in a diverse portfolio of businesses that operate outside of the specialty insurance marketplace.

Our financial goals are to earn consistent underwriting and operating profits and superior investment returns to build shareholder value. We measure financial success by our ability to grow book value per common share and the market price per common share of our stock, or total shareholder return, at high rates of return over a long period of time. To mitigate effects of short-term volatility and align with the longer-term perspective we apply to operating our businesses, we generally use five-year time periods to measure our performance. Growth in book value per common share is an important measure of our success because it includes all underwriting, operating and investing results. Over the five-year period ended September 30, 2022, the compound annual growth in book value per common share was 6.3%. Growth in total shareholder value is also an important measure of our success, as a significant portion of our operations are not recorded at fair value or otherwise captured in book value. Over the five-year period ended September 30, 2022, our common share price increased at a compound annual rate of 0.3%.

Insurance

Our insurance engine is comprised of the following types of operations:

- Underwriting - Our underwriting operations are comprised of our risk-bearing insurance and reinsurance operations.
- Insurance-linked securities - Our insurance-linked securities (ILS) operations provide investment management services for a variety of investment products, including insurance-linked securities, catastrophe bonds, insurance swaps and weather derivatives.
- Program services - Our program services business serves as a fronting platform that provides other insurance entities access to the U.S. property and casualty insurance market.

Through our underwriting, ILS and program services operations, we have a suite of capabilities through which we can access capital to support our customers' risks, which includes our own capital through our underwriting operations, as well as third-party capital through our ILS and program services operations. Within each of these platforms, we believe that our specialty product focus and niche market strategy enable us to develop expertise and specialized market knowledge. We seek to differentiate ourselves from competitors by our expertise, service, continuity and other value-based considerations, including the multiple platforms through which we can manage risk and deploy capital. For example, we may leverage the strength of our underwriting platform to write certain risks on behalf of our ILS operations in accordance with their desired return objectives. We may also cede certain risks written through our underwriting operations to our ILS operations to the extent those risks are more aligned with the risk profile of our ILS investors than our own capital risk tolerance. Our ability to access multiple insurance platforms allows us to achieve income streams from our insurance operations beyond the traditional underwriting model.

Underwriting

Our chief operating decision maker reviews our ongoing underwriting operations on a global basis in the following two segments: Insurance and Reinsurance. In determining how to allocate resources and assess the performance of our underwriting results, we consider many factors, including the nature of the insurance product sold, the type of account written and the type of customer served. The Insurance segment includes all direct business and facultative placements written on a risk-bearing basis within our underwriting operations. The Reinsurance segment includes all treaty reinsurance written on a risk-bearing basis within our underwriting operations.

Our Insurance segment includes both hard-to-place risks written outside of the standard market on an excess and surplus lines basis and unique and hard-to-place risks that must be written on an admitted basis due to marketing and regulatory reasons. Risks written in our Insurance segment are written on either a direct basis or a subscription basis, the latter of which means that the loss exposures brought into the market are typically insured by more than one insurance company or Lloyd's of London (Lloyd's) syndicate. When we write business in the subscription market, we prefer to participate as lead underwriter in order to control underwriting terms, policy conditions and claims handling. The following products are included in this segment: professional liability, general liability, personal lines, marine and energy, primary and excess of loss property, workers' compensation, credit and surety coverages, specialty program insurance for well-defined niche markets and liability and other coverages tailored for unique exposures. Business in this segment is primarily written through our Markel Specialty and Markel International divisions. The Markel Specialty division writes business on both an excess and surplus lines and admitted basis, primarily through our platform in the United States, as well as Bermuda, London, and Europe. The Markel International division writes business worldwide from our London and Munich-based platforms, which include branch offices around the world. The Insurance segment also includes collateral protection insurance written on an admitted basis through our State National division.

Our Reinsurance segment includes casualty and specialty treaty reinsurance products offered to other insurance and reinsurance companies globally through the broker market. Our treaty reinsurance offerings include both quota share and excess of loss reinsurance and are typically written on a participation basis, which means each reinsurer shares proportionally in the business ceded under the reinsurance treaty written. Business in this segment is primarily written by our Global Reinsurance division. Principal lines of business include: professional liability, general liability, workers' compensation and credit and surety. Previously, we also wrote property reinsurance and retrocessional reinsurance business, however, effective January 1, 2022, we were off-risk for substantially all property loss exposures, including catastrophe exposures, previously written within our Reinsurance segment.

Insurance-Linked Securities

Our insurance-linked securities operations are primarily comprised of our Nephila operations and are not included in a reportable segment. Nephila Holdings Ltd. (together with its subsidiaries, Nephila) serves as an insurance and investment fund manager that offers a broad range of investment products, including insurance-linked securities, catastrophe bonds, insurance swaps and weather derivatives. Nephila serves as the investment manager to several Bermuda, Ireland and U.S. based private funds (the Nephila Funds). To provide access for investors in the Nephila Funds to the insurance, reinsurance and weather markets, Nephila acts as an insurance manager to certain Bermuda Class 3 and 3A reinsurance companies and Lloyd's Syndicate 2357 (Syndicate 2357) (collectively, the Nephila Reinsurers). The results of the Nephila Reinsurers are attributed to the Nephila Funds primarily through derivative transactions between these entities. Neither the Nephila Funds nor the Nephila Reinsurers are subsidiaries of Markel Corporation, and as such, these entities are not included in our consolidated financial statements. The Nephila Reinsurers subscribe to various reinsurance contracts based on their investors' risk profiles, including property reinsurance business fronted through our underwriting and program services platforms. See note 12 of the notes to consolidated financial statements for further details regarding transactions with our Nephila operations.

Nephila also served as a managing general agent prior to the sale of our Velocity managing general agent operations in February 2022 and our Volante managing general agent operations in October 2022. See "Results of Operations - Other Operations" for further details regarding these transactions.

Our insurance-linked securities operations also include our run-off Lodgepine and Markel CATCo operations, the results of which are reported separately from our ongoing insurance-linked securities operations. Our Markel CATCo operations are conducted through Markel CATCo Investment Management Ltd. (MCIM), an ILS investment fund manager headquartered in Bermuda. MCIM serves as the insurance manager for Markel CATCo Re Ltd. (Markel CATCo Re), a Bermuda Class 3 reinsurance company, and as the investment manager for Markel CATCo Reinsurance Fund Ltd., a Bermuda exempted mutual fund company comprised of multiple segregated accounts (Markel CATCo Funds). In July 2019, these operations were placed into run-off. In March 2022, we completed a buy-out transaction that provided for an accelerated return of all remaining capital to investors in the Markel CATCo Funds. Following the completion of the buy-out transaction, we consolidate Markel CATCo Re as its primary beneficiary. Results attributable to the run-off of Markel CATCo Re are included within services and other expenses, and for the quarter and nine months ended September 30, 2022, these results were entirely attributable to noncontrolling interest holders in Markel CATCo Re. In connection with the buy-out transaction, we entered into a tail risk cover with Markel CATCo Re through which we have uncollateralized exposure to adverse development on loss reserves held by Markel CATCo Re for loss exposures in excess of limits that we believe are unlikely to be exceeded. See note 11 of the notes to consolidated financial statements for further details regarding our Markel CATCo operations and the consolidation of Markel CATCo Re and note 14 for further details about the buy-out transaction.

Program Services and Other Fronting

Our program services business generates fee income in the form of ceding fees in exchange for fronting insurance business to other insurance carriers (capacity providers). In general, fronting refers to business in which we write insurance on behalf of a general agent or capacity provider and then cede all, or substantially all, of the risk under these policies to the capacity provider in exchange for ceding fees. The results of our program services operations are not included in a reportable segment.

Our program services business, which is provided through our State National division, offers issuing carrier capacity to both specialty managing general agents and other producers who sell, control and administer books of insurance business that are supported by third parties that assume reinsurance risk, including Syndicate 2357 and other Nephila Reinsurers. These reinsurers are domestic and foreign insurers and institutional risk investors that want to access specific lines of U.S. property and casualty insurance business but may not have the required licenses and filings to do so.

Through our program services business, we write a wide variety of insurance products, principally including general liability, commercial liability, commercial multi-peril, property and workers' compensation. Program services business written through our State National division is separately managed from our underwriting divisions, which write similar products, in order to protect our program services customers.

In certain instances, we also leverage the strength of our underwriting platform to write business on behalf of our ILS operations, in exchange for ceding fees, to support their business plans and assist in meeting their desired return objectives. This fronting business is conducted separately from our program services business and primarily consists of catastrophe-exposed property reinsurance business, which we no longer write on a risk-bearing basis.

Although we reinsure substantially all of the risks inherent in our program services business and ILS fronting arrangements, we have certain programs that contain limits on our reinsurers' obligations to us that expose us to underwriting risk, including loss ratio caps, aggregate reinsurance limits or exclusion of the credit risk of producers. Under certain programs, including programs and contracts with Nephila Reinsurers, we also bear underwriting risk for annual aggregate agreement year losses in excess of a limit that we believe is unlikely to be exceeded. See note 12 of the notes to consolidated financial statements for further details regarding our programs with Nephila Reinsurers.

Investments

Our business strategy recognizes the importance of both consistent underwriting and operating profits and superior investment returns to build shareholder value. We rely on sound underwriting practices to produce investable funds. The majority of our investable assets come from premiums paid by policyholders. Policyholder funds are invested predominantly in high-quality government, municipal and corporate bonds that generally match the duration and currency of our loss reserves. We typically hold these fixed maturity investments until maturity. As a result, unrealized holding gains and losses on these securities are generally expected to reverse as the securities mature. The balance of our investable assets, comprised of shareholder funds, is available to be invested in equity securities, which over the long run, have produced higher returns relative to fixed maturity investments. When purchasing equity securities, we seek to invest in profitable companies, with honest and talented management, that exhibit reinvestment opportunities and capital discipline, at reasonable prices. We intend to hold these equity investments over the long-term. Substantially all of our investment portfolio is managed by company employees.

Markel Ventures

Through our wholly owned subsidiary, Markel Ventures, Inc. (Markel Ventures), we own controlling interests in various high-quality businesses that operate outside of the specialty insurance marketplace but have the shared goal of positively contributing to the long-term financial performance of Markel Corporation. Management views these businesses as separate and distinct from our insurance operations. Management teams for each business operate autonomously and are responsible for developing strategic initiatives, managing day-to-day operations and making investment and capital allocation decisions for their respective companies.

Our senior management team is responsible for decisions regarding allocation of capital for acquisitions and new investments. Our strategy in making these investments is similar to our strategy for purchasing equity securities. We seek to invest in profitable companies, with honest and talented management, that exhibit reinvestment opportunities and capital discipline, at reasonable prices. We intend to own the businesses acquired for a long period of time.

Our chief operating decision maker allocates resources to and assesses the performance of these various businesses in the aggregate as the Markel Ventures segment. This segment includes a diverse portfolio of specialized businesses from different industries that offer various types of products and services to businesses and consumers across many markets. The following types of businesses are included in this segment: construction services, consumer and building products, transportation-related products, equipment manufacturing products and consulting services. In December 2021, we acquired a controlling interest in Metromont LLC (Metromont), a precast concrete manufacturer and concrete building solutions provider for commercial projects. In August 2021, we acquired a controlling interest in Buckner HeavyLift Cranes (Buckner), a provider of crane rental services for large commercial contractors. See note 3 of the notes to consolidated financial statements for additional details related to these acquisitions.

