

**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, 2020

Or

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

Commission file number: 001-16209



ARCH CAPITAL GROUP LTD.

(Exact name of registrant as specified in its charter)

Bermuda

(State or other jurisdiction of incorporation or organization)

98-0374481

(I.R.S. Employer Identification No.)

Waterloo House, Ground Floor

100 Pitts Bay Road, Pembroke

HM 08,

Bermuda

(Address of principal executive offices)

(441) 278-9250

(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol (s)	Name of each exchange on which registered	
Common shares, \$0.0011 par value per share	ACGL	NASDAQ	Stock Market
Depository shares, each representing a 1/1000th interest in a 5.25% Series E preferred share	ACGLP	NASDAQ	Stock Market
Depository shares, each representing a 1/1000th interest in a 5.45% Series F preferred share	ACGLO	NASDAQ	Stock Market

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 ☒

As of October 30, 2020, there were 406,026,570 common shares, \$0.0011 par value per share, of the registrant outstanding.

ARCH CAPITAL GROUP LTD.

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PART I. FINANCIAL INFORMATION

Cautionary Note Regarding Forward-Looking Statements

The Private Securities Litigation Reform Act of 1995 (“PSLRA”) provides a “safe harbor” for forward-looking statements. This report or any other written or oral statements made by or on behalf of us may include forward-looking statements, which reflect our current views with respect to future events and financial performance. All statements other than statements of historical fact included in or incorporated by reference in this report are forward-looking statements. Forward-looking statements, for purposes of the PSLRA or otherwise, can generally be identified by the use of forward-looking terminology such as “may,” “will,” “expect,” “intend,” “estimate,” “anticipate,” “believe” or “continue” and similar statements of a future or forward-looking nature or their negative or variations or similar terminology.

Forward-looking statements involve our current assessment of risks and uncertainties. Actual events and results may differ materially from those expressed or implied in these statements. Important factors that could cause actual events or results to differ materially from those indicated in such statements are discussed below and elsewhere in this report and in our periodic reports filed with the Securities and Exchange Commission (the “SEC”), and include:

- our ability to successfully implement our business strategy during “soft” as well as “hard” markets;
- acceptance of our business strategy, security and financial condition by rating agencies and regulators, as well as by brokers and our insureds and reinsureds;
- our ability to consummate acquisitions and integrate the business we have acquired or may acquire into our existing operations;
- our ability to maintain or improve our ratings, which may be affected by our ability to raise additional equity or debt financings, by ratings agencies’ existing or new policies and practices, as well as other factors described herein;
- general economic and market conditions (including inflation, interest rates, unemployment, housing prices, foreign currency exchange rates, prevailing credit terms and the depth and duration of a recession, including those resulting from COVID-19) and conditions specific to the reinsurance and insurance markets in which we operate;
- competition, including increased competition, on the basis of pricing, capacity (including alternative sources of capital), coverage terms, or other factors;
- developments in the world’s financial and capital markets and our access to such markets;
- our ability to successfully enhance, integrate and maintain operating procedures (including information technology) to effectively support our current and new business;
- the loss of key personnel;
- accuracy of those estimates and judgments utilized in the preparation of our financial statements, including those related to revenue recognition, insurance and other reserves, reinsurance recoverables, investment valuations, intangible assets, bad debts, income taxes, contingencies and litigation, and any determination to use the deposit method of accounting;
- greater than expected loss ratios on business written by us and adverse development on claim and/or claim expense liabilities related to business written by our insurance and reinsurance subsidiaries;
- severity and/or frequency of losses;
- claims for natural or man-made catastrophic events or severe economic events in our insurance, reinsurance and mortgage businesses could cause large losses and substantial volatility in our results of operations;
- the effect of climate change on our business;
- acts of terrorism, political unrest and other hostilities or other unforecasted and unpredictable events;
- the effect of contagious disease (including COVID-19) on our business;
- availability to us of reinsurance to manage our gross and net exposures and the cost of such reinsurance;
- the failure of reinsurers, managing general agents, third party administrators or others to meet their obligations to us;
- the timing of loss payments being faster or the receipt of reinsurance recoverables being slower than anticipated by us;

- our investment performance, including legislative or regulatory developments that may adversely affect the fair value of our investments;
- changes in general economic conditions, including sovereign debt concerns or downgrades of U.S. securities by credit rating agencies, which could affect our business, financial condition and results of operations;
- changes in the method for determining the London Inter-bank Offered Rate (“LIBOR”) and the potential replacement of LIBOR;
- the volatility of our shareholders’ equity from foreign currency fluctuations, which could increase due to us not matching portions of our projected liabilities in foreign currencies with investments in the same currencies;
- changes in accounting principles or policies or in our application of such accounting principles or policies;
- changes in the political environment of certain countries in which we operate or underwrite business;
- a disruption caused by cyber-attacks or other technology breaches or failures on us or our business partners and service providers, which could negatively impact our business and/or expose us to litigation;
- statutory or regulatory developments, including as to tax matters and insurance and other regulatory matters such as the adoption of proposed legislation that would affect Bermuda-headquartered companies and/or Bermuda-based insurers or reinsurers and/or changes in regulations or tax laws applicable to us, our subsidiaries, brokers or customers, including the Tax Cuts and Jobs Act of 2017; and
- the other matters set forth under Item 1A “Risk Factors”, Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and other sections of our Annual Report on Form 10-K for the year ended December 31, 2019, [“ITEM 1A—Risk Factors”](#) of this Form 10-Q as well as the other factors set forth in our other documents on file with the SEC, and management’s response to any of the aforementioned factors.

All subsequent written and oral forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by these cautionary statements. The foregoing review of important factors should not be construed as exhaustive and should be read in conjunction with other cautionary statements that are included herein or elsewhere. We undertake no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

ITEM 1. CONSOLIDATED FINANCIAL STATEMENTS

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Arch Capital Group Ltd.

Results of Review of Interim Financial Statements

We have reviewed the accompanying consolidated balance sheet of Arch Capital Group Ltd. and its subsidiaries (the “Company”) as of September 30, 2020, and the related consolidated statements of income, comprehensive income, and changes in shareholders’ equity for the three-month and nine-month periods ended September 30, 2020 and 2019, and the consolidated statements of cash flows for the nine-month periods ended September 30, 2020 and 2019, including the related notes (collectively referred to as the “interim financial statements”). Based on our reviews, we are not aware of any material modifications that should be made to the accompanying interim financial statements for them to be in conformity with accounting principles generally accepted in the United States of America.

We have previously audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheet of the Company as of December 31, 2019, and the related consolidated statements of income, comprehensive income, changes in shareholders’ equity, and cash flows for the year then ended (not presented herein), and in our report dated February 28, 2020, we expressed an unqualified opinion on those consolidated financial statements. In our opinion, the information set forth in the accompanying consolidated balance sheet as of December 31, 2019, is fairly stated, in all material respects, in relation to the consolidated balance sheet from which it has been derived.

Basis for Review Results

These interim financial statements are the responsibility of the Company’s management. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB. We conducted our review in accordance with the standards of the PCAOB. A review of interim financial information consists principally of applying analytical procedures and making inquiries of persons responsible for financial and accounting matters. It is substantially less in scope than an audit conducted in accordance with the standards of the PCAOB, the objective of which is the expression of an opinion regarding the financial statements taken as a whole. Accordingly, we do not express such an opinion.

/s/ PricewaterhouseCoopers LLP

New York, NY
November 5, 2020

ARCH CAPITAL GROUP LTD. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(U.S. dollars in thousands, except share data)

	(Unaudited)	
	September 30, 2020	December 31, 2019
Assets		
Investments:		
Fixed maturities available for sale, at fair value (amortized cost: \$17,955,515 and \$16,598,808; net of allowance for credit losses: \$3,933 at September 30, 2020)	\$ 18,452,888	\$ 16,894,526
Short-term investments available for sale, at fair value (amortized cost: \$2,038,244 and \$957,283; net of allowance for credit losses: \$0 at September 30, 2020)	2,039,097	956,546
Collateral received under securities lending, at fair value (amortized cost: \$64,251 and \$388,366)	64,259	388,376
Equity securities, at fair value	1,502,015	838,925
Investments accounted for using the fair value option	3,749,575	3,663,477
Investments accounted for using the equity method	1,883,702	1,660,396
Total investments	27,691,536	24,402,246
Cash	976,398	726,230
Accrued investment income	106,940	117,937
Securities pledged under securities lending, at fair value (amortized cost: \$62,662 and \$378,738)	62,749	379,868
Premiums receivable (net of allowance for credit losses: \$37,100 and \$21,003)	2,225,311	1,778,717
Reinsurance recoverable on unpaid and paid losses and loss adjustment expenses (net of allowance for credit losses: \$13,994 and \$1,364)	4,621,937	4,346,816
Contractholder receivables (net of allowance for credit losses: \$5,902 and \$0)	2,185,614	2,119,460
Ceded unearned premiums	1,450,200	1,234,683
Deferred acquisition costs	750,901	633,400
Receivable for securities sold	158,674	24,133
Goodwill and intangible assets	713,777	738,083
Other assets	1,771,998	1,383,788
Total assets	\$ 42,716,035	\$ 37,885,361
Liabilities		
Reserve for losses and loss adjustment expenses	\$ 15,900,526	\$ 13,891,842
Unearned premiums	5,062,052	4,339,549
Reinsurance balances payable	873,067	667,072
Contractholder payables	2,191,515	2,119,460
Collateral held for insured obligations	221,957	206,698
Senior notes	2,860,811	1,871,626
Revolving credit agreement borrowings	210,687	484,287
Securities lending payable	64,251	388,366
Payable for securities purchased	382,236	87,579
Other liabilities	1,681,181	1,513,330
Total liabilities	29,448,283	25,569,809
Commitments and Contingencies		
Redeemable noncontrolling interests	57,835	55,404
Shareholders' Equity		
Non-cumulative preferred shares	780,000	780,000
Common shares (\$0.0011 par, shares issued: 578,024,671 and 574,617,195)	642	638
Additional paid-in capital	1,950,782	1,889,683
Retained earnings	11,829,322	11,021,006
Accumulated other comprehensive income (loss), net of deferred income tax	386,357	212,091
Common shares held in treasury, at cost (shares: 172,005,713 and 168,997,994)	(2,495,106)	(2,406,047)
Total shareholders' equity available to Arch	12,451,997	11,497,371
Non-redeemable noncontrolling interests	757,920	762,777
Total shareholders' equity	13,209,917	12,260,148
Total liabilities, noncontrolling interests and shareholders' equity	\$ 42,716,035	\$ 37,885,361

See Notes to Consolidated Financial Statements

ARCH CAPITAL GROUP LTD. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF INCOME
(U.S. dollars in thousands, except share data)

	(Unaudited) Three Months Ended September 30,		(Unaudited) Nine Months Ended September 30,	
	2020	2019	2020	2019
Revenues				
Net premiums written	\$ 1,874,144	\$ 1,613,457	\$ 5,679,701	\$ 4,583,614
Change in unearned premiums	(103,052)	(175,434)	(498,811)	(312,998)
Net premiums earned	1,771,092	1,438,023	5,180,890	4,270,616
Net investment income	128,512	161,488	405,150	473,475
Net realized gains (losses)	280,499	61,355	470,127	322,368
Other underwriting income	5,413	3,326	18,932	18,104
Equity in net income (loss) of investment funds accounted for using the equity method	126,735	17,130	57,407	96,533
Other income (loss)	919	1,338	6,327	3,550
Total revenues	2,313,170	1,682,660	6,138,833	5,184,646
Expenses				
Losses and loss adjustment expenses	1,216,273	802,455	3,562,214	2,288,530
Acquisition expenses	247,942	211,120	750,014	619,057
Other operating expenses	215,686	196,512	659,479	596,589
Corporate expenses	17,937	17,061	56,653	53,274
Amortization of intangible assets	16,715	20,003	49,835	60,214
Interest expense	41,343	31,328	105,037	89,673
Net foreign exchange (gains) losses	44,885	(33,124)	11,425	(31,697)
Total expenses	1,800,781	1,245,355	5,194,657	3,675,640
Income (loss) before income taxes	512,389	437,305	944,176	1,509,006
Income tax expense	(23,707)	(38,116)	(77,779)	(128,474)
Net income (loss)	\$ 488,682	\$ 399,189	\$ 866,397	\$ 1,380,532
Net (income) loss attributable to noncontrolling interests	(69,643)	(6,736)	(4,420)	(70,597)
Net income (loss) available to Arch	419,039	392,453	861,977	1,309,935
Preferred dividends	(10,403)	(10,403)	(31,209)	(31,209)
Net income (loss) available to Arch common shareholders	\$ 408,636	\$ 382,050	\$ 830,768	\$ 1,278,726
Net income per common share and common share equivalent				
Basic	\$ 1.01	\$ 0.95	\$ 2.06	\$ 3.19
Diluted	\$ 1.00	\$ 0.92	\$ 2.02	\$ 3.11
Weighted average common shares and common share equivalents outstanding				
Basic	402,850,485	402,564,121	403,081,266	401,419,153
Diluted	409,194,657	413,180,201	410,314,897	410,807,402

See Notes to Consolidated Financial Statements

ARCH CAPITAL GROUP LTD. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(U.S. dollars in thousands)

	(Unaudited) Three Months Ended September 30,		(Unaudited) Nine Months Ended September 30,	
	2020	2019	2020	2019
Comprehensive Income				
Net income (loss)	\$ 488,682	\$ 399,189	\$ 866,397	\$ 1,380,532
Other comprehensive income (loss), net of deferred income tax				
Unrealized appreciation (decline) in value of available-for-sale investments:				
Unrealized holding gains (losses) arising during period	110,782	59,290	546,291	507,650
Reclassification of net realized (gains) losses, included in net income (loss)	(79,803)	(38,743)	(368,423)	(104,309)
Foreign currency translation adjustments	16,709	(16,424)	(5,729)	(6,641)
Comprehensive income (loss)	536,370	403,312	1,038,536	1,777,232
Net (income) loss attributable to noncontrolling interests	(69,643)	(6,736)	(4,420)	(70,597)
Other comprehensive (income) loss attributable to noncontrolling interests	(10,820)	764	2,127	(6,266)
Comprehensive income (loss) available to Arch	\$ 455,907	\$ 397,340	\$ 1,036,243	\$ 1,700,369

See Notes to Consolidated Financial Statements

ARCH CAPITAL GROUP LTD. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY
(U.S. dollars in thousands)

	(Unaudited) Three Months Ended September 30,		(Unaudited) Nine Months Ended September 30,	
	2020	2019	2020	2019
Non-cumulative preferred shares				
Balance at beginning and end of period	\$ 780,000	\$ 780,000	\$ 780,000	\$ 780,000
Common shares				
Balance at beginning of period	642	638	638	634
Common shares issued, net	—	—	4	4
Balance at end of period	642	638	642	638
Additional paid-in capital				
Balance at beginning of period	1,935,514	1,847,949	1,889,683	1,793,781
Amortization of share-based compensation	14,662	12,775	55,872	52,290
Other changes	606	3,744	5,227	18,397
Balance at end of period	1,950,782	1,864,468	1,950,782	1,864,468
Retained earnings				
Balance at beginning of period	11,420,686	10,322,975	11,021,006	9,426,299
Cumulative effect of an accounting change (1)	—	—	(22,452)	—
Balance at beginning of period, as adjusted	11,420,686	10,322,975	10,998,554	9,426,299
Net income (loss)	488,682	399,189	866,397	1,380,532
Net (income) loss attributable to noncontrolling interests	(69,643)	(6,736)	(4,420)	(70,597)
Preferred share dividends	(10,403)	(10,403)	(31,209)	(31,209)
Balance at end of period	11,829,322	10,705,025	11,829,322	10,705,025
Accumulated other comprehensive income (loss), net of deferred income tax				
Balance at beginning of period	349,488	206,827	212,091	(178,720)
Unrealized appreciation (decline) in value of available-for-sale investments, net of deferred income tax:				
Balance at beginning of period	418,487	261,627	258,486	(114,178)
Unrealized holding gains (losses) during period, net of reclassification adjustment	30,979	20,547	177,868	403,341
Unrealized holding gains (losses) during period attributable to noncontrolling interests	(11,179)	1,019	1,933	(5,970)
Balance at end of period	438,287	283,193	438,287	283,193
Foreign currency translation adjustments, net of deferred income tax:				
Balance at beginning of period	(68,999)	(54,800)	(46,395)	(64,542)
Foreign currency translation adjustments	16,709	(16,424)	(5,729)	(6,641)
Foreign currency translation adjustments attributable to noncontrolling interests	360	(255)	194	(296)
Balance at end of period	(51,930)	(71,479)	(51,930)	(71,479)
Balance at end of period	386,357	211,714	386,357	211,714
Common shares held in treasury, at cost				
Balance at beginning of period	(2,494,505)	(2,401,037)	(2,406,047)	(2,382,167)
Shares repurchased for treasury	(601)	(2,712)	(89,059)	(21,582)
Balance at end of period	(2,495,106)	(2,403,749)	(2,495,106)	(2,403,749)
Total shareholders' equity available to Arch	12,451,997	11,158,096	12,451,997	11,158,096
Non-redeemable noncontrolling interests	757,920	854,924	757,920	854,924
Total shareholders' equity	<u>\$ 13,209,917</u>	<u>\$ 12,013,020</u>	<u>\$ 13,209,917</u>	<u>\$ 12,013,020</u>

(1) Adoption of ASU 2016-13, "Financial Instruments - Credit Losses (Topic 326)" See [note 1](#).

See Notes to Consolidated Financial Statements

ARCH CAPITAL GROUP LTD. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(U.S. dollars in thousands)

	(Unaudited) Nine Months Ended September 30,	
	2020	2019
Operating Activities		
Net income (loss)	\$ 866,397	\$ 1,380,532
Adjustments to reconcile net income (loss) to net cash provided by operating activities:		
Net realized (gains) losses	(477,683)	(326,532)
Equity in net income or loss of investment funds accounted for using the equity method and other income or loss	30,306	(38,912)
Amortization of intangible assets	49,835	60,214
Share-based compensation	56,433	54,432
Changes in:		
Reserve for losses and loss adjustment expenses, net of unpaid losses and loss adjustment expenses recoverable	1,668,069	377,074
Unearned premiums, net of ceded unearned premiums	498,811	312,998
Premiums receivable	(461,766)	(328,765)
Deferred acquisition costs	(107,238)	(38,606)
Reinsurance balances payable	205,620	214,902
Other items, net	2,666	(124,198)
Net cash provided by (used for) operating activities	2,331,450	1,543,139
Investing Activities		
Purchases of fixed maturity investments	(34,050,883)	(24,010,623)
Purchases of equity securities	(1,355,848)	(524,051)
Purchases of other investments	(841,886)	(1,014,925)
Proceeds from sales of fixed maturity investments	32,544,867	22,707,854
Proceeds from sales of equity securities	731,793	371,130
Proceeds from sales, redemptions and maturities of other investments	791,807	827,517
Proceeds from redemptions and maturities of fixed maturity investments	645,292	394,719
Net settlements of derivative instruments	163,290	92,423
Net (purchases) sales of short-term investments	(1,159,351)	129,078
Change in cash collateral related to securities lending	81,210	6,990
Purchases of fixed assets	(26,717)	(27,635)
Other	(131,992)	(202,953)
Net cash provided by (used for) investing activities	(2,608,418)	(1,250,476)
Financing Activities		
Purchases of common shares under share repurchase program	(75,486)	(2,871)
Proceeds from common shares issued, net	(9,656)	518
Proceeds from borrowings	1,018,793	200,083
Repayments of borrowings	(304,000)	(27,538)
Change in cash collateral related to securities lending	(81,210)	(6,990)
Third party investment in non-redeemable noncontrolling interests	(2,867)	—
Change in third party investment in redeemable noncontrolling interests	—	(161,874)
Dividends paid to redeemable noncontrolling interests	(3,541)	(11,408)
Other	55,266	(5,207)
Preferred dividends paid	(31,209)	(31,209)
Net cash provided by (used for) financing activities	566,090	(46,496)
Effects of exchange rate changes on foreign currency cash and restricted cash	(5,847)	(8,335)
Increase (decrease) in cash and restricted cash	283,275	237,832
Cash and restricted cash, beginning of year	903,698	724,643
Cash and restricted cash, end of period	\$ 1,186,973	\$ 962,475

See Notes to Consolidated Financial Statements

ARCH CAPITAL GROUP LTD. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED)

1. Basis of Presentation and Recent Accounting Pronouncements

General

Arch Capital Group Ltd. (“Arch Capital”) is a Bermuda public limited liability company which provides insurance, reinsurance and mortgage insurance on a worldwide basis through its wholly-owned subsidiaries. As used herein, the “Company” means Arch Capital and its subsidiaries. The Company’s consolidated financial statements include the results of Watford Holdings Ltd. and its wholly owned subsidiaries (“Watford”). Watford is a multi-line Bermuda reinsurance company. Watford’s own management and board of directors are responsible for its results and profitability. See [note 11](#).

Basis of Presentation

The interim consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America (“GAAP”). All significant intercompany transactions and balances have been eliminated in consolidation. The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from those estimates and assumptions. In the opinion of management, the accompanying unaudited interim consolidated financial statements reflect all adjustments (consisting of normally recurring accruals) necessary for a fair statement of results on an interim basis. The results of any interim period are not necessarily indicative of the results for a full year or any future periods.

Certain information and footnote disclosures normally included in financial statements prepared in accordance with GAAP have been condensed or omitted; however, management believes that the disclosures are adequate to make the information presented not misleading. This report should be read in conjunction with the Company’s Annual Report on Form 10-K for the year ended December 31, 2019 (“2019 Form 10-K”), including the Company’s audited consolidated financial statements and related notes.

The Company has reclassified the presentation of certain prior year information to conform to the current presentation. Such reclassifications had no effect on the Company’s net income, comprehensive income, shareholders’ equity or cash flows. Tabular amounts are in U.S. Dollars in thousands, except share amounts, unless otherwise noted.

Recent Accounting Pronouncements

Recently Issued Accounting Standards Adopted

The Company adopted ASU 2018-13, “Fair Value Measurement (Topic 820): Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement.” The ASU modifies the disclosure requirements on fair value measurement as part of the disclosure framework project with the objective to improve the effectiveness of disclosures in the notes to the financial statements. The amendments in this update allow for removal of (1) the amount and reasons for transfer between Level 1 and Level 2 of the fair value hierarchy; (2) the policy for transfers between levels; and (3) the valuation processes for Level 3 fair value measurements. The adoption of this guidance did not have a material effect on the Company’s consolidated financial statements.

The Company adopted ASU 2018-15, “Intangibles - Goodwill and Other - Internal Use Software (Subtopic 350-40).” This ASU aligns the requirements for capitalizing certain implementation costs incurred in a cloud computing arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. The guidance provides flexibility in adoption, allowing for either retrospective adjustment or prospective adjustment for all implementation costs incurred after the date of adoption. The Company adopted this guidance prospectively. The adoption of this guidance did not have a material effect on the Company’s consolidated financial statements.

In March 2020, the SEC amended Rule 3-10 of Regulation S-X regarding financial disclosure requirements for registered debt offerings involving subsidiaries as either issuers or guarantors and affiliates whose securities are pledged as collateral. This new guidance narrows the circumstances that require separate financial statements of subsidiary issuers and guarantors and streamlines the alternative disclosures required in lieu of those statements. The amendment is effective on January 4, 2021 with early adoption permitted. The Company elected to apply the amended requirements for the quarter ended March 31, 2020, and is no longer providing condensed consolidating financial information that resulted from the registered debt obligations of its subsidiaries, Arch Capital Group (U.S.) Inc. and Arch Capital Finance LLC., that were disclosed in Note 26 of the financial statements in the Company’s 2019 Form 10-K.

The Company adopted ASU 2016-13, “Financial Instruments - Credit Losses (Topic 326).” The ASU applies a new credit loss model (current expected credit losses) for determining credit related impairments for financial instruments measured at amortized cost, including reinsurance recoverable, contractholder receivables, and premiums receivable, and

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requires an entity to estimate its lifetime “expected credit loss” and record an allowance that, when deducted from the amortized cost basis of the financial asset, presents the net amount expected to be collected on the financial asset. The estimate of expected credit losses should consider historical information, current information, as well as reasonable and supportable forecasts, including estimates of prepayments.

The ASU also amends the previous other-than-temporary impairment model for available-for-sale debt securities by requiring the recognition of impairments relating to credit losses through an allowance account and limits the amount of credit loss to the difference between a security’s amortized cost basis and its fair value. In addition, the length of time a security has been in an unrealized loss position will no longer impact the determination of whether a credit loss exists.

The Company adopted the ASU for the quarter ending March 31, 2020 by recognizing an after-tax cumulative effect adjustment of \$22.5 million to the opening balance of retained earnings as of January 1, 2020. The cumulative effect adjustment decreased retained earnings and increased the allowance for credit losses.

Significant Accounting Policies

The following accounting policies have been updated to reflect the Company’s adoption of the new accounting guidance on credit losses.

Investments

The Company conducts a periodic review to identify and evaluate credit based impairments related to the Company’s available for sale investments. The Company derives estimated credit losses by comparing expected future cash flows to be collected to the amortized cost of the security. Estimates of expected future cash flows consider among other things, macroeconomic conditions as well as the financial condition, near-term and long-term prospects for the issuer, and the likelihood of the recoverability of principal and interest. Effective January 1, 2020, credit losses are recognized through an allowance account subject to reversal, rather than a reduction in amortized cost. Declines in value attributable to factors other than credit are reported in other comprehensive income while the allowance for credit loss is charged to net realized gains (losses).

For available for sale investments that the Company intends to sell or for which it is more likely than not that the Company would be required to sell before an anticipated recovery in value, the full amount of the impairment is included in net realized gains (losses). The new cost basis of the investment is the previous amortized cost basis reduced by the impairment recognized in net realized gains (losses). The new cost basis is not adjusted for any subsequent recoveries in fair value.

The Company reports accrued investment income separately from investment balances and has elected not to measure an allowance for credit losses for accrued investment income. Any uncollectible accrued interest income is written off in the period it is deemed uncollectible.

Reinsurance Recoverables

In the normal course of business, the Company’s subsidiaries cede a portion of their premium and losses through pro rata and excess of loss reinsurance agreements on a treaty or facultative basis. Reinsurance recoverables are recorded as assets, predicated on the reinsurers’ ability to meet their obligations under the reinsurance agreements. In certain instances, the Company obtains collateral, including letters of credit and trust accounts to further reduce the credit exposure on its reinsurance recoverables. The Company reports its reinsurance recoverables net of an allowance for expected credit loss. The allowance is based upon the Company’s ongoing review of amounts outstanding, the financial condition of its reinsurers, amounts and form of collateral obtained and other relevant factors. A ratings based probability-of-default and loss-given-default methodology is used to estimate the allowance for expected credit loss. Any allowance for credit losses is charged to net realized gains (losses) in the period the recoverable is recorded and revised in subsequent periods to reflect changes in the Company’s estimate of expected credit losses.