Results of Operations

The following table presents the components of net income (loss) to shareholders, net income (loss) to common shareholders and comprehensive income (loss) to shareholders.

<i>(dollars in thousands)</i>	Quarter Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Insurance segment profit	\$ 85,537	\$ 146,725	\$ 439,445	\$ 469,010
Reinsurance segment profit (loss)	43,255	(30,442)	60,377	(58,563)
Investing segment profit (loss) ⁽¹⁾	(174,069)	65,428	(1,920,826)	1,459,878
Markel Ventures segment profit ⁽²⁾	60,459	54,969	217,242	215,097
Other operations ⁽³⁾	57,561	5,008	55,189	(19,106)
Interest expense	(47,348)	(46,455)	(147,090)	(135,412)
Net foreign exchange gains	115,130	48,850	245,356	61,677
Income tax (expense) benefit	(17,995)	(54,415)	239,536	(419,898)
Net income attributable to noncontrolling interests	(57,161)	(1,598)	(93,062)	(18,809)
Net income (loss) to shareholders	65,369	188,070	(903,833)	1,553,874
Preferred stock dividends	—	—	(18,000)	(18,000)
Net income (loss) to common shareholders	65,369	188,070	(921,833)	1,535,874
Other comprehensive loss to shareholders	(432,797)	(107,834)	(1,274,071)	(264,987)
Comprehensive income (loss) to shareholders	\$ (367,428)	\$ 80,236	\$ (2,177,904)	\$ 1,288,887

(1) Net investment income and net investment gains (losses), if any, attributable to Markel Ventures are included in segment profit for Markel Ventures. All other net investment income and net investment gains (losses) are included in Investing segment profit (loss).

(2) Segment profit for the Markel Ventures segment includes amortization of intangible assets attributable to Markel Ventures.

(3) Other operations include the results attributable to our operations that are not included in a reportable segment, as well as any amortization of intangible assets that is not allocated to a reportable segment. Amortization of intangible assets attributable to our underwriting segments was \$9.6 million and \$29.0 million for the quarter and nine months ended September 30, 2022, respectively, and \$10.3 million and \$31.1 million for the quarter and nine months ended September 30, 2021, respectively; however, we do not allocate amortization of intangible assets between the Insurance and Reinsurance segments.

Our results for the first nine months of 2022 were significantly impacted by decreases in the fair value of our investment portfolio. Net investment losses on our equity portfolio reflect the impact of significant volatility and overall decline in the public equity markets. The fair value of our fixed maturity portfolio also decreased significantly, primarily due to increases in interest rates. Volatility in the public equity and bond markets reflects the impact of economic uncertainty and broader market conditions, which are impacting all three of our operating engines, including high levels of inflation, rising interest rates and global supply chain disruptions.

The change in comprehensive income (loss) to shareholders for the third quarter of 2022 compared to the third quarter of 2021 was primarily due to pre-tax net investment losses of \$281.5 million in 2022 compared to \$25.8 million in 2021, as well as pre-tax net unrealized losses on our fixed maturity securities of \$530.2 million in 2022 compared to \$133.2 million in 2021.

The change in comprehensive income (loss) to shareholders for the nine months ended September 30, 2022 compared to the nine months ended September 30, 2021 was primarily due to pre-tax net investment losses of \$2.2 billion in 2022 compared to pre-tax net investment gains of \$1.2 billion in 2021, as well as pre-tax net unrealized losses on our fixed maturity securities of \$1.6 billion in 2022 compared to \$391.5 million in 2021.

The components of net income (loss) to shareholders and comprehensive income (loss) to shareholders are discussed in further detail under "Underwriting Results," "Investing Results," "Markel Ventures," "Other Operations," "Interest Expense, Net Foreign Exchange Gains and Income Taxes" and "Comprehensive Income (Loss) to Shareholders and Book Value per Common Share."

Underwriting Results

Underwriting profits are a key component of our strategy to build shareholder value. We believe that the ability to achieve consistent underwriting profits demonstrates knowledge and expertise, commitment to superior customer service and the ability to manage insurance risk. The property and casualty insurance industry commonly defines underwriting profit or loss as earned premiums net of losses and loss adjustment expenses and underwriting, acquisition and insurance expenses. We use underwriting profit or loss and the combined ratio as a basis for evaluating our underwriting performance. The U.S. GAAP combined ratio is a measure of underwriting performance and represents the relationship of incurred losses, loss adjustment expenses and underwriting, acquisition and insurance expenses to earned premiums. The combined ratio is the sum of the loss ratio and the expense ratio. The loss ratio represents the relationship of incurred losses and loss adjustment expenses to earned premiums. The expense ratio represents the relationship of underwriting, acquisition and insurance expenses to earned premiums. A combined ratio less than 100% indicates an underwriting profit, while a combined ratio greater than 100% reflects an underwriting loss.

In addition to the U.S. GAAP combined ratio, loss ratio and expense ratio, we also evaluate our underwriting performance using measures that exclude the impacts of certain items on these ratios. We believe these adjusted measures, which are non-GAAP measures, provide financial statement users with a better understanding of the significant factors that comprise our underwriting results and how management evaluates underwriting performance.

When analyzing our combined ratio, we exclude current accident year losses and loss adjustment expenses attributed to natural catastrophes. We also exclude losses and loss adjustment expenses attributed to certain significant, infrequent loss events, for example, the COVID-19 pandemic and the military conflict between Russia and Ukraine that began following Russia's invasion of Ukraine in February 2022. Due to the unique characteristics of a catastrophe loss and other significant, infrequent events, there is inherent variability as to the timing or loss amount, which cannot be predicted in advance. We believe measures that exclude the effects of catastrophe events, the Russia-Ukraine conflict and COVID-19 are meaningful to understand the underlying trends and variability in our underwriting results that may be obscured by these items.

When analyzing our loss ratio, we evaluate losses and loss adjustment expenses attributable to the current accident year separate from losses and loss adjustment expenses attributable to prior accident years. Prior accident year reserve development, which can either be favorable or unfavorable, represents changes in our estimates of losses and loss adjustment expenses related to loss events that occurred in prior years. We believe a discussion of current accident year loss ratios, which exclude prior accident year reserve development, is helpful since it provides more insight into estimates of current underwriting performance and excludes changes in estimates related to prior year loss reserves. We also analyze our current accident year loss ratio excluding losses and loss adjustment expenses attributable to catastrophes and, in 2022, the Russia-Ukraine conflict. The current accident year loss ratio excluding the impact of catastrophes and other significant, infrequent loss events is also commonly referred to as an attritional loss ratio within the property and casualty insurance industry.

Consolidated

(dollars in thousands)	Quarter Ended September 30,			Nine Months Ended September 30,		
	2022	2021	% Change	2022	2021	% Change
Gross premium volume ⁽¹⁾	\$ 2,483,052	\$ 2,078,005	19 %	\$ 7,528,922	\$ 6,348,877	19 %
Net written premiums	\$ 2,009,167	\$ 1,684,810	19 %	\$ 6,273,696	\$ 5,317,331	18 %
Earned premiums	\$ 1,956,830	\$ 1,630,500	20 %	\$ 5,549,704	\$ 4,696,232	18 %
Underwriting profit	\$ 128,245	\$ 112,503	14 %	\$ 490,103	\$ 408,255	20 %
Underwriting Ratios ⁽²⁾						
			Point Change			Point Change
Loss ratio						
Current accident year loss ratio	64.7 %	66.7 %	(2.0)	61.6 %	64.1 %	(2.5)
Prior accident years loss ratio	(4.2)%	(8.6)%	4.4	(3.7)%	(7.8)%	4.1
Loss ratio	60.6 %	58.2 %	2.4	58.0 %	56.3 %	1.7
Expense ratio	32.9 %	34.9 %	(2.0)	33.2 %	35.0 %	(1.8)
Combined ratio	93.4 %	93.1 %	0.3	91.2 %	91.3 %	(0.1)
Current accident year loss ratio catastrophe impact ⁽³⁾	3.6 %	7.0 %	(3.4)	1.3 %	3.9 %	(2.6)
Current accident year loss ratio Russia-Ukraine conflict impact ⁽³⁾	— %	— %	—	0.6 %	— %	0.6
Prior accident years loss ratio COVID-19 impact ⁽³⁾	— %	(0.1)%	0.1	— %	0.3 %	(0.3)
Current accident year loss ratio, excluding catastrophes and Russia-Ukraine conflict	61.2 %	59.7 %	1.5	59.7 %	60.2 %	(0.5)
Combined ratio, excluding current year catastrophes, Russia-Ukraine conflict and COVID-19	89.9 %	86.2 %	3.7	89.3 %	87.1 %	2.2

(1) Gross premium volume excludes \$991.7 million and \$2.6 billion for the quarter and nine months ended September 30, 2022, respectively, and \$890.6 million and \$2.3 billion for the quarter and nine months ended September 30, 2021, respectively, of written premiums attributable to our program services business and other fronting arrangements that were ceded.

(2) Amounts may not reconcile due to rounding.

(3) The point impact of catastrophes, the Russia-Ukraine conflict and COVID-19 is calculated as the associated net losses and loss adjustment expenses divided by total earned premiums.

Premiums

The increase in gross premium volume in our underwriting operations for the quarter and nine months ended September 30, 2022 was driven by growth within our insurance segment across all product lines.

We continue to see favorable rates across most of our product lines, particularly within our professional liability and general liability product lines, however, we are beginning to see rate increases moderate on many of our product lines. Rate increases continue to reflect general market conditions, including the impacts of both economic and social inflation on loss costs. Additionally, recent increases in economic inflation, and an expectation that this trend will continue, have created more uncertainty around the ultimate losses that will be incurred to settle claims on these longer-tail product lines. These factors, as well as the impacts of the low interest rate environment on net investment income in recent years, have resulted in higher rates. Additionally, following the high level of catastrophes that have occurred in recent years, we are also seeing more favorable rates on catastrophe-exposed lines of business. The primary exception to the favorable rate environment experience in recent years is workers' compensation, where we continue to see low single digit rate decreases given generally favorable loss experience in recent years. When we believe the prevailing market price will not support our underwriting profit targets, the business is not written. As a result of our underwriting discipline, gross premium volume may vary when we alter our product offerings to maintain or improve underwriting profitability.

Net retention of gross premium volume in our underwriting operations was 81% for the quarters ended September 30, 2022 and 2021. Net retention of gross premium in our underwriting operations for the nine months ended September 30, 2022 was 83% compared to 84% for the same period of 2021. The decrease in net retention for the nine months ended September 30, 2022 was driven by lower retention within our Insurance segment, partially offset by higher retention within our Reinsurance segment. Within our underwriting operations, we purchase reinsurance and retrocessional reinsurance to manage our net retention on individual risks and overall exposure to losses and to enable us to write policies with sufficient limits to meet policyholder needs.

The increase in earned premiums in our underwriting operations for the quarter and nine months ended September 30, 2022 was primarily attributable to higher gross premium volume.

Combined Ratio

Underwriting results for the quarter ended September 30, 2022 included \$70.0 million of net losses and loss adjustment expenses from Hurricane Ian. Underwriting results for the quarter ended September 30, 2021 included \$114.4 million of net losses and loss adjustment expenses attributed to natural catastrophes, including Hurricane Ida and the floods in Europe. Excluding losses attributed to catastrophes, the increase in our consolidated combined ratio for the quarter ended September 30, 2022 compared to the same period of 2021 was driven by the impact of less favorable development on prior accident years loss reserves and a higher attritional loss ratio within our Insurance segment in 2022 compared to 2021, partially offset by a lower expense ratio within our Insurance segment.

Underwriting results for the nine months ended September 30, 2022 included \$70.0 million and \$35.0 million of net losses and loss adjustment expenses attributed to Hurricane Ian and the Russia-Ukraine conflict, respectively. Underwriting results for the nine months ended September 30, 2021 included \$182.3 million of net losses and loss adjustment expenses attributed to Winter Storm Uri, the floods in Europe and Hurricane Ida (2021 Catastrophes) as well as \$15.2 million of net losses and loss adjustment expenses resulting from an increase in our estimate of ultimate losses and loss adjustment expenses attributed to COVID-19. Excluding these losses from the respective periods, the increase in our consolidated combined ratio for the nine months ended September 30, 2022 compared to the same period of 2021 was primarily driven by the impact of less favorable development on prior accident years loss reserves within our Insurance segment in 2022 compared to 2021, partially offset by a lower expense ratio within our Insurance segment.

Hurricane Ian

The net losses and loss adjustment expenses attributed to Hurricane Ian as of September 30, 2022 represent our best estimate based upon information currently available. Our estimate for these losses is based on preliminary industry loss estimates and output from industry, broker and proprietary models, as well as policy and reinsurance contract level reviews and analysis of our ceded reinsurance contracts. Due to limited claims activity, this estimate is based on various assumptions about coverage, liability and reinsurance and is therefore subject to change. While we believe our net reserves for Hurricane Ian as of September 30, 2022 are adequate, we continue to closely monitor reported claims and will adjust our estimate of net losses as new information becomes available.

Russia-Ukraine Conflict

Our results reflect underwriting losses from the military conflict between Russia and Ukraine that began following Russia's invasion of Ukraine in February 2022. The ongoing conflict has also contributed to certain aspects of the current economic conditions impacting all of our operations. For further discussion regarding the Russia-Ukraine conflict and risks related to our businesses, see Item 1A Risk Factors.

Our losses and loss adjustment expenses from the Russia-Ukraine conflict are primarily attributed to business written within our international insurance and reinsurance operations and are primarily associated with war and terrorism coverages within our marine and energy product lines, as well as our trade credit and surety product lines. Although premiums written in the impacted regions were not significant, many of our impacted policies have high exposure limits. Additionally, our marine war and trade credit products provide coverage for vessels and cargo that travel worldwide, including areas impacted by the conflict. We purchase significant excess of loss reinsurance on the impacted product lines to reduce our net exposures, resulting in significant ceded losses.

The following table summarizes the losses and loss adjustment expenses and related reinstatement premiums attributed to the Russia-Ukraine conflict, all of which were recognized in the first quarter of 2022. There were no additional losses recognized or adjustments to our initial loss estimates in the second or third quarters of 2022.

(dollars in thousands)

	Nine Months Ended September 30, 2022	
Gross losses and loss adjustment expenses	\$	105,000
Ceded losses and loss adjustment expenses		(70,000)
Net losses and loss adjustment expenses		35,000
Net ceded reinstatement premiums		12,253
Underwriting loss	\$	47,253

Both the gross and net loss estimates for incurred losses attributed to the Russia-Ukraine conflict continue to represent our best estimates as of September 30, 2022 based upon information currently available. Our estimates for these losses are based on reported claims, detailed underwriting, actuarial and claims reviews of policies and in-force assumed reinsurance contracts for potential exposures, as well as analysis of our ceded reinsurance contracts and analysis provided by our brokers and claims counsel. These estimates include various assumptions about what areas within the affected regions have incurred losses, the nature and extent of such losses, which remain difficult to verify, as well as assumptions about coverage, liability and reinsurance. Due to the inherent uncertainty associated with the assumptions surrounding the Russia-Ukraine conflict, these estimates may be subject to a wide range of variability. Additionally, as the Russia-Ukraine conflict is ongoing, we believe it is possible that additional losses could be incurred in subsequent periods. Given the significant levels of ceded reinsurance on certain of our impacted policies, a significant portion of any additional incurred losses may be ceded. Additionally, increases in ceded losses may require payment of additional reinstatement premiums. Further, if coverage under our existing ceded reinsurance contracts is exhausted, we may need to purchase additional reinsurance to ensure that our net retained risks on the impacted product lines are within our corporate risk tolerances.

While we believe our gross and net reserves for losses and loss adjustment expenses for the Russia-Ukraine conflict as of September 30, 2022 are adequate based on information currently available, we continue to closely monitor reported claims, ceded reinsurance contract attachment, government actions and areas impacted by the conflict and may adjust our estimates of gross and net losses as new information becomes available. Any such adjustments or additional incurred losses may be material to our results of operations, financial condition and cash flows.

Insurance Segment

<i>(dollars in thousands)</i>	Quarter Ended September 30,			Nine Months Ended September 30,		
	2022	2021	% Change	2022	2021	% Change
Gross premium volume	\$ 2,299,325	\$ 1,899,592	21 %	\$ 6,479,789	\$ 5,359,293	21 %
Net written premiums	\$ 1,849,983	\$ 1,545,428	20 %	\$ 5,289,165	\$ 4,427,301	19 %
Earned premiums	\$ 1,695,029	\$ 1,381,235	23 %	\$ 4,742,178	\$ 3,928,824	21 %
Underwriting profit	\$ 85,537	\$ 146,725	(42)%	\$ 439,445	\$ 469,010	(6)%
Underwriting Ratios ⁽¹⁾						
			Point Change			Point Change
Loss ratio						
Current accident year loss ratio	64.9 %	62.7 %	2.2	61.3 %	62.3 %	(1.0)
Prior accident years loss ratio	(3.2)%	(9.0)%	5.8	(4.1)%	(10.1)%	6.0
Loss ratio	61.8 %	53.7 %	8.1	57.1 %	52.2 %	4.9
Expense ratio	33.2 %	35.6 %	(2.4)	33.6 %	35.9 %	(2.3)
Combined ratio	95.0 %	89.4 %	5.6	90.7 %	88.1 %	2.6
Current accident year loss ratio catastrophe impact ⁽²⁾	4.1 %	3.3 %	0.8	1.5 %	2.3 %	(0.8)
Current accident year loss ratio Russia-Ukraine conflict impact ⁽²⁾	— %	— %	—	0.4 %	— %	0.4
Prior accident years loss ratio COVID-19 impact ⁽²⁾	— %	— %	—	— %	(0.1)%	0.1
Current accident year loss ratio, excluding catastrophes and Russia-Ukraine conflict	60.8 %	59.4 %	1.4	59.4 %	60.0 %	(0.6)
Combined ratio, excluding current year catastrophes, Russia-Ukraine conflict and COVID-19	90.8 %	86.0 %	4.8	88.8 %	85.9 %	2.9

⁽¹⁾ Amounts may not reconcile due to rounding.

⁽²⁾ The point impact of catastrophes, the Russia-Ukraine conflict and COVID-19 is calculated as the associated net losses and loss adjustment expenses divided by total earned premiums.

Premiums

The increase in gross premium volume in our Insurance segment for the both the quarter and nine months ended September 30, 2022 was driven by new business volume, strong policy retention levels, more favorable rates and expanded product offerings, resulting in growth across all of our product lines, most notably our general liability and professional liability product lines. For the quarter ended September 30, 2022, we also experienced notable growth within our marine and energy product lines.

Net retention of gross premium volume was 80% for the quarter ended September 30, 2022 compared to 81% for the same period of 2021. Net retention of gross premium volume was 82% for the nine months ended September 30, 2022 compared to 83% for the same period of 2021. The decrease in net retention for the quarter and nine months ended September 30, 2022 was primarily due to higher cession rates on our professional liability and personal lines product lines in 2022 compared to 2021, partially offset by the impact of low cession rates on new programs business. The decrease in net retention for the quarter ended September 30, 2022 was also partially offset by the impact of ceded reinstatement premiums in the third quarter of 2021 within our marine and energy product lines.

The increase in earned premiums for the quarter and nine months ended September 30, 2022 was primarily due to higher gross premium volume.

Combined Ratio: Quarter-to-Date

The Insurance segment's current accident year losses and loss adjustment expenses for the quarter ended September 30, 2022 included \$70.0 million of net losses and loss adjustment expenses attributed to Hurricane Ian. Current accident year losses for the quarter ended September 30, 2021 included \$46.0 million of net losses and loss adjustment expenses attributed to the 2021 Catastrophes. Excluding losses attributed to catastrophes, the increase in the current accident year loss ratio for the quarter ended September 30, 2022 compared to the same period of 2021 was primarily attributable to higher attritional loss ratios within our professional liability and general liability product lines. In response to recent loss development trends within these product lines, including the impacts of economic and social inflation, we increased our estimates of the ultimate loss ratios for total earned premiums for the 2022 accident year on certain of these product lines during the quarter ended September 30, 2022. For the nine months ended September 30, 2022, the attritional loss ratios on our professional liability and general liability product lines were modestly lower than the same period of 2021 due to the benefit of achieving higher premium rates.

The Insurance segment's combined ratio for the quarter ended September 30, 2022 included \$53.8 million of favorable development on prior accident years loss reserves compared to \$124.1 million for the same period of 2021. The decrease in favorable development was primarily due to modest adverse development on our professional liability product lines and modest favorable development on our general liability and property product lines in 2022 compared to significant favorable development on these product lines in 2021. The decrease in favorable development attributable to these product lines was partially offset by favorable development on our programs product lines in 2022 compared to adverse development in 2021.

Adverse development on our professional liability product lines was most significant on the 2015 to 2019 accident years and was primarily attributable to unfavorable claim settlements and increased claim frequency and severity on certain products, including directors and officers, errors and omissions and employment practices liability. Development on prior years loss reserves within our professional liability product lines in 2022 was impacted by broader market conditions, including the effects of social inflation. These factors have created more uncertainty around the ultimate losses that will be incurred to settle claims on these longer-tail product lines, and as a result, we are approaching reductions to prior year loss reserves on more recent accident years cautiously. While we are not currently experiencing the same loss trends within most of our general liability product lines, similar to our professional liability product lines, we are also approaching reductions to prior years loss reserves cautiously due to the inherent uncertainty of the impact of economic and social inflation on these long-tail product lines. Consistent with our reserving philosophy, we are responding quickly to increase loss reserves following any indication of increased claims frequency or severity in excess of our previous expectations, whereas in instances where claims trends are more favorable than we previously anticipated, we are often waiting to reduce loss reserves and will evaluate our experience over additional periods of time.

For the quarter ended September 30, 2022, favorable development on prior accident years loss reserves was most significant on our workers' compensation and programs product lines, primarily on the 2020 and 2021 accident years, and credit and surety product lines, primarily on the 2021 accident year. The favorable development on prior years loss reserves in 2021 was most significant on our property, general liability, professional liability and workers' compensation product lines.

The decrease in the Insurance segment's expense ratio for the quarter ended September 30, 2022 compared to the same period of 2021 was primarily due to the favorable impact of higher earned premiums in 2022 while maintaining consistent levels of general expenses with the same period of 2021.