Contractholder Receivables

Certain insurance policies written by the Company’s U.S. insurance operations feature large deductibles, primarily in its construction and national accounts line of business. Under such contracts, the Company is obligated to pay the claimant for the full amount of the claim. The Company is subsequently reimbursed by the policy holder for the deductible amount. These amounts are included on a gross basis in the consolidated balance sheet as contractholder payables and contractholder receivables. In the event that the Company is unable to collect from the policyholder, the Company would be liable for such defaulted amounts. Collateral, primarily in the form of letters of credit, cash and trusts, is obtained from the policyholder to mitigate the Company’s credit risk.

Contractholder receivables are reported net of an allowance for expected credit losses. The allowance is based upon the Company’s ongoing review of amounts outstanding, changes in policyholder credit standing, amounts and form of collateral obtained, and other relevant factors. A ratings based probability-of-default and loss-given-default methodology is used to estimate the allowance for expected credit losses. Any allowance for credit losses is charged to net realized gains (losses) in the period the receivable is

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recorded and revised in subsequent periods to reflect changes in the Company's estimate of expected credit losses.

Premiums Receivable

Premiums receivable include amounts receivable from agents, brokers and insured that are both currently due and amounts not yet due on insurance, reinsurance and mortgage insurance policies. Premiums receivable balances are reported net of an allowance for expected credit losses. The Company monitors credit risk associated with premiums receivable through its ongoing review of amounts outstanding, aging of the receivable, historical loss data, and counterparty financial strength measures. The allowance also includes estimated uncollectible amounts related to dispute risk. In certain instances, credit risk may be reduced by the Company's right to offset loss obligations or unearned premiums against premiums receivable. Any allowance for credit losses is charged to net realized gains (losses) in the period the receivable is recorded and revised in subsequent periods to reflect changes in the Company's estimate of expected credit losses.

Recently Issued Accounting Standards Not Yet Adopted

In December 2019, the FASB issued ASU 2019-12, "Simplifying the Accounting for Income Taxes." This ASU eliminates certain exceptions for recognizing deferred taxes for investments, performing intraperiod tax allocation and calculating income taxes in interim periods. The ASU also clarifies the accounting for transactions that result in a step-up in the tax basis of goodwill. The ASU is effective for fiscal years beginning after December 15, 2020 and interim periods within those fiscal years with early adoption permitted. The Company is currently evaluating the impact of the new guidance on its consolidated financial statements and does not expect this guidance to have a material effect on the Company's consolidated financial statements.

In March 2020, the FASB issued ASU 2020-04, "Facilitation of the Effects of Reference Rate Reform on Financial Reporting." This ASU provides optional expedients and exceptions for applying GAAP to investments, derivatives, or other transactions that reference the London Interbank Offered Rate (LIBOR) or another reference rate expected to be discontinued because of reference rate reform. Along with the optional expedients, the amendments include a general principle that permits an entity to consider contract modifications due to reference reform to be an event that does not require contract re-measurement at the modification date or reassessment of a previous accounting determination. This standard may be elected over time through December 31, 2022 as reference rate reform activities occur. The Company is currently evaluating the impact of the new guidance on its consolidated financial statements and does

not expect this guidance to have a material effect on the Company's consolidated financial statements.

For information regarding additional accounting standards that the Company has not yet adopted, see note 3(r), "Significant Accounting Policies—Recent Accounting Pronouncements," of the notes to consolidated financial statements in the Company's 2019 Form 10-K.

2. Share Transactions

Share Repurchases

The board of directors of Arch Capital has authorized the investment in Arch Capital's common shares through a share repurchase program. Since the inception of the share repurchase program, Arch Capital has repurchased 388.9 million common shares for an aggregate purchase price of \$4.04 billion. For the nine months ended September 30, 2020, Arch Capital repurchased 2.6 million shares under the share repurchase program with an aggregate purchase price of \$75.5 million. Arch Capital repurchased 0.1 million shares under the share repurchase program with an aggregate purchase price of \$2.9 million during the nine months ended September 30, 2019. At September 30, 2020, \$924.5 million of share repurchases were available under the program, which may be effected from time to time in open market or privately negotiated transactions through December 31, 2021. The timing and amount of the repurchase transactions under this program will depend on a variety of factors, including market conditions and corporate and regulatory considerations. Depending upon results of operations, market conditions and the development of the economy, as well as other factors, generally Arch Capital will consider share repurchases on an opportunistic basis from time to time. During the 2020 third quarter, Arch Capital has not repurchased any shares under our share repurchase program.

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3. Earnings Per Common Share

The following table sets forth the computation of basic and diluted earnings per common share:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Numerator:				
Net income (loss)	\$ 488,682	\$ 399,189	\$ 866,397	\$ 1,380,532
Amounts attributable to noncontrolling interests	(69,643)	(6,736)	(4,420)	(70,597)
Net income (loss) available to Arch	419,039	392,453	861,977	1,309,935
Preferred dividends	(10,403)	(10,403)	(31,209)	(31,209)
Net income (loss) available to Arch common shareholders	\$ 408,636	\$ 382,050	\$ 830,768	\$ 1,278,726
Denominator:				
Weighted average common shares and common share equivalents outstanding — basic	402,850,485	402,564,121	403,081,266	401,419,153
Effect of dilutive common share equivalents:				
Nonvested restricted shares	1,580,791	1,895,972	1,690,447	1,637,015
Stock options (1)	4,763,381	8,720,108	5,543,184	7,751,234
Weighted average common shares and common share equivalents outstanding — diluted	409,194,657	413,180,201	410,314,897	410,807,402
Earnings per common share:				
Basic	\$ 1.01	\$ 0.95	\$ 2.06	\$ 3.19
Diluted	\$ 1.00	\$ 0.92	\$ 2.02	\$ 3.11

- (1) Certain stock options were not included in the computation of diluted earnings per share where the exercise price of the stock options exceeded the average market price and would have been anti-dilutive or where, when applying the treasury stock method to in-the-money options, the sum of the proceeds, including unrecognized compensation, exceeded the average market price and would have been anti-dilutive. For the 2020 third quarter and 2019 third quarter, the number of stock options excluded were 4,713,241 and 37,394, respectively. For the nine months ended September 30, 2020 and 2019 period, the number of stock options excluded were 2,361,413 and 2,198,115, respectively.

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4. Segment Information

The Company classifies its businesses into three underwriting segments — insurance, reinsurance and mortgage — and two other operating segments — ‘other’ and corporate (non-underwriting). The Company determined its reportable segments using the management approach described in accounting guidance regarding disclosures about segments of an enterprise and related information. The accounting policies of the segments are the same as those used for the preparation of the Company’s consolidated financial statements. Intersegment business is allocated to the segment accountable for the underwriting results.

The Company’s insurance, reinsurance and mortgage segments each have managers who are responsible for the overall profitability of their respective segments and who are directly accountable to the Company’s chief operating decision makers, the President and Chief Executive Officer of Arch Capital, and the Chief Financial Officer of Arch Capital. The chief operating decision makers do not assess performance, measure return on equity or make resource allocation decisions on a line of business basis. Management measures segment performance for its three underwriting segments based on underwriting income or loss. The Company does not manage its assets by underwriting segment, with the exception of goodwill and intangible assets, and, accordingly, investment income is not allocated to each underwriting segment.

The insurance segment consists of the Company’s insurance underwriting units which offer specialty product lines on a worldwide basis. Product lines include: construction and national accounts; excess and surplus casualty; lenders products; professional lines; programs; property, energy, marine and aviation; travel, accident and health; and other (consisting of alternative markets, excess workers' compensation and surety business).

The reinsurance segment consists of the Company’s reinsurance underwriting units which offer specialty product lines on a worldwide basis. Product lines include: casualty; marine and aviation; other specialty; property catastrophe; property excluding property catastrophe (losses on a single risk, both excess of loss and pro rata); and other (consisting of life reinsurance, casualty clash and other).

The mortgage segment includes the Company’s U.S. and international mortgage insurance and reinsurance operations as well as government sponsored enterprise (“GSE”) credit-risk sharing transactions. Arch Mortgage Insurance Company and United Guaranty Residential Insurance Company (combined “Arch MI U.S.”) are approved as eligible mortgage insurers by Federal National Mortgage Association (“Fannie Mae”) and Federal Home Loan Mortgage Corporation (“Freddie Mac”), each a GSE.

The corporate (non-underwriting) segment results include net investment income, other income (loss), corporate expenses, transaction costs and other, interest expense, items related to the Company’s non-cumulative preferred shares, net realized gains or losses (which includes changes in the allowance for credit losses on financial assets and net impairment losses recognized in earnings), equity in net income or loss of investment funds accounted for using the equity method, net foreign exchange gains or losses and income taxes. Such amounts exclude the results of the ‘other’ segment.

The ‘other’ segment includes the results of Watford (see [note 11](#)). For the ‘other’ segment, performance is measured based on net income or loss.

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The following tables summarize the Company's underwriting income or loss by segment, together with a reconciliation of underwriting income or loss to net income available to Arch common shareholders:

	Three Months Ended September 30, 2020					
	Insurance	Reinsurance	Mortgage	Sub-Total	Other	Total
Gross premiums written (1)	\$ 1,206,328	\$ 1,004,590	\$ 346,248	\$ 2,556,914	\$ 197,480	\$ 2,681,032
Premiums ceded	(382,167)	(400,388)	(47,783)	(830,086)	(50,164)	(806,888)
Net premiums written	824,161	604,202	298,465	1,726,828	147,316	1,874,144
Change in unearned premiums	(105,007)	(49,704)	52,944	(101,767)	(1,285)	(103,052)
Net premiums earned	719,154	554,498	351,409	1,625,061	146,031	1,771,092
Other underwriting income (loss)	(31)	298	4,600	4,867	546	5,413
Losses and loss adjustment expenses	(525,321)	(422,084)	(153,055)	(1,100,460)	(115,813)	(1,216,273)
Acquisition expenses	(102,420)	(85,388)	(35,716)	(223,524)	(24,418)	(247,942)
Other operating expenses	(122,541)	(41,818)	(36,708)	(201,067)	(14,619)	(215,686)
Underwriting income (loss)	<u>\$ (31,159)</u>	<u>\$ 5,506</u>	<u>\$ 130,530</u>	104,877	(8,273)	96,604
Net investment income				99,857	28,655	128,512
Net realized gains (losses)				210,984	69,515	280,499
Equity in net income (loss) of investment funds accounted for using the equity method				126,735	—	126,735
Other income (loss)				919	—	919
Corporate expenses (2)				(16,263)	—	(16,263)
Transaction costs and other (2)				(1,674)	—	(1,674)
Amortization of intangible assets				(16,715)	—	(16,715)
Interest expense				(36,224)	(5,119)	(41,343)
Net foreign exchange gains (losses)				(38,681)	(6,204)	(44,885)
Income (loss) before income taxes				433,815	78,574	512,389
Income tax (expense) benefit				(23,638)	(69)	(23,707)
Net income (loss)				410,177	78,505	488,682
Amounts attributable to redeemable noncontrolling interests				(882)	(993)	(1,875)
Amounts attributable to nonredeemable noncontrolling interests				—	(67,768)	(67,768)
Net income (loss) available to Arch				409,295	9,744	419,039
Preferred dividends				(10,403)	—	(10,403)
Net income (loss) available to Arch common shareholders				<u>\$ 398,892</u>	<u>\$ 9,744</u>	<u>\$ 408,636</u>
Underwriting Ratios						
Loss ratio	73.0 %	76.1 %	43.6 %	67.7 %	79.3 %	68.7 %
Acquisition expense ratio	14.2 %	15.4 %	10.2 %	13.8 %	16.7 %	14.0 %
Other operating expense ratio	17.0 %	7.5 %	10.4 %	12.4 %	10.0 %	12.2 %
Combined ratio	104.2 %	99.0 %	64.2 %	93.9 %	106.0 %	94.9 %
Goodwill and intangible assets	<u>\$ 282,146</u>	<u>\$ 20,319</u>	<u>\$ 403,662</u>	<u>\$ 706,127</u>	<u>\$ 7,650</u>	<u>\$ 713,777</u>

- (1) Certain amounts included in the gross premiums written of each segment are related to intersegment transactions. Accordingly, the sum of gross premiums written for each segment does not agree to the total gross premiums written as shown in the table above due to the elimination of intersegment transactions in the total.
- (2) Certain expenses have been excluded from 'corporate expenses' and reflected in 'transaction costs and other.'

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	Three Months Ended September 30, 2019					
	Insurance	Reinsurance	Mortgage	Sub-Total	Other	Total
Gross premiums written (1)	\$ 1,005,874	\$ 662,572	\$ 375,092	\$ 2,043,292	\$ 249,960	\$ 2,181,121
Premiums ceded	(302,034)	(226,096)	(57,703)	(585,587)	(94,208)	(567,664)
Net premiums written	703,840	436,476	317,389	1,457,705	155,752	1,613,457
Change in unearned premiums	(98,504)	(72,621)	25,611	(145,514)	(29,920)	(175,434)
Net premiums earned	605,336	363,855	343,000	1,312,191	125,832	1,438,023
Other underwriting income (loss)	—	(1,208)	3,955	2,747	579	3,326
Losses and loss adjustment expenses	(422,782)	(270,379)	(13,080)	(706,241)	(96,214)	(802,455)
Acquisition expenses	(91,259)	(62,393)	(34,396)	(188,048)	(23,072)	(211,120)
Other operating expenses	(115,408)	(32,533)	(37,003)	(184,944)	(11,568)	(196,512)
Underwriting income (loss)	\$ (24,113)	\$ (2,658)	\$ 262,476	235,705	(4,443)	231,262
Net investment income				126,874	34,614	161,488
Net realized gains (losses)				80,014	(18,659)	61,355
Equity in net income (loss) of investment funds accounted for using the equity method				17,130	—	17,130
Other income (loss)				1,338	—	1,338
Corporate expenses (2)				(15,066)	—	(15,066)
Transaction costs and other (2)				(1,995)	—	(1,995)
Amortization of intangible assets				(20,003)	—	(20,003)
Interest expense				(23,237)	(8,091)	(31,328)
Net foreign exchange gains (losses)				29,794	3,330	33,124
Income (loss) before income taxes				430,554	6,751	437,305
Income tax (expense) benefit				(38,116)	—	(38,116)
Net income (loss)				392,438	6,751	399,189
Amounts attributable to redeemable noncontrolling interests				—	(6,600)	(6,600)
Amounts attributable to nonredeemable noncontrolling interests				—	(136)	(136)
Net income (loss) available to Arch				392,438	15	392,453
Preferred dividends				(10,403)	—	(10,403)
Net income (loss) available to Arch common shareholders				\$ 382,035	\$ 15	\$ 382,050
Underwriting Ratios						
Loss ratio	69.8 %	74.3 %	3.8 %	53.8 %	76.5 %	55.8 %
Acquisition expense ratio	15.1 %	17.1 %	10.0 %	14.3 %	18.3 %	14.7 %
Other operating expense ratio	19.1 %	8.9 %	10.8 %	14.1 %	9.2 %	13.7 %
Combined ratio	104.0 %	100.3 %	24.6 %	82.2 %	104.0 %	84.2 %
Goodwill and intangible assets	\$ 158,990	\$ —	\$ 457,860	\$ 616,850	\$ 7,650	\$ 624,500

(1) Certain amounts included in the gross premiums written of each segment are related to intersegment transactions. Accordingly, the sum of gross premiums written for each segment does not agree to the total gross premiums written as shown in the table above due to the elimination of intersegment transactions in the total.

(2) Certain expenses have been excluded from 'corporate expenses' and reflected in 'transaction costs and other.'

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	Nine Months Ended September 30, 2020					
	Insurance	Reinsurance	Mortgage	Sub-Total	Other	Total
Gross premiums written (1)	\$ 3,444,335	\$ 2,934,174	\$ 1,084,337	\$ 7,461,860	\$ 590,309	\$ 7,831,554
Premiums ceded	(1,119,165)	(967,698)	(136,154)	(2,222,031)	(150,437)	(2,151,853)
Net premiums written	2,325,170	1,966,476	948,183	5,239,829	439,872	5,679,701
Change in unearned premiums	(202,188)	(388,321)	113,965	(476,544)	(22,267)	(498,811)
Net premiums earned	2,122,982	1,578,155	1,062,148	4,763,285	417,605	5,180,890
Other underwriting income (loss)	(31)	1,767	15,649	17,385	1,547	18,932
Losses and loss adjustment expenses	(1,550,632)	(1,235,586)	(444,721)	(3,230,939)	(331,275)	(3,562,214)
Acquisition expenses	(317,428)	(255,516)	(108,304)	(681,248)	(68,766)	(750,014)
Other operating expenses	(370,947)	(125,831)	(120,178)	(616,956)	(42,523)	(659,479)
Underwriting income (loss)	\$ (116,056)	\$ (37,011)	\$ 404,594	251,527	(23,412)	228,115
Net investment income				313,916	91,234	405,150
Net realized gains (losses)				523,964	(53,837)	470,127
Equity in net income (loss) of investment funds accounted for using the equity method				57,407	—	57,407
Other income (loss)				6,327	—	6,327
Corporate expenses (2)				(51,407)	—	(51,407)
Transaction costs and other (2)				(5,246)	—	(5,246)
Amortization of intangible assets				(49,835)	—	(49,835)
Interest expense				(86,599)	(18,438)	(105,037)
Net foreign exchange gains (losses)				(17,812)	6,387	(11,425)
Income (loss) before income taxes				942,242	1,934	944,176
Income tax (expense) benefit				(78,112)	333	(77,779)
Net income (loss)				864,130	2,267	866,397
Dividends attributable to redeemable noncontrolling interests				(1,873)	(3,125)	(4,998)
Amounts attributable to nonredeemable noncontrolling interests				—	578	578
Net income (loss) available to Arch				862,257	(280)	861,977
Preferred dividends				(31,209)	—	(31,209)
Net income (loss) available to Arch common shareholders				\$ 831,048	\$ (280)	\$ 830,768
Underwriting Ratios						
Loss ratio	73.0 %	78.3 %	41.9 %	67.8 %	79.3 %	68.8 %
Acquisition expense ratio	15.0 %	16.2 %	10.2 %	14.3 %	16.5 %	14.5 %
Other operating expense ratio	17.5 %	8.0 %	11.3 %	13.0 %	10.2 %	12.7 %
Combined ratio	105.5 %	102.5 %	63.4 %	95.1 %	106.0 %	96.0 %

- (1) Certain amounts included in the gross premiums written of each segment are related to intersegment transactions. Accordingly, the sum of gross premiums written for each segment does not agree to the total gross premiums written as shown in the table above due to the elimination of intersegment transactions in the total.
- (2) Certain expenses have been excluded from 'corporate expenses' and reflected in 'transaction costs and other.'

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	Nine Months Ended September 30, 2019					
	Insurance	Reinsurance	Mortgage	Sub-Total	Other	Total
Gross premiums written (1)	\$ 2,867,753	\$ 1,890,974	\$ 1,095,607	\$ 5,853,574	\$ 598,627	\$ 6,196,809
Premiums ceded	(914,751)	(627,120)	(149,358)	(1,690,469)	(178,118)	(1,613,195)
Net premiums written	1,953,002	1,263,854	946,249	4,163,105	420,509	4,583,614
Change in unearned premiums	(201,719)	(186,450)	72,436	(315,733)	2,735	(312,998)
Net premiums earned	1,751,283	1,077,404	1,018,685	3,847,372	423,244	4,270,616
Other underwriting income (loss)	—	4,393	11,867	16,260	1,844	18,104
Losses and loss adjustment expenses	(1,168,677)	(751,147)	(50,226)	(1,970,050)	(318,480)	(2,288,530)
Acquisition expenses	(265,177)	(173,504)	(98,722)	(537,403)	(81,654)	(619,057)
Other operating expenses	(338,327)	(102,197)	(116,697)	(557,221)	(39,368)	(596,589)
Underwriting income (loss)	\$ (20,898)	\$ 54,949	\$ 764,907	798,958	(14,414)	784,544
Net investment income				371,161	102,314	473,475
Net realized gains (losses)				316,201	6,167	322,368
Equity in net income (loss) of investment funds accounted for using the equity method				96,533	—	96,533
Other income (loss)				3,550	—	3,550
Corporate expenses (2)				(47,911)	—	(47,911)
Transaction costs and other (2)				(5,363)	—	(5,363)
Amortization of intangible assets				(60,214)	—	(60,214)
Interest expense				(70,094)	(19,579)	(89,673)
Net foreign exchange gains (losses)				28,779	2,918	31,697
Income (loss) before income taxes				1,431,600	77,406	1,509,006
Income tax (expense) benefit				(128,454)	(20)	(128,474)
Net income (loss)				1,303,146	77,386	1,380,532
Dividends attributable to redeemable noncontrolling interests				—	(15,778)	(15,778)
Amounts attributable to nonredeemable noncontrolling interests				—	(54,819)	(54,819)
Net income (loss) available to Arch				1,303,146	6,789	1,309,935
Preferred dividends				(31,209)	—	(31,209)
Net income (loss) available to Arch common shareholders				\$ 1,271,937	\$ 6,789	\$ 1,278,726
Underwriting Ratios						
Loss ratio	66.7 %	69.7 %	4.9 %	51.2 %	75.2 %	53.6 %
Acquisition expense ratio	15.1 %	16.1 %	9.7 %	14.0 %	19.3 %	14.5 %
Other operating expense ratio	19.3 %	9.5 %	11.5 %	14.5 %	9.3 %	14.0 %
Combined ratio	101.1 %	95.3 %	26.1 %	79.7 %	103.8 %	82.1 %

- (1) Certain amounts included in the gross premiums written of each segment are related to intersegment transactions. Accordingly, the sum of gross premiums written for each segment does not agree to the total gross premiums written as shown in the table above due to the elimination of intersegment transactions in the total.
- (2) Certain expenses have been excluded from ‘corporate expenses’ and reflected in ‘transaction costs and other.’

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5. Reserve for Losses and Loss Adjustment Expenses

The following table represents an analysis of losses and loss adjustment expenses and a reconciliation of the beginning and ending reserve for losses and loss adjustment expenses:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Reserve for losses and loss adjustment expenses at beginning of period	\$ 15,044,874	\$ 12,230,316	\$ 13,891,842	\$ 11,853,297
Unpaid losses and loss adjustment expenses recoverable	4,156,157	3,024,797	4,082,650	2,814,291
Net reserve for losses and loss adjustment expenses at beginning of period	10,888,717	9,205,519	9,809,192	9,039,006
Net incurred losses and loss adjustment expenses relating to losses occurring in:				
Current year	1,264,315	855,352	3,673,346	2,419,044
Prior years	(48,042)	(52,897)	(111,132)	(130,514)
Total net incurred losses and loss adjustment expenses	1,216,273	802,455	3,562,214	2,288,530
Retroactive reinsurance transactions (1)	—	—	60,635	(225,500)
Net foreign exchange (gains) losses	114,122	(73,200)	22,706	(74,981)
Net paid losses and loss adjustment expenses relating to losses occurring in:				
Current year	(189,961)	(175,611)	(359,395)	(301,099)
Prior years	(512,263)	(399,948)	(1,578,464)	(1,366,741)
Total net paid losses and loss adjustment expenses	(702,224)	(575,559)	(1,937,859)	(1,667,840)
Net reserve for losses and loss adjustment expenses at end of period	11,516,888	9,359,215	11,516,888	9,359,215
Unpaid losses and loss adjustment expenses recoverable	4,383,638	3,030,169	4,383,638	3,030,169
Reserve for losses and loss adjustment expenses at end of period	\$ 15,900,526	\$ 12,389,384	\$ 15,900,526	\$ 12,389,384

- (1) During 2020 first quarter, a subsidiary of the Company entered into a reinsurance to close agreement of the 2017 and prior years of account previously covered by a third party arrangement, while in the 2019 first quarter, a subsidiary of the Company entered into a retroactive reinsurance transaction with third party reinsurer to reinsure run-off liabilities associated with certain U.S. insurance exposures.

Development on Prior Year Loss Reserves

2020 Third Quarter

During the 2020 third quarter, the Company recorded net favorable development on prior year loss reserves of \$48.0 million, which consisted of \$2.3 million from the insurance segment, \$42.0 million from the reinsurance segment, \$4.5 million from the mortgage segment, partially offset by \$0.7 million unfavorable from the 'other' segment.

The insurance segment's net favorable development of \$2.3 million, or 0.3 loss ratio points, for the 2020 third quarter consisted of \$12.9 million of net favorable development in short-tailed and long-tailed lines and \$10.6 million of net adverse development in medium-tailed lines. Net favorable development of \$11.8 million in short-tailed lines reflected \$8.0 million of favorable development from property (excluding marine), primarily from the 2015 to 2018 accident years (*i.e.*, the year in which a loss occurred) and \$3.4 million of favorable development in travel and accident, primarily from the 2019 accident year. Net favorable development of \$1.1 million in long-tailed lines reflected \$8.7 million of

favorable development in construction and national accounts, primarily from the 2018 accident year, and \$4.2 million of favorable development related to other business, including alternative markets and excess workers' compensation, primarily from the 2013 to 2017 accident years, partially offset by \$11.7 million of adverse development in executive assurance and casualty, primarily from the 2015 and 2019 accident year. Net adverse development in medium-tailed lines included \$7.1 million of adverse development in program business, primarily from 2015 to 2018 accident years and \$3.7 million of adverse development in contract binding, across all accident years.

The reinsurance segment's net favorable development of \$42.0 million, or 7.6 loss ratio points, for the 2020 third quarter consisted of \$45.6 million of net favorable development in short-tailed and medium-tailed lines and net adverse development of \$3.6 million from long-tailed lines. Net favorable development in short-tailed lines reflected \$27.6 million of favorable development related to property catastrophe and property other than property catastrophe business, primarily from the 2016 to 2019 underwriting years

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(i.e., all premiums and losses attributable to contracts having an inception or renewal date within the given twelve-month period), and \$7.8 million of favorable development from other specialty, primarily from the 2016 to 2019 underwriting years. Net favorable development of \$9.4 million in medium-tailed lines reflected favorable development in marine and aviation across most underwriting years. Adverse development of \$3.6 million in long-tailed lines reflected an increase in reserves from casualty, primarily from the 2012 to 2019 underwriting years.

The mortgage segment's net favorable development was \$4.5 million, or 1.3 loss ratio points, for the 2020 third quarter, primarily driven by subrogation recoveries on second lien business and student loan business.

2019 Third Quarter

During the 2019 third quarter, the Company recorded net favorable development on prior year loss reserves of \$52.9 million, which consisted of \$4.4 million from the insurance segment, \$15.3 million from the reinsurance segment, \$33.0 million from the mortgage segment and \$0.2 million from the 'other' segment.

The insurance segment's net favorable development of \$4.4 million, or 0.7 loss ratio points, for the 2019 third quarter consisted of \$24.8 million of net favorable development in short-tailed lines and \$20.4 million of net adverse development in medium-tailed and long-tailed lines. Net favorable development in short-tailed lines primarily resulted from lenders products and property (including special risk other than marine) reserves across all accident years (i.e., the year in which a loss occurred). Net adverse development in medium-tailed and long-tailed lines included \$6.3 million of adverse development in executive assurance reserves, primarily from the 2016 to 2018 accident years, \$4.9 million of adverse development in casualty reserves, primarily related to contract binding business across most accident years, \$4.2 million of adverse development in program business, primarily from the 2018 accident year, and \$3.8 million in healthcare reserves, primarily from the 2016 to 2018 accident years.

The reinsurance segment's net favorable development of \$15.3 million, or 4.2 loss ratio points, for the 2019 third quarter consisted of \$35.2 million of net favorable development from short-tailed and medium-tailed lines and net adverse development of \$19.9 million from long-tailed lines. Net favorable development in short-tailed and medium lines reflected \$26.5 million of favorable development from property catastrophe and property other than property catastrophe reserves, primarily related to 2017 and 2018 catastrophic events, and favorable development in marine and aviation and other reserves across most underwriting years (i.e., all premiums and losses attributable to contracts having

an inception or renewal date within the given twelve-month period). Adverse development in long-tailed lines reflected an increase in reserves from casualty from various underwriting years.

The mortgage segment's net favorable development was \$33.0 million, or 9.6 loss ratio points, for the 2019 third quarter. The 2019 third quarter development was primarily driven by favorable claim rates on first lien business and subrogation recoveries on second lien and student loan business.

Nine Months Ended September 30, 2020

During the nine months ended September 30, 2020, the Company recorded net favorable development on prior year loss reserves of \$111.1 million, which consisted of \$5.9 million from the insurance segment, \$93.8 million from the reinsurance segment, \$10.8 million from the mortgage segment and \$0.6 million from the 'other' segment.

The insurance segment's net favorable development of \$5.9 million, or 0.3 loss ratio points, for the 2020 period consisted of \$41.6 million of net favorable development in short-tailed and long-tailed lines, partially offset by \$35.7 million of net adverse development in medium-tailed lines. Net favorable development of \$27.2 million in short-tailed lines reflected \$17.5 million of favorable development from property (excluding marine), primarily from the 2015 to 2018 accident years, \$6.2 million of favorable development on travel and accident, primarily from 2019 accident year, and \$3.5 million of favorable development in lenders products, primarily from the 2018 and 2019 accident years. Net favorable development of \$14.4 million in long-tailed lines included \$11.7 million of favorable development related to other business, including alternative markets and excess workers' compensation, primarily from the 2013 to 2017 accident years. Net adverse development in medium-tailed lines reflected \$23.0 million of adverse development in contract binding business, across all accident years, and \$13.5 million of adverse development in program business, primarily from the 2016 to 2018 accident years.

The reinsurance segment's net favorable development of \$93.8 million, or 5.9 loss ratio points, for the 2020 period consisted of \$113.0 million of net favorable development from short-tailed and medium-tailed lines, partially offset by \$19.2 million of net adverse development from long-tailed lines. Net favorable development of \$101.8 million in short-tailed lines reflected \$52.1 million related to property catastrophe and property other than property catastrophe business, primarily from the 2016 to 2019 underwriting years, and \$47.1 million from other specialty lines, across most underwriting years. Adverse development in long-tailed lines of \$19.2 million reflected an increase in reserves from casualty, primarily from the 2012 to 2015 underwriting years.

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The mortgage segment's net favorable development was \$10.8 million, or 1.0 loss ratio points, for the 2020 period, primarily driven by subrogation recoveries on second lien business and student loan business.

Nine Months Ended September 30, 2019

During the nine months ended September 30, 2019, the Company recorded net favorable development on prior year loss reserves of \$130.5 million, which consisted of \$11.4 million from the insurance segment, \$26.3 million from the reinsurance segment, \$92.5 million from the mortgage segment and \$0.3 million from the 'other' segment.

The insurance segment's net favorable development of \$11.4 million, or 0.7 loss ratio points, for the 2019 period consisted of \$42.6 million of net favorable development in short-tailed lines, partially offset by \$31.2 million of net adverse development in medium-tailed and long-tailed lines. Net favorable development in short-tailed lines primarily resulted from lenders products and property (including special risk other than marine) reserves across all accident years, partially offset by net adverse development in travel business, primarily from the 2018 accident year. Net adverse development in medium-tailed and long-tailed lines reflected \$27.4 million of adverse development in program business, primarily from the 2018 accident year, and \$12.8 million of adverse development in casualty business, primarily from contract binding business across most accident years. Such amounts were partially offset by \$9.0 million of net favorable development in other medium-tailed and long-tailed lines, including professional liability, marine and surety business, across most accident years.

The reinsurance segment's net favorable development of \$26.3 million, or 2.4 loss ratio points, for the 2019 period consisted of \$37.1 million of net favorable development from short-tailed and medium-tailed lines, offset by \$10.8 million of net adverse development from long-tailed lines. Net favorable development in short-tailed lines reflected \$22.6 million from other specialty lines and \$9.5 million from property catastrophe reserves. Favorable development in medium-tailed lines reflected reductions in marine and aviation reserves of \$10.4 million across most underwriting years.

The mortgage segment's net favorable development was \$92.5 million, or 9.1 loss ratio points, for the 2019 period. The 2019 development was primarily driven by lower than expected claim rates on first lien business and subrogation recoveries on second lien and student loan business.

6. Allowance for Expected Credit Losses

Premiums Receivable

The following table provides a roll forward of the allowance for expected credit losses of the Company's premium receivables:

	September 30, 2020	
	Premium Receivables, Net of Allowance	Allowance for Expected Credit Losses
Three Months Ended		
Balance at beginning of period	\$ 2,203,753	\$ 36,054
Cumulative effect of accounting change (1)		—
Change for provision of expected credit losses (2)		1,046
Balance at end of period	\$ 2,225,311	\$ 37,100
Nine Months Ended		
Balance at beginning of period	\$ 1,778,717	\$ 21,003
Cumulative effect of accounting change (1)		6,539
Change for provision of expected credit losses (2)		9,558
Balance at end of period	\$ 2,225,311	\$ 37,100

(1) Adoption of ASU 2016-13, "Financial Instruments - Credit Losses (Topic 326)" See [note 1](#).

(2) Amounts deemed uncollectible are written-off in operating expenses. For the 2020 third quarter and nine months ended September 30, 2020, amounts written off totaled nil and \$2.3 million, respectively.

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Reinsurance Recoverables

The following table provides a roll forward of the allowance for expected credit losses of the Company's reinsurance recoverables:

	September 30, 2020	
	Reinsurance Recoverables, Net of Allowance	Allowance for Expected Credit Losses
Three Months Ended		
Balance at beginning of period	\$ 4,363,507	\$ 13,595
Cumulative effect of accounting change (1)		—
Change for provision of expected credit losses		399
Balance at end of period	\$ 4,621,937	\$ 13,994
Nine Months Ended		
Balance at beginning of period	\$ 4,346,816	\$ 1,364
Cumulative effect of accounting change (1)		12,010
Change for provision of expected credit losses		620
Balance at end of period	\$ 4,621,937	\$ 13,994

(1) Adoption of ASU 2016-13, "Financial Instruments - Credit Losses (Topic 326)" See [note 1](#).

At September 30, 2020 and December 31, 2019, approximately 63.2% and 61.2% of reinsurance recoverables on paid and unpaid losses (not including ceded unearned premiums) of \$4.64 billion and \$4.35 billion, respectively, were due from carriers which had an A.M. Best rating of "A-" or better while 36.6% and 38.8%, respectively, were from companies not rated. For items not rated, over 90% of such amount was collateralized through reinsurance trusts or letters of credit at September 30, 2020 and December 31, 2019. The largest reinsurance recoverables from any one carrier were approximately 1.8% and 1.7%, of total shareholders' equity available to Arch at September 30, 2020 and December 31, 2019, respectively.

Contractholder Receivables

The following table provides a roll forward of the allowance for expected credit losses of the Company's contractholder receivables:

	September 30, 2020	
	Contractholder Receivables, Net of Allowance	Allowance for Expected Credit Losses
Three Months Ended		
Balance at beginning of period	\$ 2,179,124	\$ 6,290
Cumulative effect of accounting change (1)		—
Change for provision of expected credit losses		(389)
Balance at end of period	\$ 2,185,614	\$ 5,901
Nine Months Ended		
Balance at beginning of period	\$ 2,119,460	\$ —
Cumulative effect of accounting change (1)		6,663
Change for provision of expected credit losses		(762)
Balance at end of period	\$ 2,185,614	\$ 5,901

(1) Adoption of ASU 2016-13, "Financial Instruments - Credit Losses (Topic 326)" See [note 1](#).

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7. Investment Information

At September 30, 2020, total investable assets of \$28.42 billion included \$25.72 billion held by the Company and \$2.69 billion attributable to Watford.

Available For Sale Investments

The following table summarizes the fair value and cost or amortized cost of the Company's securities classified as available for sale:

	Estimated Fair Value	Gross Unrealized Gains	Gross Unrealized Losses	Allowance for Expected Credit Losses (2)	Cost or Amortized Cost
September 30, 2020					
Fixed maturities (1):					
Corporate bonds	\$ 7,965,599	\$ 390,839	\$ (40,448)	\$ (1,742)	\$ 7,616,950
Mortgage backed securities	717,081	12,456	(3,373)	(336)	708,334
Municipal bonds	527,410	26,980	(877)	(62)	501,369
Commercial mortgage backed securities	374,360	8,523	(4,660)	(256)	370,753
U.S. government and government agencies	4,861,349	39,350	(4,396)	—	4,826,395
Non-U.S. government securities	2,302,646	86,996	(18,294)	—	2,233,944
Asset backed securities	1,767,192	30,026	(21,729)	(1,537)	1,760,432
Total	18,515,637	595,170	(93,777)	(3,933)	18,018,177
Short-term investments	2,039,097	1,807	(954)	—	2,038,244
Total	\$ 20,554,734	\$ 596,977	\$ (94,731)	\$ (3,933)	\$ 20,056,421
December 31, 2019					
Fixed maturities (1):					
Corporate bonds	\$ 6,406,591	\$ 191,889	\$ (12,793)		\$ 6,227,495
Mortgage backed securities	562,309	9,669	(931)		553,571
Municipal bonds	881,926	24,628	(2,213)		859,511
Commercial mortgage backed securities	733,108	14,951	(2,330)		720,487
U.S. government and government agencies	4,916,592	36,600	(10,134)		4,890,126
Non-U.S. government securities	2,078,757	48,549	(20,330)		2,050,538
Asset backed securities	1,683,753	24,017	(4,724)		1,664,460
Total	17,263,036	350,303	(53,455)		16,966,188
Short-term investments	956,546	811	(1,548)		957,283
Total	\$ 18,219,582	\$ 351,114	\$ (55,003)		\$ 17,923,471

- (1) In securities lending transactions, the Company receives collateral in excess of the fair value of the fixed maturities pledged. For purposes of this table, the Company has excluded the collateral received under securities lending, at fair value and included the securities pledged under securities lending, at fair value. See "—Securities Lending Agreements."
- (2) Effective January 1, 2020, the Company adopted ASU 2016-13 and as a result any credit impairment losses on the Company's available-for-sale investments are recorded as an allowance, subject to reversal. See [note 1](#).

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The following table summarizes, for all available for sale securities in an unrealized loss position, the fair value and gross unrealized loss by length of time the security has been in a continual unrealized loss position:

	Less than 12 Months		12 Months or More		Total	
	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses
September 30, 2020						
Fixed maturities (1):						
Corporate bonds	\$ 1,414,931	\$ (38,353)	\$ 4,169	\$ (2,095)	\$ 1,419,100	\$ (40,448)
Mortgage backed securities	186,860	(3,262)	690	(111)	187,550	(3,373)
Municipal bonds	36,469	(877)	—	—	36,469	(877)
Commercial mortgage backed securities	179,780	(4,601)	2,850	(59)	182,630	(4,660)
U.S. government and government agencies	1,386,590	(4,396)	—	—	1,386,590	(4,396)
Non-U.S. government securities	921,890	(18,294)	—	—	921,890	(18,294)
Asset backed securities	636,373	(20,166)	39,368	(1,563)	675,741	(21,729)
Total	4,762,893	(89,949)	47,077	(3,828)	4,809,970	(93,777)
Short-term investments	81,964	(954)	—	—	81,964	(954)
Total	\$ 4,844,857	\$ (90,903)	\$ 47,077	\$ (3,828)	\$ 4,891,934	\$ (94,731)
December 31, 2019						
Fixed maturities (1):						
Corporate bonds	\$ 675,131	\$ (12,350)	\$ 37,671	\$ (443)	\$ 712,802	\$ (12,793)
Mortgage backed securities	102,887	(927)	203	(4)	103,090	(931)
Municipal bonds	220,296	(2,213)	—	—	220,296	(2,213)
Commercial mortgage backed securities	147,290	(2,302)	2,683	(28)	149,973	(2,330)
U.S. government and government agencies	1,373,127	(10,089)	32,058	(45)	1,405,185	(10,134)
Non-U.S. government securities	1,224,243	(20,163)	37,610	(167)	1,261,853	(20,330)
Asset backed securities	441,522	(3,334)	48,313	(1,390)	489,835	(4,724)
Total	4,184,496	(51,378)	158,538	(2,077)	4,343,034	(53,455)
Short-term investments	95,777	(1,548)	—	—	95,777	(1,548)
Total	\$ 4,280,273	\$ (52,926)	\$ 158,538	\$ (2,077)	\$ 4,438,811	\$ (55,003)

(1) In securities lending transactions, the Company receives collateral in excess of the fair value of the fixed maturities pledged. For purposes of this table, the Company has excluded the collateral received under securities lending, at fair value and included the securities pledged under securities lending, at fair value. See “—Securities Lending Agreements.”

At September 30, 2020, on a lot level basis, approximately 3,270 security lots out of a total of approximately 11,090 security lots were in an unrealized loss position and the largest single unrealized loss from a single lot in the Company’s fixed maturity portfolio was \$0.9 million. At December 31, 2019, on a lot level basis, approximately 2,230 security lots out of a total of approximately 9,590 security lots were in an unrealized loss position and the largest single unrealized loss from a single lot in the Company’s fixed maturity portfolio was \$0.9 million.

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The contractual maturities of the Company's fixed maturities are shown in the following table. Expected maturities, which are management's best estimates, will differ from contractual maturities because borrowers may have the right to call or prepay obligations with or without call or prepayment penalties.

Maturity	September 30, 2020		December 31, 2019	
	Estimated Fair Value	Amortized Cost	Estimated Fair Value	Amortized Cost
Due in one year or less	\$ 318,767	\$ 312,569	\$ 428,659	\$ 423,617
Due after one year through five years	9,937,129	9,698,743	10,126,403	9,996,206
Due after five years through 10 years	4,849,248	4,641,483	3,317,535	3,219,567
Due after 10 years	551,860	525,863	411,269	388,280
	15,657,004	15,178,658	14,283,866	14,027,670
Mortgage backed securities	717,081	708,334	562,309	553,571
Commercial mortgage backed securities	374,360	370,753	733,108	720,487
Asset backed securities	1,767,192	1,760,432	1,683,753	1,664,460
Total (1)	\$ 18,515,637	\$ 18,018,177	\$ 17,263,036	\$ 16,966,188

(1) In securities lending transactions, the Company receives collateral in excess of the fair value of the fixed maturities pledged. For purposes of this table, the Company has excluded the collateral received under securities lending, at fair value and included the securities pledged under securities lending, at fair value. See "—Securities Lending Agreements."

Securities Lending Agreements

The Company enters into securities lending agreements with financial institutions to enhance investment income whereby it loans certain of its securities to third parties, primarily major brokerage firms, for short periods of time through a lending agent. The Company maintains legal control over the securities it lends (shown as 'Securities pledged under securities lending, at fair value' on the Company's balance sheet), retains the earnings and cash flows associated with the loaned securities and receives a fee from the borrower for the temporary use of the securities. An indemnification agreement with the lending agent protects the Company in the event a borrower becomes insolvent or fails to return any of the securities on loan from the Company.

The Company receives collateral (shown as 'Collateral received under securities lending, at fair value' on the Company's balance sheet) in the form of cash or U.S. government and government agency securities. At September 30, 2020, the fair value of the cash collateral received on securities lending was nil and the fair value of security collateral received was \$64.3 million. At December 31, 2019, the fair value of the cash collateral received on securities lending was \$81.2 million, and the fair value of security collateral received was \$307.2 million.

The carrying value of collateral held under the Company's securities lending transactions by significant investment category and remaining contractual maturity of the underlying agreements is as follows:

	Remaining Contractual Maturity of the Agreements				
	Overnight and Continuous	Less than 30 Days	30-90 Days	90 Days or More	Total
September 30, 2020					
U.S. government and government agencies	\$ 64,251	\$ —	\$ —	\$ —	\$ 64,251
Corporate bonds	—	—	—	—	—
Equity securities	—	—	—	—	—
Total	\$ 64,251	\$ —	\$ —	\$ —	\$ 64,251
Gross amount of recognized liabilities for securities lending in offsetting disclosure in note 9					\$ —
Amounts related to securities lending not included in offsetting disclosure in note 9					\$ 64,251
December 31, 2019					
U.S. government and government agencies	\$ 240,332	\$ —	\$ 115,973	\$ —	\$ 356,305
Corporate bonds	2,570	—	—	—	2,570
Equity securities	29,491	—	—	—	29,491
Total	\$ 272,393	\$ —	\$ 115,973	\$ —	\$ 388,366
Gross amount of recognized liabilities for securities lending in offsetting disclosure in note 9					\$ —
Amounts related to securities lending not included in offsetting disclosure in note 9					\$ 388,366

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Equity Securities, at Fair Value

At September 30, 2020, the Company held \$1.50 billion of equity securities, at fair value, compared to \$838.9 million at December 31, 2019. Such holdings include publicly traded common stocks primarily in the consumer cyclical and non-cyclical, technology, communication and financial sectors and exchange-traded funds in fixed income, equity and other sectors.

Other Investments

The following table summarizes the Company's other investments which are included in investments accounted for using the fair value option, by strategy:

	September 30, 2020	December 31, 2019
Term loan investments	\$ 1,202,526	\$ 1,326,018
Lending	575,623	602,841
Credit related funds	98,121	123,020
Energy	65,330	97,402
Investment grade fixed income	114,784	151,594
Infrastructure	60,579	61,786
Private equity	34,983	49,376
Real estate	17,951	17,279
Total	\$ 2,169,897	\$ 2,429,316

Investments Accounted For Using the Equity Method

The following table summarizes the Company's investments accounted for using the equity method, by strategy:

	September 30, 2020	December 31, 2019
Credit related funds	\$ 687,178	\$ 428,437
Equities	323,670	293,686
Real estate	246,998	246,851
Lending	141,305	202,690
Private equity	214,357	144,983
Infrastructure	156,029	235,033
Energy	114,165	108,716
Total	\$ 1,883,702	\$ 1,660,396

Certain of the Company's other investments are in investment funds for which the Company has the option to redeem at agreed upon values as described in each investment fund's subscription agreement. Depending on the terms of the various subscription agreements, investments in investment funds may be redeemed daily, monthly, quarterly or on other terms. Two common redemption restrictions which may impact the Company's ability to redeem these investment funds are gates and lockups. A gate is a suspension of redemptions which may be implemented by the general partner or investment manager of the fund in order to defer, in whole or in part, the redemption request in the event the aggregate amount of redemption requests exceeds a

predetermined percentage of the investment fund's net assets which may otherwise hinder the general partner or investment manager's ability to liquidate holdings in an orderly fashion in order to generate the cash necessary to fund extraordinarily large redemption payouts. A lockup period is the initial amount of time an investor is contractually required to hold the security before having the ability to redeem. If the investment funds are eligible to be redeemed, the time to redeem such fund can take weeks or months following the notification.

Fair Value Option

The following table summarizes the Company's assets which are accounted for using the fair value option:

	September 30, 2020	December 31, 2019
Fixed maturities	\$ 1,019,529	\$ 754,452
Other investments	2,169,897	2,429,316
Short-term investments	468,704	377,014
Equity securities	91,445	102,695
Investments accounted for using the fair value option	\$ 3,749,575	\$ 3,663,477

Limited Partnership Interests

In the normal course of its activities, the Company invests in limited partnerships as part of its overall investment strategy. Such amounts are included in 'investments accounted for using the equity method' and 'investments accounted for using the fair value option.' The Company has determined that it is not required to consolidate these investments because it is not the primary beneficiary of the funds. The Company's maximum exposure to loss with respect to these investments is limited to the investment carrying amounts reported in the Company's consolidated balance sheet and any unfunded commitment.

The following table summarizes investments in limited partnership interests where the Company has a variable interest by balance sheet line item:

	September 30, 2020	December 31, 2019
Investments accounted for using the equity method (1)	1,883,702	1,660,396
Investments accounted for using the fair value option (2)	180,409	188,283
Total	\$ 2,064,111	\$ 1,848,679

- (1) Aggregate unfunded commitments were \$1.59 billion at September 30, 2020, compared to \$1.36 billion at December 31, 2019.
- (2) Aggregate unfunded commitments were \$36.7 million at September 30, 2020, compared to \$41.7 million at December 31, 2019.

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Net Investment Income

The components of net investment income were derived from the following sources:

	September 30,	
	2020	2019
Three Months Ended		
Fixed maturities	\$ 98,344	\$ 126,889
Term loans	22,459	24,236
Equity securities	6,659	3,992
Short-term investments	1,332	3,834
Other (1)	22,060	22,704
Gross investment income	150,854	181,655
Investment expenses	(22,342)	(20,167)
Net investment income	<u>\$ 128,512</u>	<u>\$ 161,488</u>
Nine Months Ended		
Fixed maturities	\$ 318,582	\$ 381,706
Term loans	66,141	73,582
Equity securities	18,885	11,348
Short-term investments	9,611	11,872
Other (1)	57,926	62,423
Gross investment income	471,145	540,931
Investment expenses	(65,995)	(67,456)
Net investment income	<u>\$ 405,150</u>	<u>\$ 473,475</u>

(1) Includes income distributions from investment funds and other items.

Net Realized Gains (Losses)

Net realized gains (losses), which include changes in the allowance for credit losses on financial assets and net impairment losses recognized in earnings were as follows:

	September 30,	
	2020	2019
Three Months Ended		
Available for sale securities:		
Gross gains on investment sales	\$ 104,733	\$ 73,685
Gross losses on investment sales	(16,862)	(30,561)
Change in fair value of assets and liabilities accounted for using the fair value option:		
Fixed maturities	34,115	(3,895)
Other investments	61,622	(21,778)
Equity securities	4,048	(1,231)
Short-term investments	3,377	(1,941)
Equity securities, at fair value:		
Net realized gains (losses) on sales during the period	26,549	5,217
Net unrealized gains (losses) on equity securities still held at reporting date	33,562	(1,206)
Allowance for credit losses:		
Investments related	1,332	—
Underwriting related	351	—
Net impairment losses	—	(1,163)
Derivative instruments (1)	20,369	42,893
Other	7,303	1,335
Net realized gains (losses)	<u>\$ 280,499</u>	<u>\$ 61,355</u>
Nine Months Ended		
Available for sale securities:		
Gross gains on investment sales	\$ 515,086	\$ 192,140
Gross losses on investment sales	(98,654)	(77,498)
Change in fair value of assets and liabilities accounted for using the fair value option:		
Fixed maturities	(25,370)	38,682
Other investments	(67,608)	(37,363)
Equity securities	5,803	9,449
Short-term investments	(1,936)	(2,613)
Equity securities, at fair value:		
Net realized gains (losses) on sales during the period	7,760	9,503
Net unrealized gains (losses) on equity securities still held at reporting date	3,682	58,562
Allowance for credit losses:		
Investments related	(4,763)	—
Underwriting related	(8,753)	—
Net impairments losses	(533)	(2,521)
Derivative instruments (1)	146,722	142,730
Other	(1,309)	(8,703)
Net realized gains (losses)	<u>\$ 470,127</u>	<u>\$ 322,368</u>

(1) See [note 9](#) for information on the Company's derivative instruments.

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Equity in Net Income (Loss) of Investment Funds Accounted for Using the Equity Method

The Company recorded \$126.7 million of equity in net income related to investment funds accounted for using the equity method in the 2020 third quarter, compared to income of \$17.1 million for the 2019 third quarter, and \$57.4 million for the nine months ended September 30, 2020, compared to

\$96.5 million for the nine months ended September 30, 2019. In applying the equity method, investments are initially recorded at cost and are subsequently adjusted based on the Company's proportionate share of the net income or loss of the funds (which include changes in the market value of the underlying securities in the funds). Such investments are generally recorded on a one to three month lag based on the availability of reports from the investment funds.

Allowance for Expected Credit Losses

The following table provides a roll forward of the allowance for expected credit losses of the Company's securities classified as available for sale:

	September 30, 2020				
	Structured Securities (1)	Municipal Bonds	Corporate Bonds	Short Term Investments	Total
Three Months Ended					
Balance at beginning of period	\$ 1,726	\$ 28	\$ 4,115	\$ —	\$ 5,869
Cumulative effect of accounting change	—	—	—	—	—
Additions for current-period provision for expected credit losses	27	—	202	—	229
Additions (reductions) for previously recognized expected credit losses	403	33	(1,996)	—	(1,560)
Reductions due to disposals	(28)	—	(577)	—	(605)
Write-offs charged against the allowance	—	—	—	—	—
Balance at end of period	\$ 2,128	\$ 61	\$ 1,744	\$ —	\$ 3,933
Nine Months Ended					
Balance at beginning of period	\$ —	\$ —	\$ —	\$ —	\$ —
Cumulative effect of accounting change	517	—	117	—	634
Additions for current-period provision for expected credit losses	2,868	67	7,643	—	10,578
Additions (reductions) for previously recognized expected credit losses	(903)	8	(4,920)	—	(5,815)
Reductions due to disposals	(354)	(14)	(1,096)	—	(1,464)
Write-offs charged against the allowance	—	—	—	—	—
Balance at end of period	\$ 2,128	\$ 61	\$ 1,744	\$ —	\$ 3,933

(1) Includes asset backed securities, mortgage backed securities and commercial mortgage backed securities.

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Restricted Assets

The Company is required to maintain assets on deposit, which primarily consist of fixed maturities, with various regulatory authorities to support its underwriting operations. The Company's subsidiaries maintain assets in trust accounts as collateral for transactions with affiliated companies and also have investments in segregated portfolios primarily to provide collateral or guarantees for letters of credit to third parties. See note 17, "Commitments and Contingencies," of the notes to consolidated financial statements in the Company's 2019 Form 10-K.

The following table details the value of the Company's restricted assets:

	September 30, 2020	December 31, 2019
Assets used for collateral or guarantees:		
Affiliated transactions	\$ 4,829,252	\$ 4,526,761
Third party agreements	2,636,097	2,278,248
Deposits with U.S. regulatory authorities	942,480	797,371
Deposits with non-U.S. regulatory authorities	179,726	119,238
Total restricted assets	<u>\$ 8,587,555</u>	<u>\$ 7,721,618</u>

In addition, Watford maintains secured credit facilities to provide borrowing capacity for investment purposes and a total return swap agreement and maintains assets pledged as collateral for such purposes. The Company does not guarantee or provide credit support for Watford, and the Company's financial exposure to Watford is limited to its investment in Watford's senior notes, common and preferred shares and counterparty credit risk (mitigated by collateral) arising from reinsurance transactions. As of September 30, 2020 and December 31, 2019, Watford held \$1.19 billion and \$1.0 billion, respectively, in pledged assets to collateralize the credit facility mentioned above.