Combined Ratio: Year-to-Date

The Insurance segment's current accident year losses and loss adjustment expenses for the nine months ended September 30, 2022 included \$70.0 million and \$20.0 million of net losses and loss adjustment expenses attributed to Hurricane Ian and the Russia-Ukraine conflict, respectively. Current accident year losses for the nine months ended September 30, 2021 included \$88.9 million of net losses and loss adjustment expenses attributed to the 2021 Catastrophes.

The Insurance segment's combined ratio for the nine months ended September 30, 2022 included \$196.1 million of favorable development on prior accident years loss reserves compared to \$397.7 million for the same period of 2021. The decrease in favorable development was primarily due to less favorable development on our general liability and professional liability product lines in 2022 compared to 2021. Development on our general liability and professional liability product lines for the nine months ended September 30, 2022 was unfavorably impacted by the same factors that impacted quarter-to-date development. For the nine months ended September 30, 2022, favorable development was most significant on our workers' compensation, property, and programs product lines, primarily on the 2020 and 2021 accident years, and marine and energy, primarily on the 2021 accident year. The favorable development on prior years loss reserves in 2021 was most significant on our general liability, property, workers' compensation, professional liability, and marine and energy product lines.

The decrease in the Insurance segment's expense ratio for the nine months ended September 30, 2022 compared to the same period of 2021 was primarily due to the favorable impact of higher earned premiums in 2022 while maintaining consistent levels of general expenses with the same period of 2021.

Reinsurance Segment

(dollars in thousands)	Quarter Ended September 30,			Nine Months Ended September 30,		
	2022	2021	% Change	2022	2021	% Change
Gross premium volume	\$ 179,455	\$ 180,673	(1)%	\$ 1,044,827	\$ 992,635	5 %
Net written premiums	\$ 154,029	\$ 141,642	9 %	\$ 983,087	\$ 893,082	10 %
Earned premiums	\$ 260,535	\$ 250,962	4 %	\$ 808,656	\$ 770,031	5 %
Underwriting profit (loss)	\$ 43,255	\$ (30,442)	NM ⁽¹⁾	\$ 60,377	\$ (58,672)	NM ⁽¹⁾
Underwriting Ratios ⁽²⁾						
			Point Change			Point Change
Loss ratio						
Current accident year loss ratio	63.9 %	88.4 %	(24.5)	63.7 %	72.9 %	(9.2)
Prior accident years loss ratio	(11.3)%	(6.5)%	(4.8)	(1.7)%	4.4 %	(6.1)
Loss ratio	52.6 %	81.9 %	(29.3)	62.0 %	77.3 %	(15.3)
Expense ratio	30.8 %	30.2 %	0.6	30.6 %	30.3 %	0.3
Combined ratio	83.4 %	112.1 %	(28.7)	92.5 %	107.6 %	(15.1)
Current accident year loss ratio catastrophe impact ⁽³⁾⁽⁴⁾	— %	27.2 %	(27.2)	— %	12.1 %	(12.1)
Current accident year loss ratio Russia-Ukraine conflict impact ⁽³⁾	— %	— %	—	1.9 %	— %	1.9
Prior accident years loss ratio COVID-19 impact ⁽³⁾	— %	(0.6)%	0.6	— %	2.5 %	(2.5)
Current accident year loss ratio, excluding catastrophes and Russia-Ukraine conflict	63.9 %	61.2 %	2.7	61.8 %	60.8 %	1.0
Combined ratio, excluding current year catastrophes, Russia-Ukraine conflict and COVID-19	83.4 %	85.5 %	(2.1)	90.7 %	93.0 %	(2.3)

⁽¹⁾ NM - Ratio is not meaningful

⁽²⁾ Amounts may not reconcile due to rounding.

⁽³⁾ The point impact of catastrophes, the Russia-Ukraine conflict and COVID-19 is calculated as the associated net losses and loss adjustment expenses divided by total earned premiums.

⁽⁴⁾ The point impact of catastrophes does not include the favorable impact of assumed reinstatement premiums associated with the 2021 Catastrophes of \$16.7 million and \$20.9 million for the quarter and nine months ended September 30, 2021, respectively. Reinstatement premiums were not significant for the quarter and nine months ended September 30, 2022.

Premiums

Gross premium volume for the quarter ended September 30, 2022 was consistent with the same period of 2021. Lower gross premiums within our professional liability and property product lines were largely offset by higher gross premiums within several of our other product lines, driven by more favorable premium adjustments and a favorable impact from the timing of renewals. Lower gross premiums within our professional liability product lines were primarily due to less favorable premium adjustments in the third quarter of 2022 compared to the same period of 2021, as well as non-renewals. Lower gross premiums within our property product lines were driven by non-renewals, as we have discontinued writing property retrocessional reinsurance business on a risk-bearing basis.

The increase in gross premium volume in our Reinsurance segment for the nine months ended September 30, 2022 was driven by increases on renewals within our professional liability product lines, due to increased exposure arising from growth in underlying portfolios and more favorable rates, as well as new business, primarily on our professional liability and general liability product lines. Additionally, we had more favorable premium adjustments in 2022 compared to 2021, primarily on our general liability and credit and surety product lines. These increases were partially offset by the impact of non-renewals within our property product lines, as previously discussed, and the non-renewal of a large treaty within our workers' compensation product line. Significant variability in gross premium volume can be expected in our Reinsurance segment due to individually significant contracts and multi-year contracts.

Net retention of gross premium volume for the quarter ended September 30, 2022 was 86% compared to 78% for the same period of 2021. Net retention of gross premium volume for the nine months ended September 30, 2022 was 94% compared to 90% for the same period of 2021. The increase in net retention for both the quarter and nine months ended September 30, 2022 was driven by changes in mix of business. We have experienced growth in highly retained product lines during the year, while the non-renewed property business had a lower retention rate than the rest of the segment.

The increase in earned premiums for the quarter and nine months ended September 30, 2022 was primarily attributable to growth in gross premium volume within our professional liability and general liability product lines in recent periods, partially offset by the impact of lower gross premiums within our property product lines.

Combined Ratio: Quarter-to-Date

The Reinsurance segment's current accident year losses and loss adjustment expenses for the quarter ended September 30, 2022 did not include any losses attributed to Hurricane Ian. The Reinsurance segment's current accident year losses and loss adjustment expenses for the quarter ended September 30, 2021 included \$68.4 million of net losses and loss adjustment expenses attributed to the 2021 Catastrophes. Excluding these losses, the increase in the current accident year loss ratio for the quarter ended September 30, 2022 compared to the same period of 2021 was primarily due to the benefit in 2021 of \$16.7 million of favorable assumed reinstatement premiums attributed to the 2021 Catastrophes.

The Reinsurance segment's combined ratio for the quarter ended September 30, 2022 included \$29.5 million of favorable development on prior accident years loss reserves, which was attributable to favorable development across several product lines, including favorable development on catastrophe reserves within our property product lines. Favorable development in 2022 was partially offset by the impact of additional exposures recognized on prior accident years related to net favorable premium adjustments on our professional liability, general liability and credit and surety product lines. For the quarter ended September 30, 2021, the combined ratio included \$16.3 million of favorable development on prior accident years loss reserves, which was primarily attributable to our general liability product lines. Favorable development in 2021 was partially offset by the impact of additional exposures recognized on prior accident years related to net favorable premium adjustments on our professional liability and general liability product lines.

Combined Ratio: Year-to-Date

The Reinsurance segment's current accident year losses and loss adjustment expenses for the nine months ended September 30, 2022 included \$15.0 million of net losses and loss adjustment expenses attributed to the Russia-Ukraine conflict. Current accident year losses for the nine months ended September 30, 2021 included \$93.4 million of net losses and loss adjustment expenses attributed to the 2021 Catastrophes. Excluding these losses from the respective periods, the increase in the current accident year loss ratio for the nine months ended September 30, 2022 compared to the same period of 2021 was primarily due to the unfavorable impact of changes in the mix of business within the segment and the benefit in 2021 of \$20.9 million of favorable assumed reinstatement premiums attributed to the 2021 Catastrophes. The change in mix of business had an unfavorable impact as the non-renewed property business had a lower attritional loss ratio than the rest of the segment. These increases were partially offset by the benefit of higher premium rates on our general liability and professional liability product lines and more favorable premium adjustments in 2022 compared to 2021, primarily on our general liability and credit and surety product lines.

The Reinsurance segment's combined ratio for the nine months ended September 30, 2022 included \$13.8 million of favorable development on prior accident years loss reserves, which was primarily attributable to favorable development on our credit and surety product lines, primarily on the 2019 accident year, and our property product lines, primarily on the 2018 accident year. Favorable development on prior years loss reserves in 2022 was partially offset by additional exposures recognized on prior accident years related to net favorable premium adjustments on our general liability, professional liability and credit and surety product lines. For the nine months ended September 30, 2021, the combined ratio included \$34.1 million of adverse development on prior accident years loss reserves, which was primarily attributable to property product lines, as well as additional exposures recognized related to net favorable premium adjustments on our professional liability product lines.

Investing Results

Our business strategy recognizes the importance of both consistent underwriting and operating profits and superior investment returns to build shareholder value. We rely on sound underwriting practices to produce investable funds. We measure investing results by our net investment income, net investment gains and the change in net unrealized gains on available-for-sale investments, as well as investment yield and taxable equivalent total investment return.

The following table summarizes our investment performance.

<i>(dollars in thousands)</i>	Quarter Ended September 30,			Nine Months Ended September 30,		
	2022	2021	Change	2022	2021	Change
Net investment income	\$ 107,731	\$ 91,264	18 %	\$ 274,123	\$ 284,095	(4)%
Net investment gains (losses)	\$ (281,483)	\$ (25,833)	\$ (255,650)	\$ (2,194,525)	\$ 1,175,791	\$ (3,370,316)
Change in net unrealized gains (losses) on available-for-sale investments ⁽¹⁾	\$ (538,347)	\$ (131,671)	\$ (406,676)	\$ (1,600,063)	\$ (337,914)	\$ (1,262,149)
Investment Ratios						
Investment yield ⁽²⁾	0.5 %	0.5 %	—	1.4 %	1.5 %	(0.1)
Taxable equivalent total investment return				(13.2)%	5.1 %	(18.3)

⁽¹⁾ The change in net unrealized gains (losses) on available-for-sale investments included an increase related to an adjustment to our life and annuity benefit reserves of \$56.6 million for nine months ended September 30, 2022, and increases of \$6.4 million and \$56.7 million for the quarter and nine months ended September 30, 2021, respectively. There was no adjustment to our life and annuity benefit reserves for the quarter ended September 30, 2022. See note 9 of the notes to consolidated financial statements for details on our life and annuity benefit reserve adjustments.

⁽²⁾ Investment yield reflects net investment income as a percentage of monthly average invested assets at amortized cost.

The increase in net investment income for the quarter ended September 30, 2022 compared to the same period of 2021 was primarily attributable to higher interest income on our short-term investments due to higher short-term interest rates in 2022 compared to 2021. The decrease in net investment income for the nine months ended September 30, 2022 compared to the same period of 2021 was driven by losses on our equity method investments in 2022 compared to income in 2021, partially offset by higher interest income on our short-term investments. Additionally, net investment income on our fixed maturity securities for the quarter and nine months ended September 30, 2022 increased modestly compared to the same periods of 2021, as the impact of higher average holdings of fixed maturity securities during both the quarter and nine months ended September 30, 2022 compared to the same periods of 2021 was mostly offset by a lower yield in 2022 compared to 2021. See note 4(d) of the notes to consolidated financial statements for details regarding the components of net investment income.