Reconciliation of Cash and Restricted Cash

The following table details reconciliation of cash and restricted cash within the Consolidated Balance Sheets:

	September 30, 2020	December 31, 2019
Cash	\$ 976,398	\$ 726,230
Restricted cash (included in 'other assets')	\$ 210,575	\$ 177,468
Cash and restricted cash	<u>\$ 1,186,973</u>	<u>\$ 903,698</u>

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8. Fair Value

Accounting guidance regarding fair value measurements addresses how companies should measure fair value when they are required to use a fair value measure for recognition or disclosure purposes under GAAP and provides a common definition of fair value to be used throughout GAAP. It defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly fashion between market participants at the measurement date. In addition, it establishes a three-level valuation hierarchy for the disclosure of fair value measurements. The valuation hierarchy is based upon the transparency of inputs to the valuation of an asset or liability as of the measurement date. The level in the hierarchy within which a given fair value measurement falls is determined based on the lowest level input that is significant to the measurement (Level 1 being the highest priority and Level 3 being the lowest priority).

The levels in the hierarchy are defined as follows:

- Level 1: Inputs to the valuation methodology are observable inputs that reflect quoted prices (unadjusted) for *identical* assets or liabilities in *active markets*
- Level 2: Inputs to the valuation methodology include quoted prices for similar assets and liabilities in active markets, and inputs that are observable for the asset or liability, either directly or indirectly, for substantially the full term of the financial instrument
- Level 3: Inputs to the valuation methodology are unobservable and significant to the fair value measurement

Following is a description of the valuation methodologies used for securities measured at fair value, as well as the general classification of such securities pursuant to the valuation hierarchy. The Company reviews its securities measured at fair value and discusses the proper classification of such investments with investment advisers and others.

The Company determines the existence of an active market based on its judgment as to whether transactions for the financial instrument occur in such market with sufficient frequency and volume to provide reliable pricing information. The independent pricing sources obtain market quotations and actual transaction prices for securities that have quoted prices in active markets. The Company uses quoted values and other data provided by nationally recognized independent pricing sources as inputs into its process for determining fair values of its fixed maturity investments. To validate the techniques or models used by pricing sources, the Company's review process includes, but

is not limited to: (i) quantitative analysis (e.g., comparing the quarterly return for each managed portfolio to its target benchmark, with significant differences identified and investigated); (ii) a review of the average number of prices obtained in the pricing process and the range of resulting fair values; (iii) initial and ongoing evaluation of methodologies used by outside parties to calculate fair value; (iv) a comparison of the fair value estimates to the Company's knowledge of the current market; (v) a comparison of the pricing services' fair values to other pricing services' fair values for the same investments; and (vi) periodic back-testing, which includes randomly selecting purchased or sold securities and comparing the executed prices to the fair value estimates from the pricing service. A price source hierarchy was maintained in order to determine which price source would be used (*i.e.*, a price obtained from a pricing service with more seniority in the hierarchy will be used over a less senior one in all cases). The hierarchy prioritizes pricing services based on availability and reliability and assigns the highest priority to index providers. Based on the above review, the Company will challenge any prices for a security or portfolio which are considered not to be representative of fair value. The Company did not adjust any of the prices obtained from the independent pricing sources at September 30, 2020.

In certain circumstances, when fair values are unavailable from these independent pricing sources, quotes are obtained directly from broker-dealers who are active in the corresponding markets. Such quotes are subject to the validation procedures noted above. Where quotes are unavailable, fair value is determined by the Investment Manager using quantitative and qualitative assessments such as internally modeled values. Of the \$26.04 billion of financial assets and liabilities measured at fair value at September 30, 2020, approximately \$120.0 million, or 0.5%, were priced using non-binding broker-dealer quotes or modeled valuations. Of the \$22.90 billion of financial assets and liabilities measured at fair value at December 31, 2019, approximately \$179.6 million, or 0.8%, were priced using non-binding broker-dealer quotes or modeled valuations.

Fixed maturities

The Company uses the market approach valuation technique to estimate the fair value of its fixed maturity securities, when possible. The market approach includes obtaining prices from independent pricing services, such as index providers and pricing vendors, as well as to a lesser extent quotes from broker-dealers. The independent pricing sources obtain market quotations and actual transaction prices for securities that have quoted prices in active markets. Each source has its own proprietary method for determining the fair value of securities that are not actively traded. In general, these methods involve the use of "matrix pricing" in which the independent pricing source uses observable market inputs

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including, but not limited to, investment yields, credit risks and spreads, benchmarking of like securities, broker-dealer quotes, reported trades and sector groupings to determine a reasonable fair value.

The following describes the significant inputs generally used to determine the fair value of the Company's fixed maturity securities by asset class:

- U.S. government and government agencies — valuations provided by independent pricing services, with all prices provided through index providers and pricing vendors. The Company determined that all U.S. Treasuries would be classified as Level 1 securities due to observed levels of trading activity, the high number of strongly correlated pricing quotes received on U.S. Treasuries and other factors. The fair values of U.S. government agency securities are generally determined using the spread above the risk-free yield curve. As the yields for the risk-free yield curve and the spreads for these securities are observable market inputs, the fair values of U.S. government agency securities are classified within Level 2.
- Corporate bonds — valuations provided by independent pricing services, substantially all through index providers and pricing vendors with a small amount through broker-dealers. The fair values of these securities are generally determined using the spread above the risk-free yield curve. These spreads are generally obtained from the new issue market, secondary trading and from broker-dealers who trade in the relevant security market. As the significant inputs used in the pricing process for corporate bonds are observable market inputs, the fair value of these securities are classified within Level 2. A small number of securities are included in Level 3 due to a low level of transparency on the inputs used in the pricing process.
- Mortgage-backed securities — valuations provided by independent pricing services, substantially all through pricing vendors and index providers with a small amount through broker-dealers. The fair values of these securities are generally determined through the use of pricing models (including Option Adjusted Spread) which use spreads to determine the expected average life of the securities. These spreads are generally obtained from the new issue market, secondary trading and from broker-dealers who trade in the relevant security market. The pricing services also review prepayment speeds and other indicators, when applicable. As the significant inputs used in the pricing process for mortgage-backed securities are observable market inputs, the fair value of these securities are classified within Level 2. A small number of securities are included in Level 3 due to a low level of transparency on the inputs used in the pricing process.
- Municipal bonds — valuations provided by independent pricing services, with all prices provided

through index providers and pricing vendors. The fair values of these securities are generally determined using spreads obtained from broker-dealers who trade in the relevant security market, trade prices and the new issue market. As the significant inputs used in the pricing process for municipal bonds are observable market inputs, the fair value of these securities are classified within Level 2.

- Commercial mortgage-backed securities — valuations provided by independent pricing services, substantially all through index providers and pricing vendors with a small amount through broker-dealers. The fair values of these securities are generally determined through the use of pricing models which use spreads to determine the appropriate average life of the securities. These spreads are generally obtained from the new issue market, secondary trading and from broker-dealers who trade in the relevant security market. The pricing services also review prepayment speeds and other indicators, when applicable. As the significant inputs used in the pricing process for commercial mortgage-backed securities are observable market inputs, the fair value of these securities are classified within Level 2.
- Non-U.S. government securities — valuations provided by independent pricing services, with all prices provided through index providers and pricing vendors. The fair values of these securities are generally based on international indices or valuation models which include daily observed yield curves, cross-currency basis index spreads and country credit spreads. As the significant inputs used in the pricing process for non-U.S. government securities are observable market inputs, the fair value of these securities are classified within Level 2.
- Asset-backed securities — valuations provided by independent pricing services, substantially all through index providers and pricing vendors with a small amount through broker-dealers. The fair values of these securities are generally determined through the use of pricing models (including Option Adjusted Spread) which use spreads to determine the appropriate average life of the securities. These spreads are generally obtained from the new issue market, secondary trading and from broker-dealers who trade in the relevant security market. The pricing services also review prepayment speeds and other indicators, when applicable. As the significant inputs used in the pricing process for asset-backed securities are observable market inputs, the fair value of these securities are classified within Level 2. A small number of securities are included in Level 3 due to a low level of transparency on the inputs used in the pricing process.

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Equity securities

The Company determined that exchange-traded equity securities would be included in Level 1 as their fair values are based on quoted market prices in active markets. Certain equity securities are included in Level 2 of the valuation hierarchy as the significant inputs used in the pricing process for such securities are observable market inputs. Other equity securities are included in Level 3 due to the lack of an available independent price source for such securities. As the significant inputs used to price these securities are unobservable, the fair value of such securities are classified as Level 3.

Other investments

The Company determined that exchange-traded investments in mutual funds would be included in Level 1 as their fair values are based on quoted market prices in active markets. Other investments also include term loan investments for which fair values are estimated by using quoted prices of term loan investments with similar characteristics, pricing models or matrix pricing. Such investments are generally classified within Level 2. The fair values for certain of the Company's other investments are determined using net asset values as advised by external fund managers. The net asset value is based on the fund manager's valuation of the underlying holdings in accordance with the fund's governing documents. In accordance with applicable accounting guidance, certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. A small number of securities are included in Level 3 due to the lack of an available independent price source for such securities.

Derivative instruments

The Company's futures contracts, foreign currency forward contracts, interest rate swaps and other derivatives trade in the over-the-counter derivative market. The Company uses the market approach valuation technique to estimate the fair value for these derivatives based on significant observable market inputs from third party pricing vendors, non-binding broker-dealer quotes and/or recent trading activity. As the significant inputs used in the pricing process for these derivative instruments are observable market inputs, the fair value of these securities are classified within Level 2.

Short-term investments

The Company determined that certain of its short-term investments held in highly liquid money market-type funds, Treasury bills and commercial paper would be included in Level 1 as their fair values are based on quoted market prices in active markets. The fair values of other short-term investments are generally determined using the spread above the risk-free yield curve and are classified within Level 2.

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The following table presents the Company's financial assets and liabilities measured at fair value by level at September 30, 2020:

		Estimated Fair Value Measurements Using:		
	Estimated Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
<u>Assets measured at fair value (1):</u>				
Available for sale securities:				
Fixed maturities:				
Corporate bonds	\$ 7,965,599	\$ —	\$ 7,965,586	\$ 13
Mortgage backed securities	717,081	—	716,873	208
Municipal bonds	527,410	—	527,410	—
Commercial mortgage backed securities	374,360	—	374,360	—
U.S. government and government agencies	4,861,349	4,715,551	145,798	—
Non-U.S. government securities	2,302,646	—	2,302,646	—
Asset backed securities	1,767,192	—	1,763,845	3,347
Total	18,515,637	4,715,551	13,796,518	3,568
Short-term investments	2,039,097	2,013,582	25,515	—
Equity securities, at fair value	1,502,015	1,452,713	6,616	42,686
Derivative instruments (4)	130,494	—	130,494	—
Fair value option:				
Corporate bonds	780,237	—	779,273	964
Non-U.S. government bonds	44,963	—	44,963	—
Mortgage backed securities	13,026	—	13,026	—
Municipal bonds	—	—	—	—
Commercial mortgage backed securities	1,150	—	1,150	—
Asset backed securities	175,790	—	175,790	—
U.S. government and government agencies	4,363	4,252	111	—
Short-term investments	468,704	360,883	107,821	—
Equity securities	91,445	27,766	156	63,523
Other investments	1,152,517	52,080	1,034,251	66,186
Other investments measured at net asset value (2)	1,017,380			
Total	3,749,575	444,981	2,156,541	130,673
Total assets measured at fair value	\$ 25,936,818	\$ 8,626,827	\$ 16,115,684	\$ 176,927
<u>Liabilities measured at fair value:</u>				
Contingent consideration liabilities	\$ (630)	\$ —	\$ —	\$ (630)
Securities sold but not yet purchased (3)	(24,909)	—	(24,909)	—
Derivative instruments (4)	(82,457)	—	(82,457)	—
Total liabilities measured at fair value	\$ (107,996)	\$ —	\$ (107,366)	\$ (630)

- (1) In securities lending transactions, the Company receives collateral in excess of the fair value of the securities pledged. For purposes of this table, the Company has excluded the collateral received under securities lending, at fair value and included the securities pledged under securities lending, at fair value. See [note 7](#), "Securities Lending Agreements."
- (2) In accordance with applicable accounting guidance, certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the consolidated balance sheets.
- (3) Represents the Company's obligations to deliver securities that it did not own at the time of sale. Such amounts are included in "other liabilities" on the Company's consolidated balance sheets.
- (4) See [note 9](#).

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The following table presents the Company's financial assets and liabilities measured at fair value by level at December 31, 2019:

		Estimated Fair Value Measurements Using:		
	Estimated Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
<u>Assets measured at fair value (1):</u>				
Available for sale securities:				
Fixed maturities:				
Corporate bonds	\$ 6,406,591	\$ —	\$ 6,397,740	\$ 8,851
Mortgage backed securities	562,309	—	562,055	254
Municipal bonds	881,926	—	881,926	—
Commercial mortgage backed securities	733,108	—	733,108	—
U.S. government and government agencies	4,916,592	4,805,581	111,011	—
Non-U.S. government securities	2,078,757	—	2,078,757	—
Asset backed securities	1,683,753	—	1,678,791	4,962
Total	17,263,036	4,805,581	12,443,388	14,067
Short-term investments	956,546	904,804	51,742	—
Equity securities, at fair value	850,283	789,596	4,798	55,889
Derivative instruments (4)	48,946	—	48,946	—
Fair value option:				
Corporate bonds	488,402	—	487,470	932
Non-U.S. government bonds	50,465	—	50,465	—
Mortgage backed securities	11,947	—	11,947	—
Municipal bonds	377	—	377	—
Commercial mortgage backed securities	1,134	—	1,134	—
Asset backed securities	200,163	—	200,163	—
U.S. government and government agencies	1,962	1,852	110	—
Short-term investments	377,014	333,320	43,694	—
Equity securities	102,697	43,962	641	58,094
Other investments	1,418,273	53,287	1,296,169	68,817
Other investments measured at net asset value (2)	1,011,043			
Total	3,663,477	432,421	2,092,170	127,843
Total assets measured at fair value	\$ 22,782,288	\$ 6,932,402	\$ 14,641,044	\$ 197,799
<u>Liabilities measured at fair value:</u>				
Contingent consideration liabilities	\$ (7,998)	\$ —	\$ —	\$ (7,998)
Securities sold but not yet purchased (3)	(66,257)	—	(66,257)	—
Derivative instruments (4)	(39,750)	—	(39,750)	—
Total liabilities measured at fair value	\$ (114,005)	\$ —	\$ (106,007)	\$ (7,998)

- (1) In securities lending transactions, the Company receives collateral in excess of the fair value of the securities pledged. For purposes of this table, the Company has excluded the collateral received under securities lending, at fair value and included the securities pledged under securities lending, at fair value. See [note 7](#), "Securities Lending Agreements."
- (2) In accordance with applicable accounting guidance, certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the consolidated balance sheets.
- (3) Represents the Company's obligations to deliver securities that it did not own at the time of sale. Such amounts are included in "other liabilities" on the Company's consolidated balance sheets.
- (4) See [note 9](#).

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The following table presents a reconciliation of the beginning and ending balances for all financial assets and liabilities measured at fair value on a recurring basis using Level 3 inputs:

	Assets						Liabilities
	Available For Sale		Fair Value Option			Fair Value	Contingent Consideration Liabilities
	Structured Securities (1)	Corporate Bonds	Corporate Bonds	Other Investments	Equity Securities	Equity Securities	
Three Months Ended September 30, 2020							
Balance at beginning of period	\$ 3,450	\$ 857	\$ 998	\$ 46,453	\$ 61,447	\$ 51,981	\$ (1,250)
Total gains or (losses) (realized/unrealized)							
Included in earnings (2)	(75)	(5,872)	(34)	885	2,076	(946)	—
Included in other comprehensive income	191	6,936	—	—	—	—	—
Purchases, issuances, sales and settlements							
Purchases	—	—	—	22,436	—	—	—
Issuances	—	—	—	—	—	—	—
Sales	—	—	—	(3,588)	—	(8,349)	—
Settlements	(11)	—	—	—	—	—	620
Transfers in and/or out of Level 3	—	(1,908)	—	—	—	—	—
Balance at end of period	\$ 3,555	\$ 13	\$ 964	\$ 66,186	\$ 63,523	\$ 42,686	\$ (630)
Three Months Ended September 30, 2019							
Balance at beginning of period	\$ 290	\$ 7,642	\$ 26,103	\$ 95,273	\$ 56,145	\$ 51,212	\$ (7,825)
Total gains or (losses) (realized/unrealized)							
Included in earnings (2)	—	—	(1,227)	(411)	127	(26)	(79)
Included in other comprehensive income	—	(301)	—	—	—	—	—
Purchases, issuances, sales and settlements							
Purchases	—	—	—	3,713	—	12,119	—
Issuances	—	—	—	—	—	—	—
Sales	—	—	(2,097)	(80)	—	(27,982)	—
Settlements	(18)	(456)	—	—	—	—	560
Transfers in and/or out of Level 3	5,449	1,860	—	(13,052)	—	—	—
Balance at end of period	\$ 5,721	\$ 8,745	\$ 22,779	\$ 85,443	\$ 56,272	\$ 35,323	\$ (7,344)
Nine Months Ended September 30, 2020							
Balance at beginning of year	\$ 5,216	\$ 8,851	\$ 932	\$ 68,817	\$ 58,094	\$ 55,889	\$ (7,998)
Total gains or (losses) (realized/unrealized)							
Included in earnings (2)	(130)	(5,865)	(34)	(129)	5,429	7,132	(72)
Included in other comprehensive income	(118)	397	—	—	—	—	—
Purchases, issuances, sales and settlements							
Purchases	—	—	66	22,460	—	3,464	—
Issuances	—	—	—	—	—	—	—
Sales	—	—	—	(27,946)	—	(23,799)	—
Settlements	(1,413)	(1,462)	—	—	—	—	7,440
Transfers in and/or out of Level 3	—	(1,908)	—	2,984	—	—	—
Balance at end of period	\$ 3,555	\$ 13	\$ 964	\$ 66,186	\$ 63,523	\$ 42,686	\$ (630)
Nine Months Ended September 30, 2019							
Balance at beginning of year	\$ 313	\$ 8,141	\$ 5,758	\$ 62,705	\$ —	\$ —	\$ (66,665)
Total gains or (losses) (realized/unrealized)							
Included in earnings (2)	1,757	—	(1,566)	(11,727)	127	(26)	(1,410)
Included in other comprehensive income	5	(317)	—	—	—	—	—
Purchases, issuances, sales and settlements							
Purchases	—	429	—	3,713	—	12,119	—
Issuances	—	—	—	—	—	—	(548)
Sales	(1,757)	—	(5,332)	(228)	—	(27,982)	—
Settlements	(46)	(1,368)	—	(600)	—	—	61,279
Transfers in and/or out of Level 3	5,449	1,860	23,919	31,580	56,145	51,212	—
Balance at end of period	\$ 5,721	\$ 8,745	\$ 22,779	\$ 85,443	\$ 56,272	\$ 35,323	\$ (7,344)

(1) Includes asset backed securities, mortgage backed securities and commercial mortgage backed securities.

(2) Gains or losses were included in net realized gains (losses).

ARCH CAPITAL GROUP LTD. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED)

Financial Instruments Disclosed, But Not Carried, At Fair Value

The Company uses various financial instruments in the normal course of its business. The carrying values of cash, accrued investment income, receivable for securities sold, certain other assets, payable for securities purchased and certain other liabilities approximated their fair values at September 30, 2020, due to their respective short maturities. As these financial instruments are not actively traded, their respective fair values are classified within Level 2.

At September 30, 2020, the Company's senior notes were carried at their cost, net of debt issuance costs, of \$2.86 billion and had a fair value of \$3.51 billion. At December 31, 2019, the Company's senior notes were carried at their cost, net of debt issuance costs, of \$1.87 billion and had a fair value of \$2.34 billion. The fair values of the senior notes were obtained from a third party pricing service and are based on observable market inputs. As such, the fair values of the senior notes are classified within Level 2.

9. Derivative Instruments

The Company's investment strategy allows for the use of derivative instruments. The Company's derivative instruments are recorded on its consolidated balance sheets at fair value. The Company utilizes exchange traded U.S. Treasury note, Eurodollar and other futures contracts and commodity futures to manage portfolio duration or replicate investment positions in its portfolios and the Company routinely utilizes foreign currency forward contracts, currency options, index futures contracts and other derivatives as part of its total return objective. In addition, certain of the Company's investments are managed in portfolios which incorporate the use of foreign currency forward contracts which are intended to provide an economic hedge against foreign currency movements.

In addition, the Company purchases to-be-announced mortgage backed securities ("TBAs") as part of its investment strategy. TBAs represent commitments to purchase a future issuance of agency mortgage backed securities. For the period between purchase of a TBA and issuance of the underlying security, the Company's position is accounted for as a derivative. The Company purchases TBAs in both long and short positions to enhance investment performance and as part of its overall investment strategy.

The following table summarizes information on the fair values and notional values of the Company's derivative instruments:

	Estimated Fair Value		
	Asset Derivatives	Liability Derivatives	Notional Value (1)
September 30, 2020			
Futures contracts (2)	\$ 23,605	\$ (9,357)	\$ 2,804,901
Foreign currency forward contracts (2)	11,428	(3,256)	990,726
TBAs (3)	—	—	—
Other (2)	95,461	(69,844)	6,231,827
Total	<u>\$ 130,494</u>	<u>\$ (82,457)</u>	
December 31, 2019			
Futures contracts (2)	\$ 10,065	\$ (13,722)	\$ 4,104,559
Foreign currency forward contracts (2)	5,352	(5,327)	686,878
TBAs (3)	55,010	—	53,229
Other (2)	33,529	(20,701)	4,356,300
Total	<u>\$ 103,956</u>	<u>\$ (39,750)</u>	

- (1) Represents the absolute notional value of all outstanding contracts, consisting of long and short positions.
- (2) The fair value of asset derivatives are included in 'other assets' and the fair value of liability derivatives are included in 'other liabilities.'
- (3) The fair value of TBAs are included in 'fixed maturities available for sale, at fair value.'

The Company did not hold any derivatives which were designated as hedging instruments at September 30, 2020 or December 31, 2019.

The Company's derivative instruments can be traded under master netting agreements, which establish terms that apply to all derivative transactions with a counterparty. In the event of a bankruptcy or other stipulated event of default, such agreements provide that the non-defaulting party may elect to terminate all outstanding derivative transactions, in which case all individual derivative positions (loss or gain) with a counterparty are closed out and netted and replaced with a single amount, usually referred to as the termination amount, which is expressed in a single currency. The resulting single net amount, where positive, is payable to the party "in-the-money" regardless of whether or not it is the defaulting party, unless the parties have agreed that only the non-defaulting party is entitled to receive a termination payment where the net amount is positive and is in its favor. Contractual close-out netting reduces derivatives credit exposure from gross to net exposure.

At September 30, 2020, asset derivatives and liability derivatives of \$109.7 million and \$74.6 million, respectively, were subject to a master netting agreement, compared to \$97.8 million and \$37.8 million, respectively, at December 31, 2019. The remaining derivatives included in the preceding table were not subject to a master netting agreement.

ARCH CAPITAL GROUP LTD. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED)

Realized and unrealized contract gains and losses on the Company's derivative instruments are reflected in 'net realized gains (losses)' in the consolidated statements of income, as summarized in the following table:

Derivatives not designated as hedging instruments:	September 30,	
	2020	2019
Three Months Ended		
Net realized gains (losses):		
Futures contracts	\$ 10,945	\$ 46,194
Foreign currency forward contracts	10,813	2,044
TBAs	120	269
Other	(1,509)	(5,614)
Total	\$ 20,369	\$ 42,893
Nine Months Ended		
Net realized gains (losses):		
Futures contracts	\$ 105,282	\$ 140,503
Foreign currency forward contracts	3,466	(17,030)
TBAs	1,129	507
Other	36,845	18,750
Total	\$ 146,722	\$ 142,730

10. Commitments and Contingencies

Senior Notes

On June 30, 2020, Arch Capital completed a public offering of \$1.0 billion aggregate principal amount of its 3.635% senior notes with a scheduled maturity of June 30, 2050 (the "2050 notes"). The 2050 notes are Arch Capital's senior unsecured obligations and rank equally with all of its existing and future senior unsecured indebtedness. Interest payments on the 2050 notes are due semi-annually in arrears on June 30 and December 30, beginning on December 30, 2020, to holders of record on the preceding June 15 or December 15, as the case may be. Interest will be calculated on the basis of a 360-day year of twelve 30-day months. Subject to conditions of redemption, Arch Capital may redeem the 2050 notes at any time and from time to time prior to December 30, 2049, in whole or in part, at a redemption price equal to the "make-whole" redemption price, plus accrued and unpaid interest thereon to, but excluding, the redemption date. Arch Capital is planning to use the net proceeds for general corporate purposes.

Investment Commitments

The Company's investment commitments, which are primarily related to agreements entered into by the Company to invest in funds and separately managed accounts when called upon, were approximately \$1.91 billion at September 30, 2020, compared to \$1.69 billion at December 31, 2019.

Interest Paid

Interest paid on the Company's senior notes and other borrowings were \$60.6 million for the nine months ended September 30, 2020, consistent with \$68.6 million for the 2019 period.

11. Variable Interest Entities and Noncontrolling Interests

Watford

In March 2014, the Company invested \$100.0 million and acquired 2,500,000 common shares, approximately 11% of Watford's outstanding common equity. Watford's common shares are listed on the Nasdaq Select Global Market under the ticker symbol "WTRE". As of September 30, 2020, the Company owns approximately 13% of Watford's outstanding common equity.

In July 2019, Watford completed an offering of \$175.0 million in aggregate principal amount of its 6.5% senior notes, due July 2, 2029 ("Watford Senior Notes"). Interest on the Watford Senior Notes is payable semi-annually in arrears on each January 2 and July 2 commencing on January 2, 2020. The \$172.4 million net proceeds from the offering were used to redeem a portion of Watford's outstanding preference shares ("Watford Preference Shares"). The Company purchased \$35.0 million in aggregate principal amount of the Watford Senior Notes.

Watford is considered a VIE and the Company concluded that it is the primary beneficiary of Watford. As such, the results of Watford are included in the Company's consolidated financial statements.

The Company does not guarantee or provide credit support for Watford, and the Company's financial exposure to Watford is limited to its investment in Watford's senior notes, common and preferred shares and counterparty credit risk (mitigated by collateral) arising from reinsurance transactions.