Net investment losses for the quarter and nine months ended September 30, 2022 were primarily attributable to decreases in the fair value of our equity portfolio driven by unfavorable market value movements in 2022. Net investment gains for the nine months ended September 30, 2021 were primarily attributable to increases in the fair value of our equity portfolio driven by favorable market value movements. See note 4(e) of the notes to consolidated financial statements for further details on the components of net investment gains (losses).

The decreases in net unrealized gains (losses) on available-for-sale investments for the quarter and nine months ended September 30, 2022 and 2021 were primarily attributable to decreases in the fair value of our fixed maturity investment portfolio as a result of increases in interest rates during 2022 and 2021.

Taxable equivalent total investment return is a non-GAAP financial measure. Taxable equivalent total investment return includes items that impact net income, such as coupon interest on fixed maturity securities, changes in fair value of equity securities, dividends on equity securities and realized investment gains or losses on available-for-sale securities, as well as changes in unrealized gains or losses on available-for-sale securities, which do not impact net income. Certain items that are included in net investment income have been excluded from the calculation of taxable equivalent total investment return, such as amortization and accretion of premiums and discounts on our fixed maturity portfolio, to provide a comparable basis for measuring our investment return against industry investment returns. The calculation of taxable equivalent total investment return also includes the current tax benefit associated with income on certain investments that is either taxed at a lower rate than the statutory income tax rate or is not fully included in U.S. taxable income. We believe the taxable equivalent total investment return is a better reflection of the economics of our decision to invest in certain asset classes. We focus on our long-term investment return, understanding that the level of investment gains or losses may vary from one period to the next.

The following table reconciles investment yield to taxable equivalent total investment return.

	Nine Months Ended September 30,	
	2022	2021
Investment yield ⁽¹⁾	1.4 %	1.5 %
Adjustment of investment yield from amortized cost to fair value	(0.3) %	(0.4) %
Net amortization of net premium on fixed maturity securities	0.4 %	0.3 %
Net investment gains (losses) and change in net unrealized investment gains (losses) on available-for-sale securities	(15.7) %	3.2 %
Taxable equivalent effect for interest and dividends ⁽²⁾	0.1 %	0.1 %
Other ⁽³⁾	0.9 %	0.4 %
Taxable equivalent total investment return	(13.2) %	5.1 %

- (1) Investment yield reflects net investment income as a percentage of monthly average invested assets at amortized cost.
- (2) Adjustment to tax-exempt interest and dividend income to reflect a taxable equivalent basis.
- (3) Adjustment to reflect the impact of time-weighting the inputs to the calculation of taxable equivalent total investment return.

Markel Ventures

Our Markel Ventures segment includes a diverse portfolio of businesses from different industries that offer various types of products and services to businesses and consumers, predominantly in the United States. We measure Markel Ventures' results by its operating income and net income, as well as earnings before interest, income taxes, depreciation and amortization (EBITDA). We consolidate the results of our Markel Ventures subsidiaries on a one-month lag, with the exception of significant transactions or events that occur during the intervening period.

The following table summarizes the operating revenues, operating income, EBITDA and net income to shareholders from our Markel Ventures segment.

(dollars in thousands)	Quarter Ended September 30,			Nine Months Ended September 30,		
	2022	2021	% Change	2022	2021	% Change
Operating revenues	\$ 1,216,063	\$ 908,185	34 %	\$ 3,527,853	\$ 2,690,293	31 %
Operating income	\$ 60,459	\$ 54,969	10 %	\$ 217,242	\$ 215,097	1 %
EBITDA	\$ 102,764	\$ 84,348	22 %	\$ 352,623	\$ 303,883	16 %
Net income to shareholders	\$ 36,358	\$ 34,398	6 %	\$ 130,341	\$ 135,632	(4) %

The increase in operating revenues for the quarter and nine months ended September 30, 2022 compared to the same periods of 2021 was driven by contributions from Metromont and Buckner, which were acquired in December 2021 and August 2021, respectively. Operating revenues for the quarter and nine months ended September 30, 2022 included \$184.4 million and \$450.2 million, respectively, attributable to these acquisitions. Additionally, operating revenues for the quarter and nine months ended September 30, 2022 increased as a result of the impact of increased demand and higher prices at many of our other businesses, most notably at our construction services businesses.

The benefit of increases in operating revenues to operating income, EBITDA and net income to shareholders was reduced by increased costs of materials and labor across many of our businesses, which are reflective of current economic conditions. The higher cost of materials is due in part to a shortage in the availability of certain products, the higher cost of shipping and a prolonged period of elevated inflation. We try to mitigate the impact of these cost increases through a variety of actions, such as increasing the prices of our products and services, pre-purchasing materials, locking in prices in advance or utilizing alternative sources of materials. Our businesses have had varying levels of success with these efforts and even when we are successful, there can be a time lag before the impacts of these changes are reflected in our margins.

The increases in operating income and EBITDA for the quarter and nine months ended September 30, 2022 compared to the same periods of 2021 were primarily due to the impact of higher revenues and improved operating results at our construction services businesses, consulting services businesses and transportation-related businesses, as well as the contribution of Metromont. These increases were partially offset by the impact of lower operating margins at one of our consumer and building products businesses in 2022 compared to 2021. For the nine months ended September 30, 2022, the increases in operating income and EBITDA were also partially offset by the impact of a pre-tax disposition gain of \$22.0 million in the first quarter of 2021, which was included in services and other expenses.

Markel Ventures EBITDA is a non-GAAP financial measure. We use Markel Ventures EBITDA as an operating performance measure in conjunction with U.S. GAAP measures, including operating revenues, operating income and net income to shareholders, to monitor and evaluate the performance of our Markel Ventures segment. Because EBITDA excludes interest, income taxes, depreciation and amortization, it provides an indicator of economic performance that is useful to both management and investors in evaluating our Markel Ventures businesses as it is not affected by levels of debt, interest rates, effective tax rates or levels of depreciation or amortization resulting from purchase accounting. The following table reconciles Markel Ventures operating income to Markel Ventures EBITDA.

<i>(dollars in thousands)</i>	Quarter Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Markel Ventures operating income	\$ 60,459	\$ 54,969	\$ 217,242	\$ 215,097
Depreciation expense	23,738	15,838	75,304	47,682
Amortization of intangible assets	18,567	13,541	60,077	41,104
Markel Ventures EBITDA	<u>\$ 102,764</u>	<u>\$ 84,348</u>	<u>\$ 352,623</u>	<u>\$ 303,883</u>

Other Operations

The following tables present the components of operating revenues and operating expenses that are not included in a reportable segment.

<i>(dollars in thousands)</i>	Quarter Ended September 30,					
	2022			2021		
	Services and other revenues	Services and other expenses	Amortization of intangible assets	Services and other revenues	Services and other expenses	Amortization of intangible assets
Other operations:						
Insurance-linked securities	\$ 25,879	\$ 32,899	\$ 9,512	\$ 46,481	\$ 43,375	\$ 9,612
Program services and other fronting	40,820	7,256	5,234	32,531	2,755	5,235
Life and annuity	118	(4,633)	—	345	(1,351)	—
Markel CATCo Re	—	(53,363)	—	—	—	—
Other ⁽¹⁾	504	2,203	526	3,884	3,947	599
	<u>67,321</u>	<u>(15,638)</u>	<u>15,272</u>	<u>83,241</u>	<u>48,726</u>	<u>15,446</u>
Underwriting operations ⁽²⁾			9,579			10,281
Total	<u>\$ 67,321</u>	<u>\$ (15,638)</u>	<u>\$ 24,851</u>	<u>\$ 83,241</u>	<u>\$ 48,726</u>	<u>\$ 25,727</u>

⁽¹⁾ Other includes the results of our run-off Lodgepine and Markel CATCo investment management operations for both periods presented.

⁽²⁾ Amortization of intangible assets attributable to our underwriting operations is not allocated between the Insurance and Reinsurance segments.

	Nine Months Ended September 30,					
	2022			2021		
	Services and other revenues	Services and other expenses	Amortization of intangible assets	Services and other revenues	Services and other expenses	Amortization of intangible assets
<i>(dollars in thousands)</i>						
Other operations:						
Insurance-linked securities	\$ 86,089	\$ 105,494	\$ 28,569	\$ 139,223	\$ 131,918	\$ 28,836
Insurance-linked securities - disposition gain	107,293	—	—	—	—	—
Program services and other fronting	104,653	21,370	15,702	88,721	15,265	15,703
Life and annuity	724	5,852	—	1,002	11,041	—
Markel CATCo buy-out	—	101,904	—	—	—	—
Markel CATCo Re	—	(81,562)	—	—	—	—
Other ⁽¹⁾	9,098	14,978	1,668	12,971	23,270	1,806
	307,857	168,036	45,939	241,917	181,494	46,345
Underwriting operations ⁽²⁾			28,974			31,101
Total	\$ 307,857	\$ 168,036	\$ 74,913	\$ 241,917	\$ 181,494	\$ 77,446

⁽¹⁾ Other includes the results of our run-off Lodgepine and Markel CATCo investment management operations for both periods presented.

⁽²⁾ Amortization of intangible assets attributable to our underwriting operations is not allocated between the Insurance and Reinsurance segments.

Insurance-Linked Securities

For both the quarter and nine months ended September 30, 2022, the decrease in operating revenues and operating expenses in our Nephila ILS operations was primarily due to the disposition of our Velocity managing general agent operations during the first quarter of 2022. In February 2022, we sold the majority of our controlling interest in our Velocity managing general agent operations for total cash consideration of \$181.3 million, which resulted in a gain of \$107.3 million. Velocity provides risk origination services for our Nephila fund management operations, as well as for third parties, and was a source of growth within our ILS operations since we acquired Nephila in 2018. We continue to have a minority interest in Velocity after the sale, and Velocity continues to be a source for risk origination for our Nephila fund management operations.

In October 2022, we sold our controlling interest in our Volante managing general agent operations for estimated total cash consideration of \$155 million. Volante, which has also been a source of growth within our ILS operations, underwrites and administers specialty insurance and reinsurance policies and provides delegated underwriting services to third-party providers of insurance capital.

Following the disposition of our Velocity and Volante managing general agent operations, our Nephila ILS operations are solely comprised of the fund management operations. As of September 30, 2022, Nephila's net assets under management were \$7.8 billion, which reflects the impact of Hurricane Ian during the third quarter of 2022.

Program Services and Other Fronting

For the quarter and nine months ended September 30, 2022, the increase in operating revenues was primarily due to higher gross earned premiums, on which our fees are based, in 2022 compared to 2021, driven by the expansion of existing programs in recent periods. Gross written premiums in our program services operations were \$711.7 million and \$2.1 billion for the quarter and nine months ended September 30, 2022, respectively, compared to \$726.6 million and \$2.1 billion for the quarter and nine months ended September 30, 2021, respectively. Additionally, gross written premiums from our other fronting operations, which consist of business written by our underwriting platform on behalf of our ILS operations, were \$279.6 million and \$494.1 million for the quarter and nine months ended September 30, 2022, respectively, compared to \$161.8 million and \$205.8 million for the quarter and nine months ended September 30, 2021, respectively.

Markel CATCo

In March 2022, we completed a buy-out transaction with Markel CATCo Re and the Markel CATCo Funds that provided for an accelerated return of all remaining capital to investors in the Markel CATCo Funds and resulted in the consolidation of Markel CATCo Re upon completion of the transaction. In order to complete the transaction, we made \$101.9 million in payments, net of insurance proceeds, to or for the benefit of investors that were recognized as an expense during the first quarter of 2022. For the quarter and nine months ended September 30, 2022, results attributable to Markel CATCo Re were primarily related to favorable loss reserve development on the run-off of reinsurance contracts, all of which were attributable to noncontrolling interest holders in Markel CATCo Re. See note 11 of the notes to consolidated financial statements for further details regarding our Markel CATCo operations and the consolidation of Markel CATCo Re and note 14 for further details about the buy-out transaction.

Interest Expense, Net Foreign Exchange Gains and Income Taxes

Interest Expense

Interest expense was \$47.3 million and \$147.1 million for the quarter and nine months ended September 30, 2022, respectively, compared to \$46.5 million and \$135.4 million for the same periods of 2021. The increase in interest expense for the nine months ended September 30, 2022 was primarily attributable to higher Markel Ventures interest expense and the issuance of our 3.45% unsecured senior notes issued in May 2021, partially offset by the impact of the retirement of our 4.90% unsecured senior notes in July 2022. See note 10 of the notes to consolidated financial statements for further details regarding the retirement of our senior long-term debt.

Net Foreign Exchange Gains

Net foreign exchange gains were \$115.1 million and \$245.4 million for the quarter and nine months ended September 30, 2022, respectively, compared to \$48.9 million and \$61.7 million for the same periods of 2021. Net foreign exchange gains are primarily due to the remeasurement of our foreign currency denominated insurance reserves to the U.S. Dollar. The U.S. Dollar strengthened against the Euro and British Pound, the predominant foreign currencies within our insurance operations, during 2022 and 2021, particularly in the second and third quarters of 2022. There is an offsetting impact within other comprehensive income for foreign exchange losses attributed to changes in exchange rates on available-for-sale securities supporting our insurance reserves, which are included in the changes in net unrealized gains (losses) on available-for-sale investments, net of taxes.

Income Taxes

The effective tax rate was 23% and 21% for the nine months ended September 30, 2022 and 2021, respectively. We use the estimated annual effective tax rate method for calculating our tax provision in interim periods. This method applies our best estimate of the effective tax rate expected for the full year to year-to-date earnings before income taxes. Certain items, including those deemed to be unusual, infrequent or that cannot be reliably estimated (discrete items), are excluded from the estimated annual effective tax rate, and the related tax expense or benefit is reported in the same period as the related item. The estimated annual effective tax rate was 21% and 22% for the nine months ended September 30, 2022 and 2021, respectively.

Comprehensive Income (Loss) to Shareholders and Book Value per Common Share

The following table summarizes the components of comprehensive income (loss) to shareholders.

<i>(dollars in thousands)</i>	Quarter Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Net income (loss) to shareholders	\$ 65,369	\$ 188,070	\$ (903,833)	\$ 1,553,874
Other comprehensive loss:				
Change in net unrealized gains (losses) on available-for-sale investments, net of taxes	(424,338)	(104,014)	(1,261,550)	(266,486)
Other, net of taxes	(8,569)	(3,851)	(12,587)	1,502
Other comprehensive (income) loss attributable to noncontrolling interest	110	31	66	(3)
Other comprehensive loss to shareholders	(432,797)	(107,834)	(1,274,071)	(264,987)
Comprehensive income (loss) to shareholders	\$ (367,428)	\$ 80,236	\$ (2,177,904)	\$ 1,288,887

Book value per common share decreased 16% from \$1,036.20 at December 31, 2021 to \$868.68 as of September 30, 2022, primarily due to comprehensive loss to shareholders for the nine months ended September 30, 2022.

Financial Condition

Liquidity and Capital Resources

We seek to maintain prudent levels of liquidity and financial leverage for the protection of our policyholders, creditors and shareholders. Our consolidated debt to capital ratio was 25% at September 30, 2022 and 23% at December 31, 2021. The increase reflects a decrease in shareholders' equity, primarily attributable to a decline in the fair value of our investment portfolio, driven by unfavorable movements in the public equity markets and increases in interest rates in 2022.

Investments, cash and cash equivalents and restricted cash and cash equivalents (invested assets) were \$25.9 billion and \$28.3 billion at September 30, 2022 and December 31, 2021, respectively. The following table presents the composition of our invested assets.

	September 30, 2022	December 31, 2021
Fixed maturity securities	45 %	44 %
Equity securities	27 %	32 %
Short-term investments, cash and cash equivalents and restricted cash and cash equivalents	28 %	24 %
Total	100 %	100 %

Our holding company had \$4.3 billion and \$5.3 billion of invested assets at September 30, 2022 and December 31, 2021, respectively. The decrease was primarily due to declines in the fair value of our equity and fixed maturity securities, as well as the repayment of our 4.90% unsecured senior notes due July 1, 2022. The following table presents the composition of our holding company's invested assets.

	September 30, 2022	December 31, 2021
Fixed maturity securities	4 %	4 %
Equity securities	49 %	53 %
Short-term investments, cash and cash equivalents and restricted cash and cash equivalents	47 %	43 %
Total	100 %	100 %

In February 2022, our Board of Directors approved a new share repurchase program that provides for the repurchase of up to \$750 million of common stock. As of September 30, 2022, \$585.6 million remained available for repurchases under the program. This share repurchase program has no expiration date but may be terminated by the Board of Directors at any time.

We may from time to time seek to prepay, retire or repurchase our outstanding senior notes or preferred shares, through open market purchases, privately negotiated transactions or otherwise. Those prepayments, retirements or repurchases, if any, will depend on prevailing market conditions, our liquidity requirements, contractual restrictions and other factors.

We have access to various capital sources, including dividends from certain of our subsidiaries, holding company invested assets, undrawn capacity under our revolving credit facility and access to the debt and equity capital markets. We believe we have adequate liquidity to meet our capital and operating needs, including that which may be required to support the operating needs of our subsidiaries. However, the availability of these sources of capital and the availability and terms of future financings will depend on a variety of factors.

Cash Flows

Net cash provided by operating activities was \$1.9 billion for the nine months ended September 30, 2022 compared to \$1.6 billion for the same period of 2021. The increase in net cash flows from operating activities for the nine months ended September 30, 2022 was primarily driven by higher net premiums within our Insurance segment, partially offset by \$101.9 million of payments made in connection with the Markel CATCo buy-out transaction.

Net cash used by investing activities was \$1.3 billion for the nine months ended September 30, 2022 compared to \$2.7 billion for the same period of 2021. During the nine months ended September 30, 2022, net cash used by investing activities included net purchases of fixed maturity securities, short-term investments and equity securities of \$875.6 million, \$625.3 million and \$128.7 million, respectively. Net cash used by investing activities was net of \$630.0 million of net cash and restricted cash acquired as part of our consolidation of Markel CATCo Re, of which \$169.4 million was subsequently distributed to Markel CATCo investors for shares that were redeemed in conjunction with the buy-out transaction. During the nine months ended September 30, 2021, net cash used by investing activities included net purchases of fixed maturity securities, short-term investments and equity securities of \$1.7 billion, \$727.4 million and \$20.5 million. Net cash used by investing activities in 2021 also included \$237.9 million of net cash used for the acquisition of Buckner. Cash flow from investing activities is affected by various factors such as anticipated payment of claims, financing activity, acquisition opportunities and individual buy and sell decisions made in the normal course of our investment portfolio management.

Net cash used by financing activities was \$491.1 million for the nine months ended September 30, 2022 compared to net cash provided by financing activities of \$439.4 million for the same period of 2021. During the nine months ended September 30, 2022, net cash used by financing activities included \$350.0 million to retire our 4.90% unsecured senior notes due July 1, 2022. Financing activities during the nine months ended September 30, 2022 also reflected borrowings and repayments at certain of our Markel Ventures businesses, primarily on revolving lines of credit. During the nine months ended September 30, 2021, we received net proceeds of \$591.4 million from our May 2021 debt offering. Cash of \$208.1 million and \$122.4 million was used to repurchase shares of our common stock during the first nine months of 2022 and 2021, respectively.

Critical Accounting Estimates

Critical accounting estimates are those estimates that both are important to the portrayal of our financial condition and results of operations and require us to exercise significant judgment. The preparation of financial statements in accordance with U.S. GAAP requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses and the disclosure of material contingent assets and liabilities. These estimates, by necessity, are based on assumptions about numerous factors.

Our critical accounting estimates consist of estimates and assumptions used in determining the reserves for unpaid losses and loss adjustment expenses as well as estimates and assumptions used in the valuation of goodwill and intangible assets. We review the adequacy of reserves for unpaid losses and loss adjustment expenses quarterly. Estimates and assumptions for goodwill and intangible assets are reviewed in conjunction with acquisitions and impairment assessments. Goodwill and indefinite-lived intangible assets are reassessed for impairment at least annually. All intangible assets, including goodwill, are also reviewed for impairment when events or circumstances indicate that their carrying value may not be recoverable. Actual results may differ materially from the estimates and assumptions used in preparing the consolidated financial statements.

Readers are urged to review our 2021 Annual Report on Form 10-K for a more complete description of our critical accounting estimates.

Safe Harbor and Cautionary Statement

This report contains statements concerning or incorporating our expectations, assumptions, plans, objectives, future financial or operating performance and other statements that are not historical facts. These statements are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Such statements may use words such as "anticipate," "believe," "estimate," "expect," "intend," "predict," "project" and similar expressions as they relate to us or our management.

There are risks and uncertainties that may cause actual results to differ materially from predicted results in forward-looking statements. Factors that may cause actual results to differ are often presented with the forward-looking statements themselves. Additional factors that could cause actual results to differ from those predicted are set forth under "Business Overview," "Risk Factors," and "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our 2021 Annual Report on Form 10-K, or are included in the items listed below:

- our expectations about future results of our underwriting, investing, Markel Ventures and other operations are based on current knowledge and assume no significant man-made or natural catastrophes, no significant changes in products or personnel and no adverse changes in market conditions;
- the effect of cyclical trends on our underwriting, investing, Markel Ventures and other operations, including demand and pricing in the insurance, reinsurance and other markets in which we operate;
- actions by competitors, including the use of technology and innovation to simplify the customer experience, increase efficiencies, redesign products, alter models and effect other potentially disruptive changes in the insurance industry, and the effect of competition on market trends and pricing;
- our efforts to develop new products, expand in targeted markets or improve business processes and workflows may not be successful and may increase or create new risks (e.g., insufficient demand, change to risk exposures, distribution channel conflicts, execution risk, increased expenditures);
- the frequency and severity of man-made and natural catastrophes (including earthquakes, wildfires and weather-related catastrophes) may exceed expectations, are unpredictable and, in the case of wildfires and weather-related catastrophes, may be exacerbated if, as many forecast, changing conditions in the climate, oceans and atmosphere result in increased hurricane, flood, drought or other adverse weather-related activity;
- we offer insurance and reinsurance coverage against terrorist acts in connection with some of our programs, and in other instances we are legally required to offer terrorism insurance; in both circumstances, we actively manage our exposure, but if there is a covered terrorist attack, we could sustain material losses;
- emerging claim and coverage issues, changing industry practices and evolving legal, judicial, social and other environmental trends or conditions, can increase the scope of coverage, the frequency and severity of claims and the period over which claims may be reported; these factors, as well as uncertainties in the loss estimation process, can adversely impact the adequacy of our loss reserves and our allowance for reinsurance recoverables;
- reinsurance reserves are subject to greater uncertainty than insurance reserves, primarily because of reliance upon the original underwriting decisions made by ceding companies and the longer lapse of time from the occurrence of loss events to their reporting to the reinsurer for ultimate resolution;
- inaccuracies (whether due to data error, human error or otherwise) in the various modeling techniques and data analytics (e.g., scenarios, predictive and stochastic modeling, and forecasting) we use to analyze and estimate exposures, loss trends and other risks associated with our insurance and insurance-linked securities businesses could cause us to misprice our products or fail to appropriately estimate the risks to which we are exposed;
- changes in the assumptions and estimates used in establishing reserves for our life and annuity reinsurance book (which is in runoff), for example, changes in assumptions and estimates of mortality, longevity, morbidity and interest rates, could result in material increases in our estimated loss reserves for such business;
- adverse developments in insurance coverage litigation or other legal or administrative proceedings could result in material increases in our estimates of loss reserves;
- initial estimates for catastrophe losses and other significant, infrequent events (such as the COVID-19 pandemic and the Russia-Ukraine conflict), are often based on limited information, are dependent on broad assumptions about the nature and extent of losses, coverage, liability and reinsurance, and those losses may ultimately differ materially from our expectations;