ARCH CAPITAL GROUP LTD. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED)

The following table provides the carrying amount and balance sheet caption in which the assets and liabilities of Watford are reported:

	September 30, 2020	December 31, 2019
Assets		
Investments accounted for using the fair value option	\$ 1,937,037	\$ 1,898,091
Fixed maturities available for sale, at fair value	649,781	745,708
Equity securities, at fair value	52,807	65,338
Cash	195,333	102,437
Accrued investment income	16,234	14,025
Premiums receivable	263,748	273,657
Reinsurance recoverable on unpaid and paid losses and LAE	263,293	170,973
Ceded unearned premiums	131,885	132,577
Deferred acquisition costs	58,583	64,044
Receivable for securities sold	1,730	16,287
Goodwill and intangible assets	7,650	7,650
Other assets	75,139	60,070
Total assets of consolidated VIE	\$ 3,653,220	\$ 3,550,857
Liabilities		
Reserve for losses and loss adjustment expenses	\$ 1,429,656	\$ 1,263,628
Unearned premiums	459,476	438,907
Reinsurance balances payable	68,339	77,066
Revolving credit agreement borrowings	210,687	484,287
Senior notes	172,621	172,418
Payable for securities purchased	76,567	18,180
Other liabilities (1)	316,599	171,714
Total liabilities of consolidated VIE	\$ 2,733,945	\$ 2,626,200
Redeemable noncontrolling interests	\$ 52,375	\$ 52,305

(1) Includes certain borrowings related to investing activities.

For the nine months ended September 30, 2020, Watford generated \$133.6 million of cash provided by operating activities, \$242.0 million of cash provided by investing activities and \$279.7 million of cash used for financing activities, compared to \$177.2 million of cash provided by operating activities, \$181.2 million of cash used for investing activities and \$22.2 million of cash provided by financing activities for the nine months ended September 30, 2019.

Non-redeemable noncontrolling interests

The Company accounts for the portion of Watford's common equity attributable to third party investors in the shareholders' equity section of its consolidated balance sheets. The noncontrolling ownership in Watford's common shares was approximately 87% at September 30, 2020. The portion of Watford's income or loss attributable to third party investors is recorded in the consolidated statements of income in 'net (income) loss attributable to noncontrolling interests.'

The following table sets forth activity in the non-redeemable noncontrolling interests:

	September 30, 2020	September 30, 2019
Three Months Ended		
Balance, beginning of period	\$ 679,089	\$ 855,347
Additional paid in capital attributable to noncontrolling interests	243	205
Amounts attributable to noncontrolling interests	67,768	136
Other comprehensive income (loss) attributable to noncontrolling interests	10,820	(764)
Balance, end of period	\$ 757,920	\$ 854,924
Nine Months Ended		
Balance, beginning of year	\$ 762,777	\$ 791,560
Additional paid in capital attributable to noncontrolling interests	715	2,279
Repurchases attributable to non-redeemable noncontrolling interests ⁽¹⁾	(2,867)	—
Amounts attributable to noncontrolling interests	(578)	54,819
Other comprehensive income (loss) attributable to noncontrolling interests	(2,127)	6,266
Balance, end of period	\$ 757,920	\$ 854,924

(1) During 2020, Watford's board of directors authorized the investment in Watford's common shares through a share repurchase program.

Redeemable noncontrolling interests

The Company accounts for redeemable noncontrolling interests in the mezzanine section of its consolidated balance sheets in accordance with applicable accounting guidance. Such redeemable noncontrolling interests primarily relate to the Watford Preference Shares issued in late March 2014 with a par value of \$0.01 per share and a liquidation preference of \$25.00 per share. The Watford Preference Shares were issued at a discounted amount of \$24.50 per share. Preferred dividends, including the accretion of the discount and issuance costs, are included in 'net (income) loss attributable to noncontrolling interests' in the Company's consolidated statements of income.

In August 2019, Watford redeemed 6,919,998 of its 9,065,200 issued and outstanding Watford Preference Shares. The Watford Preference Shares were redeemed at a total redemption price of \$25.19748 per share, inclusive of all declared and unpaid dividends, with accumulation of any undeclared dividends on or after June 30, 2019. In addition, the Company received \$11.5 million pursuant to the redemption of Watford Preference Shares.

ARCH CAPITAL GROUP LTD. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED)

The following table sets forth activity in the redeemable non-controlling interests:

	September 30,	
	2020	2019
Three Months Ended		
Balance, beginning of period	\$ 55,986	\$ 206,475
Redemption of noncontrolling interests	—	(157,709)
Accretion of preference share issuance costs	23	23
Other	1,826	—
Balance, end of period	\$ 57,835	\$ 48,789
Nine Months Ended		
Balance, beginning of year	\$ 55,404	\$ 206,292
Redemption of noncontrolling interests	—	(157,709)
Accretion of preference share issuance costs	70	206
Other	2,361	—
Balance, end of period	\$ 57,835	\$ 48,789

The portion of income or loss attributable to third party investors, recorded in the Company's consolidated statements of income in 'net (income) loss attributable to noncontrolling interests,' are summarized in the table below:

	September 30,	
	2020	2019
Three Months Ended		
Amounts attributable to non-redeemable noncontrolling interests	\$ (67,768)	\$ (136)
Amounts attributable to redeemable noncontrolling interests	(1,875)	(6,600)
Net (income) loss attributable to noncontrolling interests	\$ (69,643)	\$ (6,736)
Nine Months Ended		
Amounts attributable to non-redeemable noncontrolling interests	\$ 578	\$ (54,819)
Amounts attributable to redeemable noncontrolling interests	(4,998)	(15,778)
Net (income) loss attributable to noncontrolling interests	\$ (4,420)	\$ (70,597)

Bellemeade Re

The Company has entered into various aggregate excess of loss mortgage reinsurance agreements with various special purpose reinsurance companies domiciled in Bermuda (the "Bellemeade Agreements"). At the time the Bellemeade Agreements were entered into, the applicability of the accounting guidance that addresses VIEs was evaluated. As a result of the evaluation of the Bellemeade Agreements, the Company concluded that these entities are VIEs. However, given that the ceding insurers do not have the unilateral power to direct those activities that are significant to their economic performance, the Company does not consolidate such entities in its consolidated financial statements.

The following table presents the total assets of the Bellemeade entities, as well as the Company's maximum exposure to loss associated with these VIEs, calculated as the maximum historical observable spread between the one month LIBOR, the basis for the contractual payments to bond holders, and short term invested trust asset yields.

Bellemeade Entities (Issue Date)	Total VIE Assets	Maximum Exposure to Loss		
		On-Balance Sheet (Asset) Liability	Off-Balance Sheet	Total
Sep 30, 2020				
Bellemeade 2017-1 Ltd. (Oct-17)	\$ 145,573	\$ (432)	\$ 2,104	\$ 1,672
Bellemeade 2018-1 Ltd. (Apr-18)	250,095	(1,592)	4,821	3,229
Bellemeade 2018-2 Ltd. (Aug-18)	187,362	(641)	1,695	1,054
Bellemeade 2018-3 Ltd. (Oct-18)	302,563	(2,477)	7,261	4,784
Bellemeade 2019-1 Ltd. (Mar-19)	219,256	(1,062)	8,944	7,882
Bellemeade 2019-2 Ltd. (Apr-19)	398,316	(1,090)	11,369	10,279
Bellemeade 2019-3 Ltd. (Jul-19)	528,084	(975)	9,156	8,181
Bellemeade 2019-4 Ltd. (Oct-19)	468,737	(1,179)	12,722	11,543
Bellemeade 2020-1 Ltd. (Jun-20) (1)	406,534	(701)	7,590	6,889
Bellemeade 2020-2 Ltd. (Sep-20) (2)	423,420	(322)	9,081	8,759
Total	\$ 3,329,940	\$ (10,471)	\$ 74,743	\$ 64,272
Dec 31, 2019				
Bellemeade 2017-1 Ltd. (Oct-17)	\$ 216,429	\$ (442)	\$ 2,794	\$ 2,352
Bellemeade 2018-1 Ltd. (Apr-18)	328,482	(1,574)	5,757	4,183
Bellemeade 2018-2 Ltd. (Aug-18)	437,009	(877)	2,524	1,647
Bellemeade 2018-3 Ltd. (Oct-18)	426,806	(1,113)	3,937	2,824
Bellemeade 2019-1 Ltd. (Mar-19)	257,358	(226)	3,027	2,801
Bellemeade 2019-2 Ltd. (Apr-19)	525,959	(78)	2,579	2,501
Bellemeade 2019-3 Ltd. (Jul-19)	656,523	(585)	9,273	8,688
Bellemeade 2019-4 Ltd. (Oct-19)	577,267	(302)	12,193	11,891
Total	\$ 3,425,833	\$ (5,197)	\$ 42,084	\$ 36,887

(1) An additional \$79 million capacity was provided directly to Arch MI U.S. by a separate panel of reinsurers and is not reflected in this table.

(2) An additional \$26 million capacity was provided directly to Arch MI U.S. by a separate panel of reinsurers and is not reflected in this table.

ARCH CAPITAL GROUP LTD. AND SUBSIDIARIES
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12. Other Comprehensive Income (Loss)

The following tables present details about amounts reclassified from accumulated other comprehensive income and the tax effects allocated to each component of other comprehensive income (loss):

Details About AOCI Components	Consolidated Statement of Income Line Item That Includes Reclassification	Amounts Reclassified from AOCI			
		Three Months Ended September 30,		Nine Months Ended September 30,	
		2020	2019	2020	2019
Unrealized appreciation on available-for-sale investments					
Net realized gains (losses)		\$ 87,871	\$ 43,124	\$ 416,432	\$ 114,642
Provision for credit losses		1,333		(4,762)	
Other-than-temporary impairment losses		—	(1,163)	(533)	(2,521)
Total before tax		89,204	41,961	411,137	112,121
Income tax (expense) benefit		(9,401)	(3,218)	(42,714)	(7,812)
Net of tax		\$ 79,803	\$ 38,743	\$ 368,423	\$ 104,309
		Before Tax Amount		Tax Expense (Benefit)	Net of Tax Amount
Three Months Ended September 30, 2020					
Unrealized appreciation (decline) in value of investments:					
Unrealized holding gains (losses) arising during period		\$ 119,265	\$ 8,483	\$ 110,782	
Less reclassification of net realized gains (losses) included in net income		89,204	9,401	79,803	
Foreign currency translation adjustments		16,918	209	16,709	
Other comprehensive income (loss)		\$ 46,979	\$ (709)	\$ 47,688	
Three Months Ended September 30, 2019					
Unrealized appreciation (decline) in value of investments:					
Unrealized holding gains (losses) arising during period		\$ 70,449	\$ 11,159	\$ 59,290	
Less reclassification of net realized gains (losses) included in net income		41,961	3,218	38,743	
Foreign currency translation adjustments		(16,507)	(83)	(16,424)	
Other comprehensive income (loss)		\$ 11,981	\$ 7,858	\$ 4,123	
Nine Months Ended September 30, 2020					
Unrealized appreciation (decline) in value of investments:					
Unrealized holding gains (losses) arising during period		\$ 611,390	\$ 65,099	\$ 546,291	
Less reclassification of net realized gains (losses) included in net income		411,137	42,714	368,423	
Foreign currency translation adjustments		(5,911)	(182)	(5,729)	
Other comprehensive income (loss)		\$ 194,342	\$ 22,203	\$ 172,139	
Nine Months Ended September 30, 2019					
Unrealized appreciation (decline) in value of investments:					
Unrealized holding gains (losses) arising during period		\$ 573,513	\$ 65,863	\$ 507,650	
Less reclassification of net realized gains (losses) included in net income		112,121	7,812	104,309	
Foreign currency translation adjustments		(6,454)	187	(6,641)	
Other comprehensive income (loss)		\$ 454,938	\$ 58,238	\$ 396,700	

ARCH CAPITAL GROUP LTD. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED)

13. Income Taxes

The Company's income tax provision on income before income taxes resulted in an effective tax rate of 8.2% for the nine months ended September 30, 2020, compared to 8.5% for the 2019 period.

The Company's effective tax rate, which is based upon the expected annual effective tax rate, may fluctuate from period to period based on the relative mix of income or loss reported by jurisdiction and the varying tax rates in each jurisdiction.

The Company had a net deferred tax asset of \$29.7 million at September 30, 2020, compared to a net deferred tax liability of \$53.5 million at December 31, 2019. The change is primarily a result of fluctuations in the contingency reserve. In addition, the Company paid \$146.8 million and \$47.1 million of income taxes for the nine months ended September 30, 2020 and 2019, respectively.

14. Legal Proceedings

The Company, in common with the insurance industry in general, is subject to litigation and arbitration in the normal course of its business. As of September 30, 2020, the Company was not a party to any litigation or arbitration which is expected by management to have a material adverse effect on the Company's results of operations and financial condition and liquidity.

15. Transactions with Related Parties

In 2017, the Company acquired approximately 25% of Premia Holdings Ltd. Premia Holdings Ltd. is the parent of Premia Reinsurance Ltd., a multi-line Bermuda reinsurance company (together with Premia Holdings Ltd., "Premia"). Premia's strategy is to reinsure or acquire companies or reserve portfolios in the non-life property and casualty insurance and reinsurance run-off market. Arch Re Bermuda and certain Arch co-investors invested \$100.0 million and acquired approximately 25% of Premia as well as warrants to purchase additional common equity. Arch has appointed two directors to serve on the seven person board of directors of Premia. Arch Re Bermuda is providing a 25% quota share reinsurance treaty on certain business written by Premia.

In the 2019 fourth quarter, Barbican Group Holdings Limited ("Barbican"), a wholly owned subsidiary of the Company, entered into certain reinsurance and related transactions with Premia pursuant to which Premia assumed a transfer of liability for the 2018 and prior years of account of Barbican as of July 1, 2019. Barbican recorded reinsurance recoverable on unpaid and paid losses and funds held liability of \$175.8 million and \$150.2 million, respectively, at September 30, 2020, compared to \$177.7 million and \$180.0 million, respectively, at December 31, 2019. Certain directors and executive officers of the Company own common and preference shares of Watford. See [note 11, "Variable Interest Entity and Noncontrolling Interests,"](#) for information about Watford.

ARCH CAPITAL GROUP LTD. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (UNAUDITED)

16. Subsequent Events

Bellemeade Re 2020-3 Ltd.

In November 2020, the Company's first-lien U.S. mortgage insurance subsidiaries entered into an aggregate excess of loss reinsurance agreement with Bellemeade Re 2020-3 Ltd. ("Bellemeade 2020-3"), a special purpose reinsurance company domiciled in Bermuda. The Bellemeade 2020-3 agreement provides for up to \$451.8 million of aggregate excess of loss reinsurance coverage at inception in excess of \$173.8 million of aggregate losses for new delinquencies on a portfolio of in-force policies primarily issued from June 1 through August 31, 2020. The coverage amount decreases over a ten-year period as the underlying covered mortgages amortize.

Bellemeade 2020-3 financed the coverage through the issuance of mortgage insurance-linked notes in an aggregate amount of approximately \$418.2 million to unrelated investors (the "Notes") and an additional \$33.7 million capacity was provided directly to Arch MI U.S. by a separate panel of reinsurers. The maturity date of the Notes is October 25, 2030. The Notes will be redeemed prior to maturity upon the occurrence of a mandatory termination event or if the ceding insurers trigger a termination of the reinsurance agreement following the occurrence of an optional termination event. All of the proceeds paid to Bellemeade 2020-3 from the sale of the Notes were deposited into a reinsurance trust as security for Bellemeade 2020-3's obligations. At all times, funds in the reinsurance trust account are required to be invested in high credit quality money market funds.

Watford

In November 2020, the Company announced a revised definitive agreement under which it will acquire, in partnership with funds managed by Warburg Pincus LLC ("Warburg Pincus") and Kelso & Company ("Kelso"), all of the common shares of Watford for \$35.00 per share or approximately \$700 million. The transaction is expected to close in the first quarter of 2021 and remains subject to customary closing conditions, including regulatory and shareholder approvals. Under the merger agreement, the Company assigned its current interests and obligations in Watford to a newly formed subsidiary which will acquire the outstanding shares of Watford. At closing, the Company will own approximately 40% of Watford, Warburg Pincus and Kelso will each own approximately 30%.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following is a discussion and analysis of our financial condition and results of operations. This should be read in conjunction with our consolidated financial statements included in Item 1 of this report and also our Management's Discussion and Analysis of Financial Condition and Results of Operations contained in our Annual Report on Form 10-K for the year ended December 31, 2019 ("2019 Form 10-K"). In addition, readers should review "Risk Factors" set forth in Item 1A of Part I of our 2019 Form 10-K and ["ITEM 1A—Risk Factors"](#) of this Form 10-Q. Tabular amounts are in U.S. Dollars in thousands, except share amounts, unless otherwise noted.

Arch Capital Group Ltd. ("Arch Capital" and, together with its subsidiaries, "Arch", "we" or "us") is a Bermuda public limited liability company with approximately \$15.2 billion in capital at September 30, 2020 and, through operations in Bermuda, the United States, Europe, Canada, Australia and Hong Kong, writes insurance, reinsurance and mortgage insurance on a worldwide basis.

CURRENT OUTLOOK

In keeping with our longstanding underwriting approach we look for acceptable books of business to underwrite without sacrificing discipline and continue to write a portion of our overall book in catastrophe-exposed business which has the potential to increase the volatility of our operating results. From an operating perspective, the 2020 third quarter reflected the benefits of rate improvements as all three of our underwriting segments are seeing attractive opportunities to grow at acceptable rates of return.

Consequently, these rate improvements have enabled us to continue to expand writings in our property casualty segments as risk adjusted returns are increasingly achieved. We know from experience that this is an opportune time to significantly expand our participation into this hardening market. In the insurance segment, our rate increases for the third quarter averaged over 11% and we believe that this trend of increasing rates will continue through 2021. To support this growth, we raised an additional \$1.0 billion of capital in the form of long-term senior notes at the end of June 2020 and continue to deploy capital to those lines that provide the best expected returns.

COVID-19 has continued to significantly impact social and economic activity in the U.S. and global markets. We are committed to the safety of our employees, including restricting travel and instituting an extensive work from home

policy. These actions have helped prevent a major disruption to our clients and operations. The impact of the spread of COVID-19, a developing recession and related levels of unemployment has changed some of our outlook for 2020, but we are navigating this period with a strong capital base. The extent to which COVID-19 impacts our business, results of operations and financial results depends on numerous evolving factors including, but not limited to: the magnitude and duration of COVID-19, the extent to which it will impact macroeconomic conditions, the speed of the anticipated recovery and governmental, business and individual reactions to the pandemic. Given the continuing evolution of the COVID-19 outbreak and the response to curb its spread, currently we are not able to estimate the future effects of the COVID-19 outbreak to our results of operations, financial condition, or liquidity.

For the 2020 third quarter and nine months ended September 30, 2020, we recorded \$11.9 million and \$271.6 million, respectively, for COVID-19 losses across our property casualty segments. We continue to have limited information to accurately quantify our potential exposure to the pandemic in certain areas but have established IBNR reserves for occurrences based on policy terms and conditions including limits, sub-limits, and deductibles. These reserves were recorded across a number of lines of business, such as trade credit, travel, workers compensation and property where we have limited exposure to policies that do not contain a specific pandemic exclusion and/or explicitly afford business interruption coverage under a pandemic. Given the unusual circumstances and breadth of the pandemic, we have classified COVID-19 losses as a catastrophe.

For our U.S. primary mortgage operations, reported delinquencies were 4.69% at September 30, 2020, compared to 5.14% at June 30, 2020. Delinquencies continue to be better than our expectations at the beginning of the COVID-19 pandemic. We believe that the mortgage insurance industry is benefiting from solid credit quality of loan originations in the years after the 2008 Great Financial Crisis, a favorable supply and demand imbalance in housing and government intervention. However, delinquency rates remain at elevated levels, reflecting the impact of the recession and forbearance programs under the CARES Act to borrowers experiencing a hardship during COVID-19. Forbearance allows for mortgage payments to be suspended for up to 360 days along with a suspension of foreclosures and evictions. See "Results of Operations—Mortgage Segment" for further details on our mortgage operations.

Record mortgage originations fueled by low mortgage rates are continuing to create surges in both purchase and refinancing activity. There remains significant uncertainty on the economy's health and the lack of a full understanding on how COVID-19 may impact individual borrowers and, as such, caution is warranted on predicting how this will ultimately affect our results of operations.

We believe that delinquency rates could increase in the future from the current level, as additional borrowers may request forbearance on their mortgage loans under the CARES Act. We would record loss reserves on these delinquencies which would result in elevated levels of incurred losses over the coming quarters. Over time, we would expect many of these delinquencies to cure and revert back to performing loans as the economy returns to a less-stressed state. At this time, we do not have enough visibility to predictably forecast the rate at which forbearance delinquencies will be reported to us, cure or ultimately turn into claims on an annual, let alone a quarterly basis. That said, based on our current analysis which tells us that the pandemic will represent an earnings event for our mortgage segment and not a capital event, our current expectation continues to be that our pre-tax underwriting income for the entire mortgage segment will be significantly lower than in 2019. However, there is likely to be variability in underwriting income between quarters based on the timing of receipt of notice of defaults. For further discussion of the potential impacts of COVID-19, see [“ITEM 1A—Risk Factors”](#).

Arch remains committed to providing solutions across many offerings as the marketplace evolves, including the mortgage credit risk transfer programs initiated by government sponsored enterprises, or “GSEs.” Such programs have continued to generate business. In addition, we completed Bellemeade risk transfers in June, September and November 2020, increasing our protection for mortgage tail risk. The Bellemeade structures provide approximately \$3.9 billion of aggregate reinsurance coverage.

FINANCIAL MEASURES

Management uses the following three key financial indicators in evaluating our performance and measuring the overall growth in value generated for Arch Capital's common shareholders:

Book Value per Share

Book value per share represents total common shareholders' equity available to Arch divided by the number of common shares outstanding. Management uses growth in book value per share as a key measure of the value generated for our common shareholders each period and believes that book value per share is the key driver of Arch Capital's share price

over time. Book value per share is impacted by, among other factors, our underwriting results, investment returns and share repurchase activity, which has an accretive or dilutive impact on book value per share depending on the purchase price.

Book value per share was \$28.75 at September 30, 2020, compared to \$27.62 at June 30, 2020 and \$25.61 at September 30, 2019. The 4.1% increase for the 2020 third quarter reflected the impact of total return on investments, partially offset by the impact of catastrophic events including COVID-19 on underwriting results, while the 12.2% increase over the trailing twelve months reflected strong underwriting results and investment returns.

Operating Return on Average Common Equity

Operating return on average common equity (“Operating ROAE”) represents annualized after-tax operating income available to Arch common shareholders divided by the average of beginning and ending common shareholders' equity available to Arch during the period. After-tax operating income available to Arch common shareholders, a non-GAAP financial measure as defined in Regulation G, represents net income available to Arch common shareholders, excluding net realized gains or losses (which includes changes in the allowance for credit losses on financial assets and net impairment losses recognized in earnings) equity in net income or loss of investment funds accounted for using the equity method, net foreign exchange gains or losses, transaction costs and other and income taxes. Management uses Operating ROAE as a key measure of the return generated to common shareholders. See “Comment on Non-GAAP Financial Measures.”

Our Operating ROAE was 4.2% for the 2020 third quarter, compared to 10.3% for the 2019 third quarter, and 3.9% for nine months ended September 30, 2020, compared to 12.0% for the 2019 period. The lower 2020 returns reflected the impact of elevated catastrophic activity including COVID-19 on underwriting results and lower investment income than in the 2019 periods.

Total Return on Investments

Total return on investments includes investment income, equity in net income or loss of investment funds accounted for using the equity method, net realized gains and losses (excluding changes in the allowance for credit losses on non-investment related financial assets) and the change in unrealized gains and losses generated by Arch's investment portfolio. Total return is calculated on a pre-tax basis and before investment expenses, excludes amounts reflected in the ‘other’ segment, and reflects the effect of financial market conditions along with foreign currency fluctuations. In addition, total return incorporates the timing of investment returns during the periods. The following table summarizes

our total return compared to the benchmark return against which we measured our portfolio during the periods. See “Comment on Non-GAAP Financial Measures.”

	Arch Portfolio	Benchmark Return
Pre-tax total return (before investment expenses):		
2020 Third Quarter	2.30 %	2.41 %
2019 Third Quarter	1.00 %	0.70 %
Nine Months Ended September 30, 2020	5.19 %	3.67 %
Nine Months Ended September 30, 2019	6.20 %	5.79 %

Total return for the 2020 third quarter reflected the impact of lower interest rates on our fixed income portfolio. In addition, returns from our equity and alternative investments contributed approximately 40% of the total return for the quarter. The total return for the nine months ended September 30, 2020 outperformed our benchmark return index.

The benchmark return index is a customized combination of indices intended to approximate a target portfolio by asset mix and average credit quality while also matching the approximate estimated duration and currency mix of our insurance and reinsurance liabilities. Although the estimated duration and average credit quality of this index will move as the duration and rating of its constituent securities change, generally we do not adjust the composition of the benchmark return index except to incorporate changes to the mix of liability currencies and durations noted above. The benchmark return index should not be interpreted as expressing a preference for or aversion to any particular sector or sector weight. The index is intended solely to provide, unlike many master indices that change based on the size of their constituent indices, a relatively stable basket of investable indices. At September 30, 2020, the benchmark return index had an average credit quality of “Aa3” by Moody’s Investors Service (“Moody’s”), and an estimated duration of 3.06 years.

The benchmark return index included weightings to the following indices:

	%
ICE BoAML 1-10 Year A - AAA U.S. Corporate Index	21.00 %
ICE BoAML 1-5 Year U.S. Treasury Index	15.00
MSCI ACWI Net Total Return USD Index	8.60
ICE BoAML 3-5 Year Fixed Rate Asset Backed Securities Index	7.00
S&P Leveraged Loan Total Return Index	5.20
Bloomberg Barclays CMBS Invest Grade Aaa Total Return Index	5.00
ICE BoAML 1-10 Year BBB U.S. Corporate Index	4.00
ICE BoAML U.S. Mortgage Backed Securities Index	4.00
ICE BoAML 1-5 Year U.K. Gilt Index	4.00
ICE BoAML German Government 1-10 Year Index	3.50
ICE BoAML 0-3 Month U.S. Treasury Bill Index	3.25
ICE BoAML 1-10 Year U.S. Municipal Securities Index	3.00
ICE BoAML 5-10 Year U.S. Treasury Index	3.00
ICE BoAML 1-5 Year Australia Government Index	2.75
ICE BoAML U.S. High Yield Constrained Index	2.50
ICE BoAML 1-5 Year Canada Government Index	2.00
Bloomberg Barclays Global High Yield Total Return Index	1.50
Hedge Fund Research HFRX ED Distressed Restructuring Index (Flagship Funds)	1.50
Dow Jones Global ex-US Select Real Estate Securities Total Return Net Index	0.90
FTSE Nareit All Mortgage Capped Index Total Return USD	0.90
Bloomberg Barclays CMBS: Erisa Eligible Unhedged USD	0.90
ICE BoAML 20+ Year Canada Government Index	0.50
Total	100.00 %

COMMENT ON NON-GAAP FINANCIAL MEASURES

Throughout this filing, we present our operations in the way we believe will be the most meaningful and useful to investors, analysts, rating agencies and others who use our financial information in evaluating the performance of our company. This presentation includes the use of after-tax operating income available to Arch common shareholders, which is defined as net income available to Arch common shareholders, excluding net realized gains or losses (which includes changes in the allowance for credit losses on financial assets and net impairment losses recognized in earnings), equity in net income or loss of investment funds accounted for using the equity method, net foreign exchange gains or losses, transaction costs and other and income taxes, and the use of annualized operating return on average common equity. The presentation of after-tax operating income available to Arch common shareholders and annualized operating return on average common equity are non-GAAP financial measures as defined in Regulation G. The reconciliation of such measures to net income available to Arch common shareholders and annualized return on

average common equity (the most directly comparable GAAP financial measures) in accordance with Regulation G is included under “Results of Operations” below.