- changes in the availability, costs, quality and providers of reinsurance coverage, which may impact our ability to write or continue to write certain lines of business or to mitigate the volatility of losses on our results of operations and financial condition;
- the ability or willingness of reinsurers to pay balances due may be adversely affected by industry and economic conditions, deterioration in reinsurer credit quality and coverage disputes, and collateral we hold, if any, may not be sufficient to cover a reinsurer's obligation to us;
- after the commutation of ceded reinsurance contracts, any subsequent adverse development in the re-assumed loss reserves will result in a charge to earnings;
- regulatory actions can impede our ability to charge adequate rates and efficiently allocate capital;
- general economic and market conditions and industry specific conditions, including extended economic recessions or expansions; prolonged periods of slow economic growth; inflation or deflation; fluctuations in foreign currency exchange rates, commodity and energy prices and interest rates; volatility in the credit and capital markets; and other factors;
- economic conditions, actual or potential defaults in corporate bonds, municipal bonds, mortgage-backed securities or sovereign debt obligations, volatility in interest and foreign currency exchange rates and changes in market value of concentrated investments can have a significant impact on the fair value of our fixed maturity securities and equity securities, as well as the carrying value of our other assets and liabilities, and this impact may be heightened by market volatility and our ability to mitigate our sensitivity to these changing conditions;
- economic conditions may adversely affect our access to capital and credit markets;
- the effects of government intervention, including material changes in the monetary policies of central banks, to address financial downturns (such as in response to the COVID-19 pandemic), inflation and other economic and currency concerns;
- the impacts that political and civil unrest and regional conflicts, such as the conflict between Russia and Ukraine, may have on our businesses and the markets they serve or that any disruptions in regional or worldwide economic conditions generally arising from these situations may have on our businesses, industries or investments;
- the significant volatility, uncertainty and disruption caused by health epidemics and pandemics, including the COVID-19 pandemic and its variants, as well as governmental, legislative, judicial or regulatory actions or developments in response thereto;
- changes in U.S. tax laws, regulations or interpretations, or in the tax laws, regulations or interpretations of other jurisdictions in which we operate, and adjustments we may make in our operations or tax strategies in response to those changes;
- a failure or security breach of, or cyber-attack on, enterprise information technology systems that we use or a failure to comply with data protection or privacy regulations;
- third-party providers may perform poorly, breach their obligations to us or expose us to enhanced risks;
- our acquisitions may increase our operational and internal control risks for a period of time;
- we may not realize the contemplated benefits, including cost savings and synergies, of our acquisitions;
- any determination requiring the write-off of a significant portion of our goodwill and intangible assets;
- the failure or inadequacy of any methods we employ to manage our loss exposures;
- the loss of services of any senior executive or other key personnel of our businesses could adversely impact one or more of our operations;
- the manner in which we manage our global operations through a network of business entities could result in inconsistent management, governance and oversight practices and make it difficult for us to implement strategic decisions and coordinate procedures;
- our substantial international operations and investments expose us to increased political, civil, operational and economic risks, including foreign currency exchange rate and credit risk;
- the political, legal, regulatory, financial, tax and general economic impacts, and other impacts we cannot anticipate, related to the United Kingdom's withdrawal from the European Union (Brexit), which could have adverse consequences for our businesses, particularly our London-based international insurance operations;
- our ability to obtain additional capital for our operations on terms favorable to us;

- our compliance, or failure to comply, with covenants and other requirements under our revolving credit facility, senior debt and other indebtedness and our preferred shares;
- our ability to maintain or raise third-party capital for existing or new investment vehicles and risks related to our management of third-party capital;
- the effectiveness of our procedures for compliance with existing and future guidelines, policies and legal and regulatory standards, rules, laws and regulations;
- the impact of economic and trade sanctions and embargo programs on our businesses, including instances in which the requirements and limitations applicable to the global operations of U.S. companies and their affiliates are more restrictive than, or conflict with, those applicable to non-U.S. companies and their affiliates;
- regulatory changes, or challenges by regulators, regarding the use of certain issuing carrier or fronting arrangements;
- our dependence on a limited number of brokers for a large portion of our revenues and third-party capital;
- adverse changes in our assigned financial strength, debt or preferred share ratings or outlook could adversely impact us, including our ability to attract and retain business, the amount of capital our insurance subsidiaries must hold and the availability and cost of capital;
- changes in the amount of statutory capital our insurance subsidiaries are required to hold, which can vary significantly and is based on many factors, some of which are outside our control;
- losses from litigation and regulatory investigations and actions;
- investor litigation or disputes, as well as regulatory inquiries, investigations or proceedings related to our Markel CATCo operations; delays or disruptions in the run-off of those operations; or the failure to realize the benefits of the transaction that permitted the accelerated return of capital to our Markel CATCo investors; and
- a number of additional factors may adversely affect our Markel Ventures operations, and the markets they serve, and negatively impact their revenues and profitability, including, among others: adverse weather conditions, plant disease and other contaminants; changes in government support for education, healthcare and infrastructure projects; changes in capital spending levels; changes in the housing, commercial and industrial construction markets; liability for environmental matters; supply chain and shipping issues, including increases in freight costs; volatility in the market prices for their products; and volatility in commodity, wholesale and raw materials prices and interest and foreign currency exchange rates.

Results from our underwriting, investing, Markel Ventures and other operations have been and will continue to be potentially materially affected by these factors.

By making forward-looking statements, we do not intend to become obligated to publicly update or revise any such statements whether as a result of new information, future events or other changes. Readers are cautioned not to place undue reliance on any forward-looking statements, which speak only as at their dates.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Market risk is the risk of economic losses due to adverse changes in the estimated fair value of a financial instrument as the result of changes in equity prices, interest rates, foreign currency exchange rates and commodity prices. Our consolidated balance sheets include assets and liabilities with estimated fair values that are subject to market risk. Our primary market risks are equity price risk associated with investments in equity securities, interest rate risk associated with investments in fixed maturity securities and foreign currency exchange rate risk associated with our international operations. During the nine months ended September 30, 2022, there were no material changes in our market risk exposures from those described in our Annual Report on Form 10-K for the year ended December 31, 2021.

Additionally, we have credit risk within our fixed maturity portfolio from the potential for loss resulting from adverse changes in an issuer's ability to repay its debt obligations. We monitor our investment portfolio to ensure that credit risk does not exceed prudent levels. We manage exposure to credit risk by investing in high quality securities and by diversifying our holdings. Our policy is to invest in investment grade securities and to minimize investments in fixed maturity securities that are unrated or rated below investment grade. As of September 30, 2022, our fixed maturity portfolio had an average rating of "AAA," with 99% rated "A" or better by at least one nationally recognized rating organization. During the nine months ended September 30, 2022, there were no material changes in the composition of our fixed maturity portfolio.

We also have credit risk to the extent any of our reinsurers are unwilling or unable to meet their obligations under our ceded reinsurance agreements. We monitor changes in the financial condition of each of our reinsurers, including their credit ratings, and we assess our concentration of credit risk on a regular basis. As of December 31, 2021, all of our ten largest reinsurers within our underwriting operations were rated "A" or better by A.M. Best Company (Best) and within our program services business, four of our ten largest reinsurers were rated "A" or better by Best. For reinsurers within our program services business with a credit rating of lower than "A" we employ a stringent collateral monitoring program, under which the majority of the reinsurance recoverable balances are fully collateralized. During the nine months ended September 30, 2022, there were no material changes to the credit ratings of the top ten reinsurers within our underwriting and program services operations as of December 31, 2021.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

As of the end of the period covered by this quarterly report, we evaluated the effectiveness of the design and operation of our disclosure controls and procedures (Disclosure Controls), as defined under Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934 (Exchange Act). This evaluation was conducted under the supervision and with the participation of our management, including the Co-Principal Executive Officers (Co-PEOs) and the Principal Financial Officer (PFO).

Based upon this evaluation, the Co-PEOs and PFO concluded that effective Disclosure Controls were in place to ensure that the information required to be disclosed in reports we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during the third quarter of 2022 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

Thomas Yeransian v. Markel Corporation

We previously reported that Thomas Yeransian, in his capacity as the representative of holders of certain contingent value rights, has filed three suits against the Company:

- Thomas Yeransian v. Markel Corporation (U.S. District Court for the District of Delaware), filed September 15, 2016;
- Thomas Yeransian v. Markel Corporation (U.S. District Court for the District of Delaware), filed November 13, 2018; and
- Thomas Yeransian v. Markel Corporation (U.S. District Court for the District of Delaware), filed June 5, 2020.

The three suits have been consolidated. We have asked the court to dismiss, or grant us summary judgment on, all counts. For additional information regarding these three suits, see Item 3 Legal Proceedings in our 2021 Annual Report on Form 10-K. We believe Mr. Yeransian's suits to be without merit. We further believe that any material loss resulting from the suits to be remote.

Item 1A. Risk Factors

The disclosure below supplements risk factors previously disclosed in our 2021 Annual Report on Form 10-K. These risks and uncertainties, along with those previously disclosed, could materially adversely affect our businesses, results of operations or financial condition.

Our businesses, results of operations and financial condition could be adversely affected by the ongoing conflict between Russia and Ukraine and related disruptions in the global economy. The global economy has been negatively impacted by the military conflict between Russia and Ukraine. While we have no operations in Russia or Ukraine, some of our businesses have been, and may continue to be, adversely affected by this conflict and its effects. Within our underwriting operations, we have insurance contracts with exposure to losses attributed to the Russia-Ukraine conflict, which we discuss under Item 2 Management's Discussion & Analysis of Financial Condition and Results of Operations. Our other operations do not have significant direct exposure to customers and vendors in Russia or Ukraine. However, certain of our businesses have experienced, and may continue to experience, shortages in materials and increased costs for transportation, energy, and raw materials due in part to the negative impact of the Russia-Ukraine conflict on the global economy.

Furthermore, governments in the U.S., United Kingdom, and European Union, among others, have each imposed export controls on certain products and financial and economic sanctions on certain industry sectors and parties in Russia. These export controls and sanctions, or our failure to comply with them, could result in restrictions on our ability to do business in one or more of the jurisdictions in which we conduct business or have the other adverse effects discussed in our 2021 Annual Report on Form 10-K in Item 1A Risk Factors under "We are subject to laws and regulations relating to economic and trade sanctions and bribery and corruption, the violation of which could have a material adverse effect on us."

We are unable to predict the impact the ongoing conflict will have on our businesses or the global economy. The impact of further escalation of geopolitical tensions related to this conflict, including increased trade barriers or restrictions on global trade, is unknown and could result in, among other things, heightened cybersecurity threats, supply disruptions, protracted or increased inflation, lower consumer demand, fluctuations in interest and foreign exchange rates and increased volatility in financial markets, any of which could adversely affect our businesses, results of operations and financial condition. In addition, the ongoing conflict may have the effect of triggering or intensifying many of the risks described under Item 1A Risk Factors in our 2021 Annual Report on Form 10-K.

The risks and uncertainties discussed above, as well as those previously disclosed in our 2021 Annual Report on Form 10-K, that may have, or have had, an adverse effect on our businesses, results of operations or financial condition also may be discussed elsewhere in this report, including under "Management's Discussion and Analysis of Financial Condition and Results of Operations," "Safe Harbor and Cautionary Statement" and "Quantitative and Qualitative Disclosures About Market Risk."

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

The following table summarizes our common share repurchases for the quarter ended September 30, 2022.

	Issuer Purchases of Equity Securities			
	(a)	(b)	(c)	(d)
Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs ⁽¹⁾	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs (in thousands)
July 1, 2022 through July 31, 2022	14,793	\$ 1,284.35	14,793	\$ 649,203
August 1, 2022 through August 31, 2022	26,194	\$ 1,217.73	26,194	\$ 617,306
September 1, 2022 through September 30, 2022	27,365	\$ 1,156.94	27,365	\$ 585,646
Total	68,352	\$ 1,207.81	68,352	\$ 585,646

⁽¹⁾ The Board of Directors approved the repurchase of up to \$750 million of our common shares pursuant to a share repurchase program publicly announced in February 2022. Under our share repurchase program, we may repurchase outstanding common shares of our stock from time to time in privately negotiated or open market transactions, including under plans complying with Rule 10b5-1 and Rule 10b-18 under the Securities Exchange Act of 1934. The share repurchase program has no expiration date but may be terminated by the Board at any time.

Item 6. Exhibits

<u>Exhibit No.</u>	<u>Document Description</u>
3.1(a)	Amended and Restated Articles of Incorporation (incorporated by reference from Exhibit 3.1 in the Registrant's report on Form 8-K filed with the Commission May 13, 2011)
3.1(b)	Articles of Amendment to the Amended and Restated Articles of Incorporation (incorporated by reference from Exhibit 3.1 in the Registrant's report on Form 8-K filed with the Commission May 27, 2020)
3.2	Bylaws, as amended and restated May 11, 2020 (incorporated by reference from Exhibit 3.2 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended June 30, 2020)
4.1(a)	Indenture dated as of June 5, 2001, between Markel Corporation and The Chase Manhattan Bank, as Trustee (incorporated by reference from Exhibit 4.1 in the Registrant's report on Form 8-K filed with the Commission June 5, 2001)
4.1(b)	Form of Third Supplemental Indenture dated as of August 13, 2004 between Markel Corporation and JPMorgan Chase Bank (formerly known as The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission August 11, 2004)
4.1(c)	Form of Seventh Supplemental Indenture dated as of July 2, 2012 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission June 29, 2012)
4.1(d)	Form of Eighth Supplemental Indenture dated as of March 8, 2013 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission March 7, 2013)
4.1(e)	Form of Ninth Supplemental Indenture dated as of March 8, 2013 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.3 in the Registrant's report on Form 8-K filed with the Commission March 7, 2013)
4.1(f)	Form of Tenth Supplemental Indenture dated as of April 5, 2016 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission March 31, 2016)
4.1(g)	Eleventh Supplemental Indenture dated as of November 2, 2017 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission November 2, 2017)
4.1(h)	Twelfth Supplemental Indenture dated as of November 2, 2017 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.3 in the Registrant's report on Form 8-K filed with the Commission November 2, 2017)
4.1(i)	Thirteenth Supplemental Indenture, dated as of May 20, 2019, between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission May 20, 2019)
4.1(j)	Fourteenth Supplemental Indenture, dated as of September 17, 2019, between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission September 17, 2019)
4.1(k)	Fifteenth Supplemental Indenture, dated as of September 17, 2019, between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.3 in the Registrant's report on Form 8-K filed with the Commission September 17, 2019)
4.1(l)	Sixteenth Supplemental Indenture, dated as of May 7, 2021, between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission May 7, 2021)

The registrant hereby agrees to furnish to the Securities and Exchange Commission, upon request, a copy of all other instruments defining the rights of holders of long-term debt of the registrant and its subsidiaries.

10.1	Amendment to Executive Employment Agreement with Richard R. Whitt, III* **
31.1	Certification of Co-Principal Executive Officer Pursuant to Rule 13a-14(a)/15d-14(a)**
31.2	Certification of Co-Principal Executive Officer Pursuant to Rule 13a-14(a)/15d-14(a)**
31.3	Certification of Principal Financial Officer Pursuant to Rule 13a-14(a)/15d-14(a)**
32.1	Certification furnished Pursuant to 18 U.S.C. Section 1350**
101	The following consolidated financial statements from Markel Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2022, filed on November 1, 2022, formatted in Inline XBRL: (i) Consolidated Balance Sheets, (ii) Consolidated Statements of Income (Loss) and Comprehensive Income (Loss), (iii) Consolidated Statements of Changes in Equity, (iv) Condensed Consolidated Statements of Cash Flows and (v) Notes to Consolidated Financial Statements.**
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

* Indicates management contract or compensatory plan or arrangement

** Filed with this report

Signatures

Pursuant to the requirements 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, this 1st day of November 2022.

Markel Corporation

By: /s/ Thomas S. Gayner
Thomas S. Gayner
Co-Chief Executive Officer
(Co-Principal Executive Officer)

By: /s/ Richard R. Whitt, III
Richard R. Whitt, III
Co-Chief Executive Officer
(Co-Principal Executive Officer)

By: /s/ Jeremy A. Noble
Jeremy A. Noble
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

AMENDMENT TO EXECUTIVE EMPLOYMENT AGREEMENT

THIS AMENDMENT TO EXECUTIVE EMPLOYMENT AGREEMENT (this "Amendment") by and between Markel Corporation, a Virginia corporation (the "Company"), and Richard R. Whitt, III (the "Executive" and, together with the Company, the "Parties"), is entered into on August 18, 2022 (the "Amendment Effective Date").

WHEREAS, the Company and Executive are parties to that certain Amended and Restated Executive Employment Agreement (the "Agreement") dated as of October 1, 2021;

WHEREAS, the Parties now wish to amend the Agreement;

NOW THEREFORE, in consideration of the premises and mutual covenants and conditions herein, the Parties, intending to be legally bound, hereby agree as follows, effective as of the Amendment Effective Date:

1. The provisions of this Amendment shall apply notwithstanding anything in the Agreement to the contrary. On March 31, 2023 (or such earlier date as the parties may mutually agree) (the "Retirement Date"), Executive shall resign from any and all officer and director positions that Executive then holds with the Company and any of its subsidiaries and affiliates. Subject to Sections 4 and 5 of the Agreement, Executive shall remain employed by the Company as a non-officer employee after the Retirement Date through December 31, 2025 (the "Transition Period") or such later period under terms as the Company and the Executive mutually agree. During the Transition Period, Executive shall provide consulting and advisory services to the Company, including (without limitation) continuing service and support to the Company in the event of any litigation against or involving the Company, its subsidiaries, or any directors, officers, or employees thereof, and perform such other services as the Company may request in order to ensure a smooth transition of his duties and responsibilities. At all times during and after his employment with the Company to the extent provided therein, Executive shall remain bound by the obligations set forth in the Agreement, including, but not limited to, those obligations set forth in Section 7 (Confidential Information; Trade Secrets; Intellectual Property) and Section 8 (Covenants). In addition, and without limiting the foregoing, during the Transition Period, Executive shall not serve on the board of directors or similar governing body of any for-profit business entity, whether in the insurance industry or otherwise, without the advance written consent of the Company. During the Transition Period, Executive shall be entitled to receive the salary and benefits set forth in Section 3 of the Agreement, albeit at a reduction to Base Salary upon the Retirement Date of 25% through December 31, 2023, at a reduction to Base Salary upon the Retirement Date of 50% from January 1, 2024 through December 31, 2024, and at a reduction to Base Salary upon the Retirement Date of 75% from January 1, 2025 through December 31, 2025. Termination of Executive's employment at the end of the Transition Period (or such later period as the Executive and Company may have mutually agreed) shall not be deemed a termination without cause or entitle Executive to any benefits under Section 6(c) of the Agreement. For avoidance of doubt, Executive agrees and acknowledges that nothing in this Amendment, including the reduction in his Base Salary or change in his position and duties and responsibilities for periods on or after the Retirement Date, constitutes Good Reason for purposes of Section 6 of the Agreement.

2. Capitalized terms used but not defined in this Amendment shall have the meanings given to them in the Agreement. This Amendment may be executed in two or more counterparts each of which shall be legally binding and enforceable.

3. All terms and provisions of the Agreement not amended hereby, either expressly or by necessary implication, shall remain in full force and effect. From and after the date of this Amendment, all references to the term "Agreement" in the Agreement shall include the terms contained in this Amendment.

IN WITNESS WHEREOF, the Parties hereto have executed this Amendment effective as of the Amendment Effective Date.

Executive:

/s/ Richard R. Whitt, III

Signature

Richard R. Whitt, III

Printed Name

August 18, 2022

Date

For the Company:

/s/ Thomas S. Gayner

Name: Thomas S. Gayner

Title: Co-Chief Executive Officer

**CERTIFICATION OF CO-PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(a)/15d-14(a)**

I, Thomas S. Gayner, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Markel Corporation;
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(s) 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(s) 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.

November 1, 2022

/s/ Thomas S. Gayner

Thomas S. Gayner
Co-Chief Executive Officer
(Co-Principal Executive Officer)

**CERTIFICATION OF CO-PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(a)/15d-14(a)**

I, Richard R. Whitt, III, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Markel Corporation;
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(s) 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(s) 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.

November 1, 2022

/s/ Richard R. Whitt, III
Richard R. Whitt, III
Co-Chief Executive Officer
(Co-Principal Executive Officer)

**CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO RULE 13a-14(a)/15d-14(a)**

I, Jeremy A. Noble, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Markel Corporation;
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(s) 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(s) 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.

November 1, 2022

/s/ Jeremy A. Noble

Jeremy A. Noble
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

**CERTIFICATION
FURNISHED PURSUANT TO 18 U.S.C. SECTION 1350**

In connection with the Quarterly Report of Markel Corporation (the "Company") on Form 10-Q for the period ended September 30, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned certifies pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to his knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

November 1, 2022

/s/ Thomas S. Gayner

Thomas S. Gayner
Co-Chief Executive Officer
(Co-Principal Executive Officer)

/s/ Richard R. Whitt, III

Richard R. Whitt, III
Co-Chief Executive Officer
(Co-Principal Executive Officer)

/s/ Jeremy A. Noble

Jeremy A. Noble
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)