We believe that net realized gains or losses, equity in net income or loss of investment funds accounted for using the equity method, net foreign exchange gains or losses and transaction costs and other in any particular period are not indicative of the performance of, or trends in, our business. Although net realized gains or losses, equity in net income or loss of investment funds accounted for using the equity method and net foreign exchange gains or losses are an integral part of our operations, the decision to realize investment gains or losses, the recognition of the change in the carrying value of investments accounted for using the fair value option in net realized gains or losses, the recognition of net impairment losses, the recognition of equity in net income or loss of investment funds accounted for using the equity method and the recognition of foreign exchange gains or losses are independent of the insurance underwriting process and result, in large part, from general economic and financial market conditions. Furthermore, certain users of our financial information believe that, for many companies, the timing of the realization of investment gains or losses is largely opportunistic. In addition, changes in the allowance for credit losses and net impairment losses recognized in earnings on the Company’s investments represent other-than-temporary declines in expected recovery values on securities without actual realization. The use of the equity method on certain of our investments in certain funds that invest in fixed maturity securities is driven by the ownership structure of such funds (either limited partnerships or limited liability companies). In applying the equity method, these investments are initially recorded at cost and are subsequently adjusted based on our proportionate share of the net income or loss of the funds (which include changes in the market value of the underlying securities in the funds). This method of accounting is different from the way we account for our other fixed maturity securities and the timing of the recognition of equity in net income or loss of investment funds accounted for using the equity method may differ from gains or losses in the future upon sale or maturity of such investments. Transaction costs and other include advisory, financing, legal, severance, incentive compensation and other transaction costs related to acquisitions. We believe that transaction costs and other, due to their non-recurring nature, are not indicative of the performance of, or trends in, our business performance. Due to these reasons, we exclude net realized gains or losses, equity in net income or loss of investment funds accounted for using the equity method, net foreign exchange gains or losses and transaction costs and other from the calculation of after-tax operating income available to Arch common shareholders.

We believe that showing net income available to Arch common shareholders exclusive of the items referred to

above reflects the underlying fundamentals of our business since we evaluate the performance of and manage our business to produce an underwriting profit. In addition to presenting net income available to Arch common shareholders, we believe that this presentation enables investors and other users of our financial information to analyze our performance in a manner similar to how management analyzes performance. We also believe that this measure follows industry practice and, therefore, allows the users of financial information to compare our performance with our industry peer group. We believe that the equity analysts and certain rating agencies which follow us and the insurance industry as a whole generally exclude these items from their analyses for the same reasons.

Our segment information includes the presentation of consolidated underwriting income or loss and a subtotal of underwriting income or loss before the contribution from the ‘other’ segment. Such measures represent the pre-tax profitability of our underwriting operations and include net premiums earned plus other underwriting income, less losses and loss adjustment expenses, acquisition expenses and other operating expenses. Other operating expenses include those operating expenses that are incremental and/or directly attributable to our individual underwriting operations. Underwriting income or loss does not incorporate items included in our corporate (non-underwriting) segment. While these measures are presented in [note 4, “Segment Information,”](#) of the notes accompanying our consolidated financial statements, they are considered non-GAAP financial measures when presented elsewhere on a consolidated basis. The reconciliations of underwriting income or loss to income before income taxes (the most directly comparable GAAP financial measure) on a consolidated basis and a subtotal before the contribution from the ‘other’ segment, in accordance with Regulation G, is shown in [note 4, “Segment Information,”](#) to our consolidated financial statements.

We measure segment performance for our three underwriting segments based on underwriting income or loss. We do not manage our assets by underwriting segment, with the exception of goodwill and intangibles and, accordingly, investment income and other non-underwriting related items are not allocated to each underwriting segment. For the ‘other’ segment, performance is measured based on net income or loss.

Along with consolidated underwriting income, we provide a subtotal of underwriting income or loss before the contribution from the ‘other’ segment. The ‘other’ segment includes the results of Watford Holdings Ltd. Watford Holdings Ltd. is the parent of Watford Re Ltd., a multi-line Bermuda reinsurance company (together with Watford Holdings Ltd., “Watford”). Pursuant to generally accepted

accounting principles, Watford is considered a variable interest entity and we concluded that we are the primary beneficiary of Watford. As such, we consolidate the results of Watford in our consolidated financial statements, although we only own approximately 13% of Watford's common equity. Watford's own management and board of directors are responsible for its results and profitability. In addition, we do not guarantee or provide credit support for Watford. Since Watford is an independent company, the assets of Watford can be used only to settle obligations of Watford and Watford is solely responsible for its own liabilities and commitments. Our financial exposure to Watford is limited to our investment in Watford's senior notes, common and preferred shares and counterparty credit risk (mitigated by collateral) arising from the reinsurance transactions. We believe that presenting certain information excluding the 'other' segment enables investors and other users of our financial information to analyze our performance in a manner similar to how our management analyzes performance.

Our presentation of segment information includes the use of a current year loss ratio which excludes favorable or adverse development in prior year loss reserves. This ratio is a non-GAAP financial measure as defined in Regulation G. The reconciliation of such measure to the loss ratio (the most directly comparable GAAP financial measure) in accordance with Regulation G is shown on the individual segment pages. Management utilizes the current year loss ratio in its analysis of the underwriting performance of each of our underwriting segments.

Total return on investments includes investment income, equity in net income or loss of investment funds accounted for using the equity method, net realized gains and losses (excluding changes in the allowance for credit losses on non-investment related financial assets) and the change in unrealized gains and losses generated by Arch's investment portfolio. Total return is calculated on a pre-tax basis and before investment expenses, excludes amounts reflected in the 'other' segment, and reflects the effect of financial market conditions along with foreign currency fluctuations. In addition, total return incorporates the timing of investment returns during the periods. There is no directly comparable GAAP financial measure for total return. Management uses total return on investments as a key measure of the return generated to Arch common shareholders, and compares the return generated by our investment portfolio against benchmark returns during the periods.

RESULTS OF OPERATIONS

The following table summarizes our consolidated financial data, including a reconciliation of net income or loss available to Arch common shareholders to after-tax operating income or loss available to Arch common shareholders. Each line item reflects the impact of our percentage ownership of Watford's common equity during such period.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net income available to Arch common shareholders \$	408,636	\$ 382,050	\$ 830,768	\$ 1,278,726
Net realized (gains) losses	(219,726)	(77,959)	(517,007)	(316,882)
Equity in net (income) loss of investment funds accounted for using the equity method	(126,735)	(17,130)	(57,407)	(96,533)
Net foreign exchange (gains) losses	39,462	(30,160)	17,003	(29,100)
Transaction costs and other	1,674	1,995	5,246	5,363
Income tax expense (1)	17,010	2,156	48,088	12,708
After-tax operating income available to Arch common shareholders	\$ 120,321	\$ 260,952	\$ 326,691	\$ 854,282
Beginning common shareholders' equity	\$ 11,211,825	\$ 9,977,352	\$ 10,717,371	\$ 8,659,827
Ending common shareholders' equity	11,671,997	10,378,096	11,671,997	10,378,096
Average common shareholders' equity	\$ 11,441,911	\$ 10,177,724	\$ 11,194,684	\$ 9,518,962
Annualized return on average common equity %	14.3	15.0	9.9	17.9
Annualized operating return on average common equity %	4.2	10.3	3.9	12.0

(1) Income tax expense on net realized gains or losses, equity in net income or loss of investment funds accounted for using the equity method, net foreign exchange gains or losses and transaction costs and other reflects the relative mix reported by jurisdiction and the varying tax rates in each jurisdiction.

Segment Information

We classify our businesses into three underwriting segments — insurance, reinsurance and mortgage — and two other operating segments — corporate (non-underwriting) and ‘other.’ Our insurance, reinsurance and mortgage segments each have managers who are responsible for the overall profitability of their respective segments and who are directly accountable to our chief operating decision makers, the President and Chief Executive Officer of Arch Capital and the Chief Financial Officer of Arch Capital. The chief operating decision makers do not assess performance, measure return on equity or make resource allocation decisions on a line of business basis. Management measures segment performance for our three underwriting segments based on underwriting income or loss. We do not manage our assets by underwriting segment, with the exception of goodwill and intangible assets, and, accordingly, investment income is not allocated to each underwriting segment.

We determined our reportable segments using the management approach described in accounting guidance regarding disclosures about segments of an enterprise and related information. The accounting policies of the segments are the same as those used for the preparation of our consolidated financial statements. Intersegment business is allocated to the segment accountable for the underwriting results.

Insurance Segment

The following tables set forth our insurance segment’s underwriting results:

	Three Months Ended September 30,		
	2020	2019	% Change
Gross premiums written	\$ 1,206,328	\$ 1,005,874	19.9
Premiums ceded	(382,167)	(302,034)	
Net premiums written	824,161	703,840	17.1
Change in unearned premiums	(105,007)	(98,504)	
Net premiums earned	719,154	605,336	18.8
Other underwriting income (loss)	(31)	—	
Losses and loss adjustment expenses	(525,321)	(422,782)	
Acquisition expenses	(102,420)	(91,259)	
Other operating expenses	(122,541)	(115,408)	
Underwriting income (loss)	\$ (31,159)	\$ (24,113)	(29.2)
Underwriting Ratios			
			% Point Change
Loss ratio	73.0 %	69.8 %	3.2
Acquisition expense ratio	14.2 %	15.1 %	(0.9)
Other operating expense ratio	17.0 %	19.1 %	(2.1)
Combined ratio	104.2 %	104.0 %	0.2

	Nine Months Ended September 30,		
	2020	2019	% Change
Gross premiums written	\$ 3,444,335	\$ 2,867,753	20.1
Premiums ceded	(1,119,165)	(914,751)	
Net premiums written	2,325,170	1,953,002	19.1
Change in unearned premiums	(202,188)	(201,719)	
Net premiums earned	2,122,982	1,751,283	21.2
Other underwriting income (loss)	(31)	—	
Losses and loss adjustment expenses	(1,550,632)	(1,168,677)	
Acquisition expenses	(317,428)	(265,177)	
Other operating expenses	(370,947)	(338,327)	
Underwriting income (loss)	\$ (116,056)	\$ (20,898)	(455.3)

Underwriting Ratios			% Point Change
Loss ratio	73.0 %	66.7 %	6.3
Acquisition expense ratio	15.0 %	15.1 %	(0.1)
Other operating expense ratio	17.5 %	19.3 %	(1.8)
Combined ratio	105.5 %	101.1 %	4.4

The insurance segment consists of our insurance underwriting units which offer specialty product lines on a worldwide basis. Product lines include:

- *Construction and national accounts:* primary and excess casualty coverages to middle and large accounts in the construction industry and a wide range of products for middle and large national accounts, specializing in loss sensitive primary casualty insurance programs (including large deductible, self-insured retention and retrospectively rated programs).
- *Excess and surplus casualty:* primary and excess casualty insurance coverages, including middle market energy business, and contract binding, which primarily provides casualty coverage through a network of appointed agents to small and medium risks.
- *Lenders products:* collateral protection, debt cancellation and service contract reimbursement products to banks, credit unions, automotive dealerships and original equipment manufacturers and other specialty programs that pertain to automotive lending and leasing.
- *Professional lines:* directors’ and officers’ liability, errors and omissions liability, employment practices liability, fiduciary liability, crime, professional indemnity and other financial related coverages for corporate, private equity, venture capital, real estate investment trust, limited partnership, financial institution and not-for-profit clients of all sizes and medical professional and general liability insurance coverages for the healthcare industry. The business is predominately written on a claims-made basis.
- *Programs:* primarily package policies, underwriting workers’ compensation and umbrella liability business in support of desirable package programs, targeting program

managers with unique expertise and niche products offering general liability, commercial automobile, inland marine and property business with minimal catastrophe exposure.

- *Property, energy, marine and aviation:* primary and excess general property insurance coverages, including catastrophe-exposed property coverage, for commercial clients. Coverages for marine include hull, war, specie and liability. Aviation and standalone terrorism are also offered.
- *Travel, accident and health:* specialty travel and accident and related insurance products for individual, group travelers, travel agents and suppliers, as well as accident and health, which provides accident, disability and medical plan insurance coverages for employer groups, medical plan members, students and other participant groups.
- *Other:* includes alternative market risks (including captive insurance programs), excess workers' compensation and employer's liability insurance coverages for qualified self-insured groups, associations and trusts, and contract and commercial surety coverages, including contract bonds (payment and performance bonds) primarily for medium and large contractors and commercial surety bonds for Fortune 1,000 companies and smaller transaction business programs.

Premiums Written.

The following tables set forth our insurance segment's net premiums written by major line of business:

	Three Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
Property, energy, marine and aviation	\$ 152,193	18.5	\$ 97,966	13.9
Professional lines	199,163	24.2	137,569	19.5
Programs	123,768	15.0	120,039	17.1
Construction and national accounts	88,790	10.8	98,522	14.0
Excess and surplus casualty	78,889	9.6	62,843	8.9
Travel, accident and health	28,972	3.5	75,192	10.7
Lenders products	60,830	7.4	31,005	4.4
Other	91,556	11.1	80,704	11.5
Total	\$ 824,161	100.0	\$ 703,840	100.0

2020 Third Quarter versus 2019 Period. Gross premiums written by the insurance segment in the 2020 third quarter were 19.9% higher than in the 2019 third quarter, while net premiums written were 17.1% higher. The higher level of net premiums written reflected increases across most lines of business, due in part to new business opportunities, rate increases and growth in existing accounts, partially offset by a decrease in travel business, reflecting the ongoing impact of the COVID-19 global pandemic.

	Nine Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
Property, energy, marine and aviation	\$ 439,579	18.9	\$ 272,271	13.9
Professional lines	526,180	22.6	388,482	19.9
Programs	341,230	14.7	329,882	16.9
Construction and national accounts	261,933	11.3	254,765	13.0
Excess and surplus casualty	209,011	9.0	166,474	8.5
Travel, accident and health	183,015	7.9	239,833	12.3
Lenders products	117,812	5.1	75,793	3.9
Other	246,410	10.6	225,502	11.5
Total	\$ 2,325,170	100.0	\$ 1,953,002	100.0

Nine Months Ended September 30, 2020 versus 2019 Period. Gross premiums written by the insurance segment for the nine months ended September 30, 2020 were 20.1% higher than in the 2019 period, while net premiums written were 19.1% higher. The higher level of net premiums written reflected increases in most lines of business, primarily due to new business opportunities, rate increases and growth in existing accounts. Such amounts were partially offset by a decrease in travel business, primarily due to the ongoing impact of COVID-19.

Net Premiums Earned.

The following tables set forth our insurance segment's net premiums earned by major line of business:

	Three Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
Property, energy, marine and aviation	\$ 133,827	18.6	\$ 80,246	13.3
Professional lines	168,502	23.4	135,343	22.4
Programs	104,861	14.6	104,432	17.3
Construction and national accounts	95,386	13.3	81,472	13.5
Excess and surplus casualty	69,978	9.7	53,991	8.9
Travel, accident and health	36,726	5.1	81,952	13.5
Lenders products	33,401	4.6	(5,724)	(0.9)
Other	76,473	10.6	73,624	12.2
Total	\$ 719,154	100.0	\$ 605,336	100.0

	Nine Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
Property, energy, marine and aviation	\$ 365,791	17.2	\$ 208,879	11.9
Professional lines	475,014	22.4	365,801	20.9
Programs	322,203	15.2	304,605	17.4
Construction and national accounts	286,691	13.5	234,198	13.4
Excess and surplus casualty	196,041	9.2	144,218	8.2
Travel, accident and health	166,218	7.8	237,163	13.5
Lenders products	81,855	3.9	41,078	2.3
Other	229,169	10.8	215,341	12.3
Total	\$ 2,122,982	100.0	\$ 1,751,283	100.0

Net premiums written are primarily earned on a pro rata basis over the terms of the policies for all products, usually 12 months. Net premiums earned in the 2020 third quarter were 18.8% higher than in the 2019 third quarter. For the nine months ended September 30, 2020, net premiums earned were 21.2% higher than in the 2019 period. Net premiums earned reflect changes in net premiums written over the previous five quarters.

Losses and Loss Adjustment Expenses.

The table below shows the components of the insurance segment's loss ratio:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Current year	73.3 %	70.5 %	73.3 %	67.4 %
Prior period reserve development	(0.3) %	(0.7) %	(0.3)%	(0.7)%
Loss ratio	73.0 %	69.8 %	73.0 %	66.7 %

Current Year Loss Ratio.

2020 Third Quarter versus 2019 Period. The insurance segment's current year loss ratio in the 2020 third quarter was 2.8 points higher than in the 2019 third quarter. The 2020 third quarter loss ratio reflected 10.3 points of current year catastrophic activity, primarily related to Hurricanes Isaias, Laura and Sally, including 0.5 points related to COVID-19 exposure, compared to 4.3 points of catastrophic activity for the 2019 third quarter.

Nine Months Ended September 30, 2020 versus 2019 Period. The insurance segment's current year loss ratio for the nine months ended September 30, 2020 was 5.9 points higher than in the 2019 period. The loss ratio for the nine months ended September 30, 2020 reflected 9.9 points of current year catastrophic activity, including 5.5 points for exposure related to COVID-19, compared to 1.6 points of catastrophic

activity in the 2019 period. The balance of the change in the 2020 loss ratios resulted, in part, from changes in mix of business, the level of attritional losses and the effect of rate increases.

Prior Period Reserve Development.

The insurance segment's net favorable development was \$2.3 million, or 0.3 points, for the 2020 third quarter, compared to \$4.4 million, or 0.7 points, for the 2019 third quarter, and \$5.9 million, or 0.3 points, for the nine months ended September 30, 2020, compared to \$11.4 million, or 0.7 points, for the 2019 period. See [note 5, "Reserve for Losses and Loss Adjustment Expenses."](#) to our consolidated financial statements for information about the insurance segment's prior year reserve development.

Underwriting Expenses.

2020 Third Quarter versus 2019 Period. The insurance segment's underwriting expense ratio was 31.2% in the 2020 third quarter, compared to 34.2% in the 2019 third quarter, with the decrease primarily due to growth in net premiums earned.

Nine Months Ended September 30, 2020 versus 2019 Period. The insurance segment's underwriting expense ratio was 32.5% for the nine months ended September 30, 2020, compared to 34.4% for the 2019 period, with the decrease primarily due to growth in net premiums earned.

Reinsurance Segment

The following tables set forth our reinsurance segment's underwriting results:

	Three Months Ended September 30,		
	2020	2019	% Change
Gross premiums written	\$ 1,004,590	\$ 662,572	51.6
Premiums ceded	(400,388)	(226,096)	
Net premiums written	604,202	436,476	38.4
Change in unearned premiums	(49,704)	(72,621)	
Net premiums earned	554,498	363,855	52.4
Other underwriting income (loss)	298	(1,208)	
Losses and loss adjustment expenses	(422,084)	(270,379)	
Acquisition expenses	(85,388)	(62,393)	
Other operating expenses	(41,818)	(32,533)	
Underwriting income (loss)	\$ 5,506	\$ (2,658)	307.1

			% Point Change
Underwriting Ratios			
Loss ratio	76.1 %	74.3 %	1.8
Acquisition expense ratio	15.4 %	17.1 %	(1.7)
Other operating expense ratio	7.5 %	8.9 %	(1.4)
Combined ratio	99.0 %	100.3 %	(1.3)

	Nine Months Ended September 30,		
	2020	2019	% Change
Gross premiums written	\$ 2,934,174	\$ 1,890,974	55.2
Premiums ceded	(967,698)	(627,120)	
Net premiums written	1,966,476	1,263,854	55.6
Change in unearned premiums	(388,321)	(186,450)	
Net premiums earned	1,578,155	1,077,404	46.5
Other underwriting income	1,767	4,393	
Losses and loss adjustment expenses	(1,235,586)	(751,147)	
Acquisition expenses	(255,516)	(173,504)	
Other operating expenses	(125,831)	(102,197)	
Underwriting income (loss)	\$ (37,011)	\$ 54,949	(167.4)
Underwriting Ratios			% Point Change
Loss ratio	78.3 %	69.7 %	8.6
Acquisition expense ratio	16.2 %	16.1 %	0.1
Other operating expense ratio	8.0 %	9.5 %	(1.5)
Combined ratio	102.5 %	95.3 %	7.2

The reinsurance segment consists of our reinsurance underwriting units which offer specialty product lines on a worldwide basis. Product lines include:

- *Casualty*: provides coverage to ceding company clients on third party liability and workers' compensation exposures from ceding company clients, primarily on a treaty basis. Exposures include, among others, executive assurance, professional liability, workers' compensation, excess and umbrella liability, excess motor and healthcare business.
- *Marine and aviation*: provides coverage for energy, hull, cargo, specie, liability and transit, and aviation business, including airline and general aviation risks. Business written may also include space business, which includes coverages for satellite assembly, launch and operation for commercial space programs.
- *Other specialty*: provides coverage to ceding company clients for proportional motor and other lines, including surety, accident and health, workers' compensation catastrophe, agriculture, trade credit and political risk.
- *Property catastrophe*: provides protection for most catastrophic losses that are covered in the underlying policies written by reinsureds, including hurricane, earthquake, flood, tornado, hail and fire, and coverage for other perils on a case-by-case basis. Property catastrophe reinsurance provides coverage on an excess of loss basis when aggregate losses and loss adjustment expense from a single occurrence or aggregation of losses from a covered peril exceed the retention specified in the contract.
- *Property excluding property catastrophe*: provides coverage for both personal lines and commercial property exposures and principally covers buildings, structures, equipment and contents. The primary perils in this business include fire, explosion, collapse, riot, vandalism, wind,

tornado, flood and earthquake. Business is assumed on both a proportional and excess of loss treaty basis and on a facultative basis. In addition, facultative business is written which focuses on commercial property risks on an excess of loss basis.

- *Other*: includes life reinsurance business on both a proportional and non-proportional basis, casualty clash business and, in limited instances, non-traditional business which is intended to provide insurers with risk management solutions that complement traditional reinsurance.

Premiums Written.

The following tables set forth our reinsurance segment's net premiums written by major line of business:

	Three Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
Property excluding property catastrophe	\$ 223,880	37.1	\$ 118,671	27.2
Property catastrophe	42,125	7.0	23,597	5.4
Other specialty	159,969	26.5	94,072	21.6
Casualty	142,401	23.6	178,802	41.0
Marine and aviation	27,839	4.6	10,181	2.3
Other	7,988	1.3	11,153	2.6
Total	\$ 604,202	100.0	\$ 436,476	100.0

2020 Third Quarter versus 2019 Period. Gross premiums written by the reinsurance segment in the 2020 third quarter were 51.6% higher than in the 2019 third quarter, while net premiums written were 38.4% higher. The higher level of net premiums written primarily reflected increases in property and other specialty lines, mainly due to new business and rate increases.

	Nine Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
Property excluding property catastrophe	\$ 546,443	27.8	\$ 317,461	25.1
Property catastrophe	248,893	12.7	73,574	5.8
Other specialty	562,296	28.6	363,723	28.8
Casualty	438,330	22.3	425,311	33.7
Marine and aviation	109,996	5.6	41,758	3.3
Other	60,518	3.1	42,027	3.3
Total	\$ 1,966,476	100.0	\$ 1,263,854	100.0

Nine Months Ended September 30, 2020 versus 2019 Period. Gross premiums written by the reinsurance segment for the nine months ended September 30, 2020 were 55.2% higher than in the 2019 period, while net premiums written were 55.6% higher than in the 2019 period. The increase in net premiums written reflected growth across all lines of business due to new business and rate increases. The 2020 period was affected by the presence of an \$88 million loss portfolio transfer contract, written and fully earned in the period in the

other specialty line of business. The growth in net premiums written also reflected increases in most lines of business, primarily due to growth in existing accounts, new business, and rate increases.

Net Premiums Earned.

The following tables set forth our reinsurance segment's net premiums earned by major line of business:

	Three Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
Property excluding property catastrophe	\$ 163,081	29.4	\$ 90,358	24.8
Property catastrophe	69,524	12.5	22,617	6.2
Other specialty	141,201	25.5	112,349	30.9
Casualty	136,421	24.6	116,242	31.9
Marine and aviation	26,744	4.8	11,798	3.2
Other	17,527	3.2	10,491	2.9
Total	\$ 554,498	100.0	\$ 363,855	100.0

	Nine Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
Property excluding property catastrophe	\$ 399,752	25.3	\$ 259,629	24.1
Property catastrophe	177,750	11.3	59,886	5.6
Other specialty	467,592	29.6	370,443	34.4
Casualty	404,248	25.6	311,030	28.9
Marine and aviation	76,562	4.9	35,355	3.3
Other	52,251	3.3	41,061	3.8
Total	\$ 1,578,155	100.0	\$ 1,077,404	100.0

Net premiums written, irrespective of the class of business, are generally earned on a pro rata basis over the terms of the underlying policies or reinsurance contracts. Net premiums earned by the reinsurance segment in the 2020 third quarter were 52.4% higher than in the 2019 third quarter. For the nine months ended September 30, 2020, net premiums earned were 46.5% higher than in the 2019 period.

Other Underwriting Income (Loss).

Other underwriting income for the 2020 third quarter was \$0.3 million, compared to a loss of \$1.2 million for the 2019 third quarter, and income of \$1.8 million for the nine months ended September 30, 2020, compared to income of \$4.4 million for the 2019 period.

Losses and Loss Adjustment Expenses.

The table below shows the components of the reinsurance segment's loss ratio:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Current year	83.7 %	78.5 %	84.2 %	72.1 %
Prior period reserve development	(7.6) %	(4.2) %	(5.9)%	(2.4)%
Loss ratio	76.1 %	74.3 %	78.3 %	69.7 %

Current Year Loss Ratio.

2020 Third Quarter versus 2019 Period. The reinsurance segment's current year loss ratio in the 2020 third quarter was 5.2 points higher than in the 2019 third quarter. The 2020 third quarter loss ratio reflected 26.1 points of current year catastrophic activity, primarily related to Hurricanes Laura and Sally the Derecho Windstorm, including 1.5 points related to COVID-19. The 2019 third quarter included 12.2 points of catastrophic activity, primarily related to Hurricane Dorian and Typhoon Faxai.

Nine Months Ended September 30, 2020 versus 2019 Period. The reinsurance segment's current year loss ratio for the nine months ended September 30, 2020 was 12.1 points higher than in the 2019 period. The loss ratio for the nine months ended September 30, 2020 reflected 21.6 points of current year catastrophic activity, including 9.8 points for exposure related to COVID-19, compared to 5.3 points for the 2019 period. The balance of the change in the 2020 loss ratios resulted, in part, from changes in mix of business, the level of attritional losses and the effect of rate increases.

Prior Period Reserve Development.

The reinsurance segment's net favorable development was \$42.0 million, or 7.6 points, for the 2020 third quarter, compared to \$15.3 million, or 4.2 points, for the 2019 third quarter, and \$93.8 million, or 5.9 points, for the nine months ended September 30, 2020, compared to \$26.3 million, or 2.4 points, for the 2019 period. See [note 5, "Reserve for Losses and Loss Adjustment Expenses,"](#) to our consolidated financial statements for information about the reinsurance segment's prior year reserve development.

Underwriting Expenses.

2020 Third Quarter versus 2019 Period. The underwriting expense ratio for the reinsurance segment was 22.9% in the 2020 third quarter, compared to 26.0% in the 2019 third quarter, with the decrease primarily due to growth in net premiums earned.

Nine Months Ended September 30, 2020 versus 2019 Period. The underwriting expense ratio for the reinsurance segment was 24.2% for the nine months ended September 30, 2020, compared to 25.6% for the 2019 period, with the decrease primarily due to growth in net premiums earned.

Mortgage Segment

Our mortgage operations include U.S. and international mortgage insurance and reinsurance operations as well as participation in GSE credit risk-sharing transactions. Our mortgage group includes direct mortgage insurance in the U.S. primarily through Arch Mortgage Insurance Company and United Guaranty Residential Insurance Company (together, “Arch MI U.S.”), mortgage reinsurance by Arch Reinsurance Ltd. (“Arch Re Bermuda”) to mortgage insurers on both a proportional and non-proportional basis globally; direct mortgage insurance in Europe through Arch Insurance (EU) Designated Activity Company (“Arch Insurance EU”), in Hong Kong through Arch MI Asia Limited (“Arch MI Asia”); in Australia through Arch LMI Pty Ltd (“Arch LMI”); and participation in various GSE credit risk-sharing products primarily through Arch Re Bermuda.

The following tables set forth our mortgage segment’s underwriting results.

	Three Months Ended September 30,		
	2020	2019	% Change
Gross premiums written	\$ 346,248	\$ 375,092	(7.7)
Premiums ceded	(47,783)	(57,703)	
Net premiums written	298,465	317,389	(6.0)
Change in unearned premiums	52,944	25,611	
Net premiums earned	351,409	343,000	2.5
Other underwriting income	4,600	3,955	
Losses and loss adjustment expenses	(153,055)	(13,080)	
Acquisition expenses	(35,716)	(34,396)	
Other operating expenses	(36,708)	(37,003)	
Underwriting income	\$ 130,530	\$ 262,476	(50.3)

Underwriting Ratios		% Point Change	
Loss ratio	43.6 %	3.8 %	39.8
Acquisition expense ratio	10.2 %	10.0 %	0.2
Other operating expense ratio	10.4 %	10.8 %	(0.4)
Combined ratio	64.2 %	24.6 %	39.6

	Nine Months Ended September 30,		
	2020	2019	% Change
Gross premiums written	\$ 1,084,337	\$ 1,095,607	(1.0)
Premiums ceded	(136,154)	(149,358)	
Net premiums written	948,183	946,249	0.2
Change in unearned premiums	113,965	72,436	
Net premiums earned	1,062,148	1,018,685	4.3
Other underwriting income	15,649	11,867	
Losses and loss adjustment expenses	(444,721)	(50,226)	
Acquisition expenses	(108,304)	(98,722)	
Other operating expenses	(120,178)	(116,697)	
Underwriting income	\$ 404,594	\$ 764,907	(47.1)

Underwriting Ratios		% Point Change	
Loss ratio	41.9 %	4.9 %	37.0
Acquisition expense ratio	10.2 %	9.7 %	0.5
Other operating expense ratio	11.3 %	11.5 %	(0.2)
Combined ratio	63.4 %	26.1 %	37.3

Premiums Written.

The following tables set forth our mortgage segment’s net premiums written by underwriting location (*i.e.*, where the business is underwritten):

	Three Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
Underwriting location:				
United States	\$ 245,971	82.4	\$ 260,202	82.0
Other	52,494	17.6	57,187	18.0
Total	\$ 298,465	100.0	\$ 317,389	100.0

2020 Third Quarter versus 2019 Period. Gross premiums written by the mortgage segment in the 2020 third quarter were 7.7% lower than in the 2019 third quarter, while net premiums written were 6.0% lower, primarily reflecting a reduction in U.S. primary mortgage insurance in force due to mortgage refinance activity and a lower contribution from single premium policies. Net premiums written for the 2020 third quarter also reflected a lower level of ceded premiums on U.S. primary mortgage insurance business.

	Nine Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
Underwriting location:				
United States	\$ 771,203	81.3	\$ 774,356	81.8
Other	176,980	18.7	171,893	18.2
Total	\$ 948,183	100.0	\$ 946,249	100.0

Nine Months Ended September 30, 2020 versus 2019 Period. Gross premiums written by the mortgage segment for the nine months ended September 30, 2020 were 1.0% lower than in the 2019 period, while net premiums written for the nine months ended September 30, 2020 were 0.2% higher than in the 2019 period.

The persistency rate, which represents the percentage of mortgage insurance in force at the beginning of a 12-month period that remains in force at the end of such period, of which the Arch MI U.S. portfolio of mortgage insurance policies was 62.5% at September 30, 2020, reflecting the higher level of mortgage refinancing activity, compared to 75.7% at December 31, 2019.

The following tables provide details on the new insurance written (“NIW”) generated by Arch MI U.S. NIW represents the original principal balance of all loans that received coverage during the period.

(U.S. Dollars in millions)

	Three Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
Total new insurance written (NIW) (1)	\$ 32,787		\$ 25,313	
<u>Credit quality (FICO):</u>				
>=740	\$ 21,160	64.5	\$ 15,204	60.1
680-739	10,562	32.2	8,725	34.5
620-679	1,065	3.2	1,384	5.5
Total	\$ 32,787	100.0	\$ 25,313	100.0
<u>Loan-to-value (LTV):</u>				
95.01% and above	\$ 2,561	7.8	\$ 3,182	12.6
90.01% to 95.00%	13,967	42.6	10,409	41.1
85.01% to 90.00%	10,052	30.7	7,762	30.7
85.00% and below	6,207	18.9	3,960	15.6
Total	\$ 32,787	100.0	\$ 25,313	100.0
<u>Monthly vs. single:</u>				
Monthly	\$ 31,928	97.4	\$ 23,358	92.3
Single	859	2.6	1,955	7.7
Total	\$ 32,787	100.0	\$ 25,313	100.0
<u>Purchase vs. refinance:</u>				
Purchase	\$ 24,256	74.0	\$ 19,068	75.3
Refinance	8,531	26.0	6,245	24.7
Total	\$ 32,787	100.0	\$ 25,313	100.0

(1) Represents the original principal balance of all loans that received coverage during the period.

(U.S. Dollars in millions)

	Nine Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
Total new insurance written (NIW) (1)	\$ 74,116		\$ 53,681	
<u>Credit quality (FICO):</u>				
>=740	\$ 47,080	63.5	\$ 31,416	58.5
680-739	24,130	32.6	18,905	35.2
620-679	2,906	3.9	3,360	6.3
Total	\$ 74,116	100.0	\$ 53,681	100.0
<u>Loan-to-value (LTV):</u>				
95.01% and above	\$ 6,177	8.3	\$ 7,520	14.0
90.01% to 95.00%	30,569	41.2	22,881	42.6
85.01% to 90.00%	23,521	31.7	15,937	29.7
85.00% and below	13,849	18.7	7,343	13.7
Total	\$ 74,116	100.0	\$ 53,681	100.0
<u>Monthly vs. single:</u>				
Monthly	\$ 71,011	95.8	\$ 49,556	92.3
Single	3,105	4.2	4,125	7.7
Total	\$ 74,116	100.0	\$ 53,681	100.0
<u>Purchase vs. refinance:</u>				
Purchase	\$ 51,511	69.5	\$ 44,349	82.6
Refinance	22,605	30.5	9,332	17.4
Total	\$ 74,116	100.0	\$ 53,681	100.0

(1) Represents the original principal balance of all loans that received coverage during the period.

Net Premiums Earned.

The following tables set forth our mortgage segment’s net premiums earned by underwriting location:

	Three Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
<u>Underwriting location:</u>				
United States	\$ 290,451	82.7	\$ 287,064	83.7
Other	60,958	17.3	55,936	16.3
Total	\$ 351,409	100.0	\$ 343,000	100.0

2020 Third Quarter versus 2019 Period. Net premiums earned for the 2020 third quarter were 2.5% higher than in the 2019 third quarter, and reflected a higher level of single premiums earned as a result of policy terminations due to mortgage refinance activity, which more than offset the reduction in U.S. primary mortgage insurance in force noted above.

	Nine Months Ended September 30,			
	2020		2019	
	Amount	%	Amount	%
Underwriting location:				
United States	\$ 884,265	83.3	\$ 843,599	82.8
Other	177,883	16.7	175,086	17.2
Total	<u>\$ 1,062,148</u>	<u>100.0</u>	<u>\$ 1,018,685</u>	<u>100.0</u>

Nine Months Ended September 30, 2020 versus 2019 Period. Net premiums earned for the nine months ended September 30, 2020 were 4.3% higher than in the 2019 period, primarily reflecting a higher level of single premiums earned as a result of policy terminations due to mortgage refinance activity.

Other Underwriting Income.

Other underwriting income, which is primarily related to older GSE credit risk-sharing transactions receiving derivative accounting treatment and to a lesser extent contract underwriting fees, was \$4.6 million for the 2020 third quarter, compared to \$4.0 million for the 2019 third quarter.

Losses and Loss Adjustment Expenses.

The table below shows the components of the mortgage segment's loss ratio:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Current year	44.9 %	13.4 %	42.9 %	14.0 %
Prior period reserve development	(1.3)%	(9.6)%	(1.0)%	(9.1)%
Loss ratio	<u>43.6 %</u>	<u>3.8 %</u>	<u>41.9 %</u>	<u>4.9 %</u>

Current Year Loss Ratio.

2020 Third Quarter versus 2019 Period. The mortgage segment's current year loss ratio was 31.5 points higher in the 2020 third quarter than in the 2019 third quarter. The percentage of loans in default on U.S. primary mortgage business was 4.69% at September 30, 2020, compared to 1.48% at September 30, 2019. For U.S. primary mortgage insurance, loss reserving under GAAP is based on reported delinquencies.

Nine Months Ended September 30, 2020 versus 2019 Period. The mortgage segment's current year loss ratio was 28.9 points higher for the nine months ended September 30, 2020 than for the 2019 period.

Incurred losses for the 2020 periods reflected elevated delinquency rates due, in part, to financial stress from the COVID-19 pandemic. Segregating estimated losses due to COVID-19 from the overall mortgage segment estimated losses would require knowledge of the number of delinquencies specifically attributable to COVID-19. As this

exercise cannot be performed accurately, the Company is not reporting COVID-19 provisions separately from its overall loss provisions.

Prior Period Reserve Development.

The mortgage segment's net favorable development was \$4.5 million, or 1.3 points, for the 2020 third quarter, compared to \$33.0 million, or 9.6 points, for the 2019 third quarter, and \$10.8 million, or 1.0 points, for the nine months ended September 30, 2020, compared to \$92.5 million, or 9.1 points, for the 2019 period. See [note 5, "Reserve for Losses and Loss Adjustment Expenses,"](#) to our consolidated financial statements for information about the mortgage segment's prior year reserve development.

Underwriting Expenses.

2020 Third Quarter versus 2019 Period. The underwriting expense ratio for the mortgage segment was 20.6% in the 2020 third quarter, consistent with 20.8% in the 2019 third quarter.

Nine Months Ended September 30, 2020 versus 2019 Period. The underwriting expense ratio for the mortgage segment was 21.5% for the nine months ended September 30, 2020, consistent with 21.2% for the 2019 period.

Corporate (Non-Underwriting) Segment

The corporate (non-underwriting) segment results include net investment income, other income (loss), corporate expenses, transaction costs and other, amortization of intangible assets, interest expense, items related to our non-cumulative preferred shares, net realized gains or losses (which includes changes in the allowance for credit losses on financial assets and net impairment losses recognized in earnings), equity in net income or loss of investment funds accounted for using the equity method, net foreign exchange gains or losses and income taxes. Such amounts exclude the results of the 'other' segment.

Net Investment Income.

The components of net investment income were derived from the following sources:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Fixed maturities	\$ 84,608	\$ 109,953	\$ 277,862	\$ 331,939
Equity securities	6,659	3,581	18,312	9,321
Short-term investments	1,162	3,432	5,444	11,178
Other (1)	24,594	24,170	62,898	67,229
Gross investment income	117,023	141,136	364,516	419,667
Investment expenses (2)	(17,166)	(14,262)	(50,600)	(48,506)
Net investment income	\$ 99,857	\$ 126,874	\$ 313,916	\$ 371,161

- (1) Amounts include dividends and other distributions on investment funds, term loan investments, funds held balances, cash balances and other items.
- (2) Investment expenses were approximately 0.32% of average invested assets for the 2020 third quarter, consistent with 0.31% for the 2019 third quarter, and 0.31% for the nine months ended September 30, 2020, compared to 0.33% for the 2019 period.

The lower level of net investment income for the 2020 periods primarily related to lower yields available in the financial market. The pre-tax investment income yield, calculated based on amortized cost and on an annualized basis, was 1.76% for the 2020 third quarter, compared to 2.58% for the 2019 third quarter, and 1.94% for the nine months ended September 30, 2020, compared to 2.62% for the 2019 period.

Corporate Expenses.

Corporate expenses were \$16.3 million for the 2020 third quarter, compared to \$15.1 million for the 2019 third quarter, and \$51.4 million for the nine months ended September 30, 2020, compared to \$47.9 million for the 2019 period. The increase in corporate expenses primarily reflected higher professional fees and other costs.

Transaction Costs and Other.

Transaction costs and other were \$1.7 million for the 2020 third quarter, compared to \$2.0 million for the 2019 third quarter, and \$5.2 million for the nine months ended September 30, 2020, consistent with \$5.4 million for the 2019 period. Amounts in the 2020 period are primarily related to recent acquisition activity.

Amortization of Intangible Assets.

Amortization of intangible assets for the 2020 third quarter was \$16.7 million, compared to \$20.0 million for the 2019 third quarter, and \$49.8 million for the nine months ended

September 30, 2020, compared to \$60.2 million for the 2019 period. Such expenses are primarily related to the UGC acquisition and other acquisitions in late 2018 to 2019. See the consolidated financial statements contained in our 2019 Form 10-K for disclosures on our amortization pattern.

Interest Expense.

Interest expense was \$36.2 million for the 2020 third quarter, compared to the \$23.2 million for the 2019 third quarter and \$86.6 million for the nine months ended September 30, 2020, compared to \$70.1 million for the 2019 period. The higher level of interest expense mainly resulted from the issuance of \$1.0 billion of 3.635% senior notes in June 2020. The increase in the 2020 period also reflected an increase in interest expense related to funds held liabilities.

Net Realized Gains or Losses.

We recorded net realized gains of \$211.0 million for the 2020 third quarter, compared to net realized gains of \$80.0 million for the 2019 third quarter, and net realized gains of \$524.0 million for the nine months ended September 30, 2020, compared to net realized gains of \$316.2 million for the 2019 period. Currently, our portfolio is actively managed to maximize total return within certain guidelines. The effect of financial market movements on the investment portfolio will directly impact net realized gains and losses as the portfolio is adjusted and rebalanced. Net realized gains or losses from the sale of fixed maturities primarily results from our decisions to reduce credit exposure, to change duration targets, to rebalance our portfolios or due to relative value determinations.

Net realized gains or losses also include realized and unrealized contract gains and losses on our derivative instruments, changes in the fair value of assets accounted for using the fair value option and in the fair value of equities, along with changes in the allowance for credit losses on financial assets and net impairment losses recognized in earnings. See [note 7, "Investment Information—Net Realized Gains \(Losses\)."](#) to our consolidated financial statements for additional information. See [note 7, "Investment Information—Allowance for Credit Losses."](#) to our consolidated financial statements for additional information.

Equity in Net Income (Loss) of Investment Funds Accounted for Using the Equity Method.

We recorded \$126.7 million of equity in net income related to investment funds accounted for using the equity method in the 2020 third quarter, compared to \$17.1 million of income for the 2019 third quarter, and \$57.4 million of income for the nine months ended September 30, 2020, compared to \$96.5 million for the 2019 period. Such investments are generally recorded on a one to three month lag based on the availability of reports from the investment funds. Investment

funds accounted for using the equity method totaled \$1.88 billion at September 30, 2020, compared to \$1.66 billion at December 31, 2019. See [note 7, “Investment Information—Investments Accounted For Using the Equity Method,”](#) to our consolidated financial statements for additional information.

Net Foreign Exchange Gains or Losses.

Net foreign exchange losses for the 2020 third quarter were \$38.7 million, compared to net foreign exchange gains for the 2019 third quarter of \$29.8 million. Net foreign exchange losses for the nine months ended September 30, 2020 were \$17.8 million, compared to net foreign exchange gains for the 2019 period of \$28.8 million. Amounts in both periods were primarily unrealized and resulted from the effects of revaluing our net insurance liabilities required to be settled in foreign currencies at each balance sheet date.

Income Tax Expense.

Our income tax provision on income (loss) before income taxes resulted in an expense of 5.4% for the 2020 third quarter, compared to 8.9% for the 2019 third quarter and 8.3% for the nine months ended September 30, 2020, compared to 9.0% for the 2019 period. Such amounts exclude the results of the ‘other’ segment. Our effective tax rate, which is based upon the expected annual effective tax rate, may fluctuate from period to period based on the relative mix of income or loss reported by jurisdiction and the varying tax rates in each jurisdiction.

Other Segment

The ‘other’ segment includes the results of Watford. Pursuant to generally accepted accounting principles, Watford is considered a variable interest entity and we concluded that we are the primary beneficiary of Watford. As such, we consolidate the results of Watford in our consolidated financial statements, although we only own approximately 13% of Watford’s common equity. See [note 11, “Variable Interest Entities and Noncontrolling Interests,”](#) and [note 4, “Segment Information,”](#) to our consolidated financial statements for additional information on Watford.

CRITICAL ACCOUNTING POLICIES, ESTIMATES AND RECENT ACCOUNTING PRONOUNCEMENTS

Critical accounting policies, estimates and recent accounting pronouncements are discussed in Management’s Discussion and Analysis of Financial Condition and Results of Operations contained in our 2019 Form 10-K, updated where applicable in the notes accompanying our consolidated financial statements, including [note 1, “Basis of Presentation and Recent Accounting Pronouncements.”](#)

FINANCIAL CONDITION

Investable Assets

At September 30, 2020, total investable assets held by Arch were \$25.7 billion, excluding the \$2.7 billion included in the ‘other’ segment (*i.e.*, attributable to Watford).

Investable Assets Held by Arch

The following table summarizes the fair value of the investable assets held by Arch:

Investable assets (1):	Estimated Fair Value	% of Total
September 30, 2020		
Fixed maturities (2)	\$ 18,294,480	71.1
Short-term investments (2)	2,157,410	8.4
Cash	781,065	3.0
Equity securities (2)	1,479,702	5.8
Other investments (2)	1,276,867	5.0
Investments accounted for using the equity method	1,883,702	7.3
Securities transactions entered into but not settled at the balance sheet date	(148,725)	(0.6)
Total investable assets held by Arch	\$ 25,724,501	100.0
Average effective duration (in years)	3.21	
Average S&P/Moody’s credit ratings (3)	AA/Aa2	
Embedded book yield (4)	1.71 %	
December 31, 2019		
Fixed maturities (2)	\$ 16,894,021	75.8
Short-term investments (2)	1,004,257	4.5
Cash	623,793	2.8
Equity securities (2)	827,842	3.7
Other investments (2)	1,336,920	6.0
Investments accounted for using the equity method	1,660,396	7.5
Securities transactions entered into but not settled at the balance sheet date	(61,553)	(0.3)
Total investable assets held by Arch	\$ 22,285,676	100.0
Average effective duration (in years)	3.40	
Average S&P/Moody’s credit ratings (3)	AA/Aa2	
Embedded book yield (4)	2.55 %	

- (1) In securities lending transactions, we receive collateral in excess of the fair value of the securities pledged. For purposes of this table, we have excluded the collateral received under securities lending, at fair value and included the securities pledged under securities lending, at fair value.
- (2) Includes investments carried at fair value under the fair value option.
- (3) Average credit ratings on our investment portfolio on securities with ratings by Standard & Poor’s Rating Services (“S&P”) and Moody’s Investors Service (“Moody’s”).
- (4) Before investment expenses.

At September 30, 2020, approximately \$18.7 billion, or 72.8%, of total investable assets held by Arch were internally managed, compared to \$15.8 billion, or 70.9%, at December 31, 2019.

The following table summarizes our fixed maturities and fixed maturities pledged under securities lending agreements (“Fixed Maturities”) by type:

	Estimated Fair Value	% of Total
September 30, 2020		
Corporate bonds	\$ 8,137,582	44.5
Residential mortgage backed securities	703,393	3.8
Municipal bonds	525,617	2.9
Commercial mortgage backed securities	375,510	2.1
U.S. government and government agencies	4,662,260	25.5
Non-U.S. government securities	2,196,827	12.0
Asset backed securities	1,693,291	9.3
Total	\$ 18,294,480	100.0
December 31, 2019		
Corporate bonds	\$ 6,561,354	38.8
Residential mortgage backed securities	541,800	3.2
Municipal bonds	880,119	5.2
Commercial mortgage backed securities	734,244	4.3
U.S. government and government agencies	4,632,947	27.4
Non-U.S. government securities	1,995,813	11.8
Asset backed securities	1,547,744	9.2
Total	\$ 16,894,021	100.0

The following table provides the credit quality distribution of our Fixed Maturities. For individual fixed maturities, S&P ratings are used. In the absence of an S&P rating, ratings from Moody’s are used, followed by ratings from Fitch Ratings.

	Estimated Fair Value	% of Total
September 30, 2020		
U.S. government and gov’t agencies (1)	\$ 5,360,798	29.3
AAA	3,352,902	18.3
AA	2,087,245	11.4
A	3,895,053	21.3
BBB	2,542,233	13.9
BB	504,570	2.8
B	231,774	1.3
Lower than B	54,118	0.3
Not rated	265,787	1.5
Total	\$ 18,294,480	100.0
December 31, 2019		
U.S. government and gov’t agencies (1)	\$ 5,215,489	30.9
AAA	3,392,341	20.1
AA	2,115,828	12.5
A	3,849,458	22.8
BBB	1,495,467	8.9
BB	355,803	2.1
B	216,663	1.3
Lower than B	56,865	0.3
Not rated	196,107	1.2
Total	\$ 16,894,021	100.0

(1) Includes U.S. government-sponsored agency residential mortgage-backed securities and agency commercial mortgage-backed securities.

The following table provides information on the severity of the unrealized loss position as a percentage of amortized cost for all Fixed Maturities which were in an unrealized loss position:

Severity of gross unrealized losses:	Estimated Fair Value	Gross Unrealized Losses	% of Total Gross Unrealized Losses
September 30, 2020			
0-10%	\$ 4,535,833	\$ (62,221)	78.3
10-20%	58,233	(10,279)	12.9
20-30%	9,417	(2,839)	3.6
Greater than 30%	3,132	(4,079)	5.1
Total	\$ 4,606,615	\$ (79,418)	100.0
December 31, 2019			
0-10%	\$ 4,136,798	\$ (49,072)	95.3
10-20%	12,405	(1,796)	3.5
20-30%	830	(273)	0.5
Greater than 30%	315	(363)	0.7
Total	\$ 4,150,348	\$ (51,504)	100.0

The following table summarizes our top ten exposures to fixed income corporate issuers by fair value at September 30, 2020, excluding guaranteed amounts and covered bonds:

	Estimated Fair Value	Credit Rating (1)
Bank of America Corporation	\$ 320,603	A-/A2
Wells Fargo & Company	259,752	BBB+/A2
Nestlé S.A.	228,219	AA-/Aa3
JPMorgan Chase & Co.	227,543	A-/A2
Johnson & Johnson	220,521	AAA/Aaa
Apple Inc.	169,793	AA+/Aa1
Citigroup Inc.	145,195	BBB+/A3
Morgan Stanley	134,680	BBB+/A3
Comcast Corporation	120,210	A-/A3
BP p.l.c.	120,177	A-/A1
Total	\$ 1,946,693	

(1) Average credit ratings as assigned by S&P and Moody’s, respectively.

The following table provides information on our structured securities, which includes residential mortgage-backed securities (“RMBS”), commercial mortgage-backed securities (“CMBS”) and asset-backed securities (“ABS”):

	Agencies	Investment Grade	Below Investment Grade	Total
Sep 30, 2020				
RMBS	\$ 669,672	\$ 4,371	\$ 29,350	\$ 703,393
CMBS	28,865	326,774	19,871	375,510
ABS	—	1,579,166	114,125	1,693,291
Total	\$ 698,537	\$ 1,910,311	\$ 163,346	\$ 2,772,194
Dec 31, 2019				
RMBS	\$ 503,929	\$ 7,770	\$ 30,101	\$ 541,800
CMBS	78,612	629,424	26,208	734,244
ABS	—	1,483,449	64,295	1,547,744
Total	\$ 582,541	\$ 2,120,643	\$ 120,604	\$ 2,823,788

The following table summarizes our equity securities, which include investments in exchange traded funds:

	September 30, 2020	December 31, 2019
Equities (1)	\$ 494,159	\$ 375,067
Exchange traded funds		
Fixed income (2)	602,133	7,237
Equity and other (3)	383,410	445,538
Total	\$ 1,479,702	\$ 827,842

- (1) Primarily in consumer non-cyclical, consumer cyclical, technology, communications and financial stocks at September 30, 2020.
- (2) Primarily in corporate, MBS and municipal strategies at September 30, 2020.
- (3) Primarily in utilities, large cap stocks and foreign equities at September 30, 2020.

The following table summarizes our other investments, which are included in investments accounted for using the fair value option, by strategy:

	September 30, 2020	December 31, 2019
Lending	\$ 575,623	\$ 602,841
Term loan investments	309,496	264,083
Energy	65,330	97,402
Credit related funds	98,121	123,020
Investment grade fixed income	114,784	151,594
Infrastructure	60,579	61,786
Private equity	34,983	18,915
Real estate	17,951	17,279
Total	\$ 1,276,867	\$ 1,336,920

For details on our investments accounted for using the equity method, see [note 7, “Investment Information—Investments Accounted For Using the Equity Method.”](#) to our consolidated financial statements.

Our investment strategy allows for the use of derivative instruments. We utilize various derivative instruments such as futures contracts to enhance investment performance, replicate investment positions or manage market exposures and duration risk that would be allowed under our investment guidelines if implemented in other ways. See [note 9, “Derivative Instruments.”](#) to our consolidated financial statements for additional disclosures related to derivatives.

Accounting guidance regarding fair value measurements addresses how companies should measure fair value when they are required to use a fair value measure for recognition or disclosure purposes under GAAP and provides a common definition of fair value to be used throughout GAAP. See [note 8, “Fair Value.”](#) to our consolidated financial statements for a summary of our financial assets and liabilities measured at fair value, segregated by level in the fair value hierarchy.

Investable Assets in the ‘Other’ Segment

Investable assets in the ‘other’ segment are managed by Watford. The board of directors of Watford establishes its investment policies and guidelines. A significant amount of Watford’s investments are accounted for using the fair value option with changes in the carrying value of such investments recorded in net realized gains or losses.

The following table summarizes investable assets in the ‘other’ segment:

	September 30, 2020	December 31, 2019
Investments accounted for using the fair value option:		
Other investments	\$ 893,030	\$ 1,092,396
Fixed maturities	632,664	416,592
Short-term investments	350,391	329,303
Equity securities	60,951	59,799
Total	1,937,036	1,898,090
Fixed maturities available for sale, at fair value	608,022	706,875
Equity securities, at fair value	52,807	65,337
Cash	195,333	102,437
Securities sold but not yet purchased	(24,909)	(66,257)
Securities transactions entered into but not settled at the balance sheet date	(74,837)	(1,893)
Total investable assets included in ‘other’ segment	\$ 2,693,452	\$ 2,704,589

Reinsurance

The effects of reinsurance on written and earned premiums and losses and loss adjustment expenses (“LAE”) with unaffiliated reinsurers were as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Premiums written:				
Direct	\$ 1,667,449	\$ 1,438,943	\$ 4,841,874	\$ 4,176,274
Assumed	1,013,583	742,178	2,989,680	2,020,535
Ceded	(806,888)	(567,664)	(2,151,853)	(1,613,195)
Net	<u>\$ 1,874,144</u>	<u>\$ 1,613,457</u>	<u>\$ 5,679,701</u>	<u>\$ 4,583,614</u>
Premiums earned:				
Direct	\$ 1,618,583	\$ 1,375,384	\$ 4,723,630	\$ 3,977,005
Assumed	880,024	593,129	2,387,286	1,701,307
Ceded	(727,515)	(530,490)	(1,930,026)	(1,407,696)
Net	<u>\$ 1,771,092</u>	<u>\$ 1,438,023</u>	<u>\$ 5,180,890</u>	<u>\$ 4,270,616</u>
Losses and LAE:				
Direct	\$ 1,131,696	\$ 741,871	\$ 3,279,737	\$ 2,063,168
Assumed	635,199	366,904	1,689,176	1,093,541
Ceded	(550,622)	(306,320)	(1,406,699)	(868,179)
Net	<u>\$ 1,216,273</u>	<u>\$ 802,455</u>	<u>\$ 3,562,214</u>	<u>\$ 2,288,530</u>

See [note 6, “Allowance for Expected Credit Losses.”](#) to our consolidated financial statements for information about our reinsurance recoverables and related allowance for credit losses.

Bellemeade Re

We have entered into various aggregate excess of loss mortgage reinsurance agreements with various special purpose reinsurance companies domiciled in Bermuda (the “Bellemeade Agreements”). For the respective coverage periods, we will retain the first layer of the respective aggregate losses and the special purpose reinsurance companies will provide second layer coverage up to the outstanding coverage amount. We will then retain losses in excess of the outstanding coverage limit. The aggregate excess of loss reinsurance coverage generally decreases over a ten-year period as the underlying covered mortgages amortize, unless provisional call options embedded within certain of the Bellemeade Agreements are executed or if pre-defined delinquency triggering events occur.

The following table summarizes the respective coverages and retentions at September 30, 2020:

	Initial Coverage at Issuance	September 30, 2020	
		Current Coverage	Remaining Retention, Net
Bellemeade 2017-1 Ltd. (1)	\$ 368,114	\$ 145,573	\$ 130,138
Bellemeade 2018-1 Ltd. (2)	374,460	250,095	129,515
Bellemeade 2018-2 Ltd. (3)	653,278	187,362	308,439
Bellemeade 2018-3 Ltd. (4)	506,110	302,563	137,695
Bellemeade 2019-1 Ltd. (5)	341,790	219,256	133,014
Bellemeade 2019-2 Ltd. (6)	621,022	398,316	173,083
Bellemeade 2019-3 Ltd. (7)	700,920	528,084	185,645
Bellemeade 2019-4 Ltd. (8)	577,267	468,737	124,732
Bellemeade 2020-1 Ltd. (9)	528,540	473,817	763,650
Bellemeade 2020-2 Ltd. (10)	449,167	449,167	246,055
Total	<u>\$ 5,120,668</u>	<u>\$ 3,422,970</u>	<u>\$ 2,331,966</u>

- Issued in October 2017, covering in-force policies issued between January 1, 2017 and June 30, 2017.
- Issued in April 2018, covering in-force policies issued between July 1, 2017 and December 31, 2017.
- Issued in August 2018, covering in-force policies issued between April 1, 2013 and December 31, 2015.
- Issued in October 2018, covering in-force policies issued between January 1, 2018 and June 30, 2018.
- Issued in March 2019, covering in-force policies primarily issued between 2005-2008 under United Guaranty Residential Insurance Company (“UGRIC”); as well as policies issued through 2015 under both UGRIC and Arch Mortgage Insurance Company.
- Issued in April 2019, covering in-force policies issued between July 1, 2018 and December 31, 2018.
- Issued in July 2019, covering in-force policies issued in 2016.
- Issued in October 2019, covering in-force policies issued between January 1, 2019 and June 30, 2019.
- Issued in June 2020, covering in-force policies issued between July 1, 2019 and December 31, 2019. \$450 million was directly funded by Bellemeade 2020-1 Ltd. with an additional \$79 million of capacity provided directly to Arch MI U.S. by a separate panel of reinsurers.
- Issued in September 2020, covering in-force policies issued between January 1, 2020 and May 31, 2020. \$423 million was directly funded by Bellemeade 2020-2 Ltd. with an additional \$26 million of capacity provided directly to Arch MI U.S. by a separate panel of reinsurers.

Reserve for Losses and Loss Adjustment Expenses

We establish reserve for losses and loss adjustment expenses (“Loss Reserves”) which represent estimates involving actuarial and statistical projections, at a given point in time, of our expectations of the ultimate settlement and administration costs of losses incurred. Estimating Loss Reserves is inherently difficult. We utilize actuarial models as well as available historical insurance industry loss ratio experience and loss development patterns to assist in the establishment of Loss Reserves. Actual losses and loss adjustment expenses paid will deviate, perhaps substantially, from the reserve estimates reflected in our financial statements.

At September 30, 2020 and December 31, 2019, our Loss Reserves, net of unpaid losses and loss adjustment expenses recoverable, by type and by operating segment were as follows:

	September 30, 2020	December 31, 2019
Insurance segment:		
Case reserves	\$ 1,755,511	\$ 1,601,627
IBNR reserves	3,840,659	3,403,051
Total net reserves	5,596,170	5,004,678
Reinsurance segment:		
Case reserves	1,444,823	1,273,523
Additional case reserves	290,983	166,251
IBNR reserves	2,175,367	1,835,993
Total net reserves	3,911,173	3,275,767
Mortgage segment:		
Case reserves	546,425	266,030
IBNR reserves	272,381	157,712
Total net reserves (1)	818,806	423,742
Other segment:		
Case reserves	515,358	478,036
Additional case reserves	32,931	29,059
IBNR reserves	642,450	597,910
Total net reserves	1,190,739	1,105,005
Total:		
Case reserves	4,262,117	3,619,216
Additional case reserves	323,914	195,310
IBNR reserves	6,930,857	5,994,666
Total net reserves	\$ 11,516,888	\$ 9,809,192

- (1) At September 30, 2020, total net reserves include \$593.2 million from U.S. primary mortgage insurance business, of which 27.8% represents policy years 2010 and prior and the remainder from later policy years. At December 31, 2019, total net reserves include \$278.7 million from U.S. primary mortgage insurance business, of which 58.2% represents policy years 2010 and prior and the remainder from later policy years.

At September 30, 2020 and December 31, 2019, the insurance segment's Loss Reserves by major line of business, net of unpaid losses and loss adjustment expenses recoverable, were as follows:

	September 30, 2020	December 31, 2019
Insurance segment:		
Professional lines (1)	\$ 1,439,717	\$ 1,322,969
Construction and national accounts	1,352,674	1,248,750
Excess and surplus casualty (2)	665,666	564,254
Programs	663,465	571,926
Property, energy, marine and aviation	469,450	371,822
Travel, accident and health	115,116	109,613
Lenders products	38,190	28,233
Other (3)	851,892	787,111
Total net reserves	\$ 5,596,170	\$ 5,004,678

- (1) Includes professional liability, executive assurance and healthcare business.
(2) Includes casualty and contract binding business.
(3) Includes alternative markets, excess workers' compensation and surety business.

At September 30, 2020 and December 31, 2019, the reinsurance segment's Loss Reserves by major line of business, net of unpaid losses and loss adjustment expenses recoverable, were as follows:

	September 30, 2020	December 31, 2019
Reinsurance segment:		
Casualty (1)	\$ 1,920,125	\$ 1,796,073
Other specialty (2)	860,154	649,309
Property excluding property catastrophe	585,110	471,775
Marine and aviation	190,955	160,930
Property catastrophe	250,602	113,565
Other (3)	104,227	84,115
Total net reserves	\$ 3,911,173	\$ 3,275,767

- (1) Includes executive assurance, professional liability, workers' compensation, excess motor, healthcare and other.
(2) Includes non-excess motor, surety, accident and health, workers' compensation catastrophe, agriculture, trade credit and other.
(3) Includes life, casualty clash and other.

Mortgage Operations Supplemental Information

The mortgage segment's insurance in force ("IIF") and risk in force ("RIF") were as follows at September 30, 2020 and December 31, 2019:

(U.S. Dollars in millions)	September 30, 2020		December 31, 2019	
	Amount	%	Amount	%
Insurance In Force (IIF) (1):				
U.S. primary mortgage insurance	\$ 275,846	66.8	\$ 287,150	68.7
Mortgage reinsurance	28,421	6.9	26,768	6.4
Other (2)	108,786	26.3	104,346	24.9
Total	\$ 413,053	100.0	\$ 418,264	100.0
Risk In Force (RIF) (3):				
U.S. primary mortgage insurance	\$ 69,620	91.0	\$ 73,388	91.9
Mortgage reinsurance	2,145	2.8	2,129	2.7
Other (2)	4,750	6.2	4,380	5.5
Total	\$ 76,515	100.0	\$ 79,897	100.0

- (1) Represents the aggregate dollar amount of each insured mortgage loan's current principal balance.
(2) Includes GSE credit risk-sharing transactions and international insurance business.
(3) Represents the aggregate dollar amount of each insured mortgage loan's current principal balance multiplied by the insurance coverage percentage specified in the policy for insurance policies issued and after contract limits and/or loss ratio caps for credit risk-sharing or reinsurance transactions.

The insurance in force and risk in force for our U.S. primary mortgage insurance business by policy year were as follows at September 30, 2020:

(U.S. Dollars in millions)	IIF		RIF		Delinquency Rate (1)
	Amount	%	Amount	%	
Policy year:					
2010 and prior	\$ 14,603	5.3	\$ 3,320	4.8	11.59 %
2011	1,141	0.4	308	0.4	3.67 %
2012	4,467	1.6	1,228	1.8	2.92 %
2013	8,754	3.2	2,447	3.5	3.37 %
2014	9,613	3.5	2,647	3.8	4.02 %
2015	17,752	6.4	4,778	6.9	3.79 %
2016	29,299	10.6	7,753	11.1	4.89 %
2017	29,537	10.7	7,639	11.0	5.52 %
2018	32,788	11.9	8,304	11.9	6.66 %
2019	56,189	20.4	13,900	20.0	4.68 %
2020	71,703	26.0	17,296	24.8	1.01 %
Total	\$ 275,846	100.0	\$ 69,620	100.0	4.69 %

(1) Represents the ending percentage of loans in default.

The insurance in force and risk in force for our U.S. primary mortgage insurance business by policy year were as follows at December 31, 2019:

(U.S. Dollars in millions)	IIF		RIF		Delinquency Rate (1)
	Amount	%	Amount	%	
Policy year:					
2010 and prior	\$ 17,251	6.0	\$ 3,990	5.4	8.79 %
2011	1,678	0.6	464	0.6	1.59 %
2012	6,293	2.2	1,753	2.4	0.89 %
2013	12,276	4.3	3,433	4.7	0.99 %
2014	13,714	4.8	3,778	5.1	1.16 %
2015	25,788	9.0	6,880	9.4	0.87 %
2016	40,898	14.2	10,670	14.5	1.03 %
2017	43,896	15.3	11,262	15.3	1.00 %
2018	51,776	18.0	13,086	17.8	0.86 %
2019	73,580	25.6	18,072	24.6	0.14 %
Total	\$ 287,150	100.0	\$ 73,388	100.0	1.54 %

(1) Represents the ending percentage of loans in default.

The following tables provide supplemental disclosures on risk in force for our U.S. primary mortgage insurance business at September 30, 2020 and December 31, 2019:

(U.S. Dollars in millions)	September 30, 2020		December 31, 2019	
	Amount	%	Amount	%
Credit quality (FICO):				
>=740	\$ 40,017	57.5	\$ 42,301	57.6
680-739	24,236	34.8	25,240	34.4
620-679	5,016	7.2	5,444	7.4
<620	351	0.5	403	0.5
Total	\$ 69,620	100.0	\$ 73,388	100.0
Weighted average FICO score	743		743	
Loan-to-value (LTV):				
95.01% and above	\$ 8,789	12.6	\$ 9,064	12.4
90.01% to 95.00%	37,278	53.5	40,136	54.7
85.01% to 90.00%	19,870	28.5	20,890	28.5
85.00% and below	3,683	5.3	3,298	4.5
Total	\$ 69,620	100.0	\$ 73,388	100.0
Weighted average LTV	92.9 %		93.0 %	
Total RIF, net of external reinsurance	\$ 56,067		\$ 58,512	

(U.S. Dollars in millions)	September 30, 2020		December 31, 2019	
	Amount	%	Amount	%
Total RIF by State:				
Texas	\$ 5,536	8.0	\$ 5,678	7.7
California	5,019	7.2	5,187	7.1
Florida	3,648	5.2	3,887	5.3
Georgia	2,890	4.2	2,753	3.8
Illinois	2,670	3.8	2,616	3.6
Virginia	2,540	3.6	2,881	3.9
North Carolina	2,516	3.6	2,470	3.4
Minnesota	2,489	3.6	2,514	3.4
Massachusetts	2,344	3.4	2,432	3.3
Washington	2,222	3.2	2,474	3.4
Other	37,746	54.2	40,496	55.2
Total	\$ 69,620	100.0	\$ 73,388	100.0

The following table provides supplemental disclosures for our U.S. primary mortgage insurance business related to insured loans and loss metrics:

(U.S. Dollars in thousands, except policy, loan and claim count)	Nine Months Ended September 30,	
	2020	2019
Roll-forward of insured loans in default:		
Beginning delinquent number of loans	20,163	20,665
New notices	87,760	28,728
Cures	(48,234)	(27,877)
Paid claims	(1,327)	(2,273)
Ending delinquent number of loans (1)	58,362	19,243
Ending number of policies in force (1)	1,245,408	1,304,263
Delinquency rate (1)	4.69 %	1.48 %
Losses:		
Number of claims paid	1,327	2,273
Total paid claims	\$ 55,559	\$ 91,601
Average per claim	\$ 41.9	\$ 40.3
Severity (2)	93.3 %	96.6 %
Average case reserve per default (in thousands)	\$ 10.1	\$ 14.7

(1) Includes first lien primary and pool policies.

(2) Represents total paid claims divided by RIF of loans for which claims were paid.

The risk-to-capital ratio, which represents total current (non-delinquent) risk in force, net of reinsurance, divided by total statutory capital, for Arch MI U.S. was approximately 9.6 to 1 at September 30, 2020, compared to 12.0 to 1 at December 31, 2019.

Shareholders' Equity and Book Value per Share

Total shareholders' equity available to Arch was \$12.5 billion at September 30, 2020, compared to \$11.5 billion at December 31, 2019. The increase primarily reflected the impact of investment returns, partially offset by the impact of a higher level of catastrophic activity (including COVID-19) on underwriting returns.

The following table presents the calculation of book value per share:

(U.S. dollars in thousands, except share data)	September 30, 2020	December 31, 2019
Total shareholders' equity available to Arch	\$ 12,451,997	\$ 11,497,371
Less preferred shareholders' equity	780,000	780,000
Common shareholders' equity available to Arch	\$ 11,671,997	\$ 10,717,371
Common shares and common share equivalents outstanding, net of treasury shares (1)	406,018,958	405,619,201
Book value per share	\$ 28.75	\$ 26.42

(1) Excludes the effects of 17,967,735 and 18,853,018 stock options and 1,064,759 and 1,586,779 restricted stock units outstanding at September 30, 2020 and December 31, 2019, respectively.

LIQUIDITY

Our liquidity and capital resources were not materially impacted by COVID-19 during the third quarter of 2020. We raised an additional \$1.0 billion of capital in the form of long-term senior notes at the end of June 2020. For further discussion of the risks related to our potential future impacts of COVID-19 on our liquidity and capital resources, see ["ITEM 1A—Risk Factors"](#).

This section does not include information specific to Watford. We do not guarantee or provide credit support for Watford, and our financial exposure to Watford is limited to our investment in Watford's senior notes, common and preferred shares and counterparty credit risk (mitigated by collateral) arising from reinsurance transactions with Watford.

Liquidity is a measure of our ability to access sufficient cash flows to meet the short-term and long-term cash requirements of our business operations.

Arch Capital is a holding company whose assets primarily consist of the shares in its subsidiaries. Generally, Arch Capital depends on its available cash resources, liquid investments and dividends or other distributions from its subsidiaries to make payments, including the payment of debt service obligations and operating expenses it may incur and any dividends or liquidation amounts with respect to our preferred and common shares.

For the nine months ended September 30, 2020, Arch Capital received dividends of \$163.7 million from Arch Re Bermuda, our Bermuda-based reinsurer and insurer, which can pay approximately \$2.9 billion to Arch Capital during the remainder of 2020 without providing an affidavit to the Bermuda Monetary Authority ("BMA").

We expect that our liquidity needs, including our anticipated (re)insurance obligations and operating and capital expenditure needs, for the next twelve months, will be met by funds generated from underwriting activities and investment income, as well as by our balance of cash, short-term investments, proceeds on the sale or maturity of our investments, and our credit facilities.

Cash Flows

The following table summarizes our cash flows from operating, investing and financing activities, excluding amounts related to the ‘other’ segment (*i.e.*, Watford). See [note 11, “Variable Interest Entities and Noncontrolling Interests.”](#) for cash flows related to Watford.

	Nine Months Ended September 30,	
	2020	2019
Total cash provided by (used for):		
Operating activities	\$ 2,198,037	\$ 1,366,762
Investing activities	(2,850,392)	(1,093,054)
Financing activities	845,612	(45,757)
Effects of exchange rate changes on foreign currency cash	(2,878)	(6,981)
Increase (decrease) in cash and restricted cash	\$ 190,379	\$ 220,970

- Cash provided by operating activities for the nine months ended September 30, 2020 reflected a higher level of premiums collected than in the 2019 period.
- Cash used for investing activities for the nine months ended September 30, 2020 was higher than in the 2019 period, reflecting a higher level of securities purchased, and the investing of proceeds from our issuance of senior notes.
- Cash provided by financing activities for the nine months ended September 30, 2020, primarily reflected the issuance of \$1.0 billion of senior notes. Cash flows also reflected \$75.5 million of repurchases under our share repurchase program.

CAPITAL RESOURCES

This section does not include information specific to Watford. We do not guarantee or provide credit support for Watford, and our financial exposure to Watford is limited to our investment in Watford’s senior notes, common and preferred shares and counterparty credit risk (mitigated by collateral) arising from reinsurance transactions with Watford.

The following table provides an analysis of our capital structure:

(U.S. dollars in thousands, except share data)	Sep 30, 2020	Dec 31, 2019
Senior notes	\$ 2,723,189	\$ 1,734,209
Shareholders’ equity available to Arch:		
Series E non-cumulative preferred shares	\$ 450,000	\$ 450,000
Series F non-cumulative preferred shares	330,000	330,000
Common shareholders’ equity	11,671,997	10,717,371
Total	\$ 12,451,997	\$ 11,497,371
Total capital available to Arch	\$ 15,175,186	\$ 13,231,580
Debt to total capital (%)	17.9	13.1
Preferred to total capital (%)	5.1	5.9
Debt and preferred to total capital (%)	23.1	19.0

On June 30, 2020, Arch Capital issued \$1.0 billion of 30 year senior notes. The net proceeds of the offering were contributed to Arch Re Bermuda to support our underwriting operations.

Arch MI U.S. is required to maintain compliance with the GSEs requirements, known as the Private Mortgage Insurer Eligibility Requirements or “PMIERs.” The financial requirements require an eligible mortgage insurer’s available assets, which generally include only the most liquid assets of an insurer, to meet or exceed “minimum required assets” as of each quarter end. Minimum required assets are calculated from PMIERs tables with several risk dimensions (including origination year, original loan-to-value and original credit score of performing loans, and the delinquency status of non-performing loans) and are subject to a minimum amount. Arch MI U.S. satisfied the PMIERs’ financial requirements as of September 30, 2020 with an estimated PMIER sufficiency ratio of 158%, compared to 161% at December 31, 2019.

Arch Capital, through its subsidiaries, provides financial support to certain of its insurance subsidiaries and affiliates, through certain reinsurance arrangements beneficial to the ratings of such subsidiaries. Historically, our insurance, reinsurance and mortgage insurance subsidiaries have entered into separate reinsurance arrangements with Arch Re Bermuda covering individual lines of business. The reinsurance agreements between our U.S.-based property casualty insurance and reinsurance subsidiaries and Arch Re Bermuda were canceled on a cutoff basis as of January 1, 2018. In 2019, certain reinsurance agreements between our insurance subsidiaries and Arch Re Bermuda were reinstated.

GUARANTOR INFORMATION

The below table provides a description of our senior notes payable at September 30, 2020, excluding amounts attributable to the ‘other’ segment (i.e., Watford):

Issuer/Due	Interest (Fixed)	Principal Amount	Carrying Amount
Arch Capital:			
May 1, 2034	7.350 %	\$ 300,000	\$ 297,338
June 30, 2050	3.635 %	1,000,000	988,447
Arch-U.S.:			
Nov. 1, 2043 (1)	5.144 %	500,000	494,915
Arch Finance:			
Dec. 15, 2026 (1)	4.011 %	500,000	497,109
Dec. 15, 2046 (1)	5.031 %	450,000	445,380
Total		\$ 2,750,000	\$ 2,723,189

(1) Fully and unconditionally guaranteed by Arch Capital.

Our senior notes were issued by Arch Capital, Arch Capital Group (U.S.) Inc. (“Arch-U.S.”) and Arch Capital Finance LLC (“Arch Finance”). Arch-U.S. is a wholly-owned

subsidiary of Arch Capital and Arch Finance is a wholly-owned finance subsidiary of Arch-U.S. Our 2034 senior notes and 2050 senior notes issued by Arch Capital are unsecured and unsubordinated obligations of Arch Capital and ranked equally with all of its existing and future unsecured and unsubordinated indebtedness. The 2043 senior notes issued by Arch-U.S. are unsecured and unsubordinated obligations of Arch-U.S. and Arch Capital and rank equally and ratably with the other unsecured and unsubordinated indebtedness of Arch-U.S. and Arch Capital. The 2026 senior notes and 2046 senior notes issued by Arch Finance are unsecured and unsubordinated obligations of Arch Finance and Arch Capital and rank equally and ratably with the other unsecured and unsubordinated indebtedness of Arch Finance and Arch Capital.

Arch-U.S. and Arch Finance depend on their available cash resources, liquid investments and dividends or other distributions from their subsidiaries or affiliates to make payments, including the payment of debt service obligations and operating expenses they may incur.

The following tables present condensed financial information for Arch Capital (parent guarantor) and Arch-U.S. (subsidiary issuer):

	September 30, 2020		December 31, 2019	
	Arch Capital	Arch-U.S.	Arch Capital	Arch-U.S.
Assets				
Total investments	\$ 158	\$ 715,800	\$ 42	\$ 692,606
Cash	9,041	10,092	18,113	54,518
Investments in subsidiaries	13,745,334	4,743,177	11,786,861	4,347,806
Due from subsidiaries and affiliates	17	200,758	17	200,635
Other assets	19,357	31,328	20,461	32,187
Total assets	\$ 13,773,907	\$ 5,701,155	\$ 11,825,494	\$ 5,327,752
Liabilities				
Senior notes	1,285,785	494,915	297,254	494,831
Due to subsidiaries and affiliates	—	542,103	—	536,805
Other liabilities	36,125	43,134	30,869	33,267
Total liabilities	1,321,910	1,080,152	328,123	1,064,903
Shareholders' Equity				
Total shareholders' equity available to Arch	12,451,997	4,621,003	11,497,371	4,262,849
Total shareholders' equity	12,451,997	4,621,003	11,497,371	4,262,849
Total liabilities and shareholders' equity	\$ 13,773,907	\$ 5,701,155	\$ 11,825,494	\$ 5,327,752

	Nine Months Ended September 30, 2020		Year Ended December 31, 2019	
	Arch Capital	Arch-U.S.	Arch Capital	Arch-U.S.
Revenues				
Net investment income	\$ 53	\$ 13,104	\$ 212	\$ 14,270
Net realized gains (losses)	—	1,428	—	25,313
Equity in net income (loss) of investments accounted for using the equity method	—	2,308	—	779
Other income (loss)	(327)	—	(762)	—
Total revenues	(274)	16,840	(550)	40,362
Expenses				
Corporate expenses	47,802	5,642	62,701	7,221
Interest expense	25,762	35,645	22,154	47,951
Net foreign exchange (gains) losses	3	—	1	—
Total expenses	73,567	41,287	84,856	55,172
Income (loss) before income taxes	(73,841)	(24,447)	(85,406)	(14,810)
Income tax (expense) benefit	—	5,429	—	3,696
Income (loss) before equity in net income of subsidiaries	(73,841)	(19,018)	(85,406)	(11,114)
Equity in net income of subsidiaries	935,818	272,253	1,721,725	564,657
Net income available to Arch	861,977	253,235	1,636,319	553,543
Preferred dividends	(31,209)	—	(41,612)	—
Net income available to Arch common shareholders	\$ 830,768	\$ 253,235	\$ 1,594,707	\$ 553,543

SHARE REPURCHASE PROGRAM

The board of directors of Arch Capital has authorized the investment in Arch Capital's common shares through a share repurchase program. For the nine months ended September 30, 2020, Arch Capital repurchased 2.6 million shares under the share repurchase program with an aggregate purchase price of \$75.5 million. Since the inception of the share repurchase program through September 30, 2020, Arch Capital has repurchased 388.9 million common shares for an aggregate purchase price of \$4.04 billion. At September 30, 2020, approximately \$924.5 million of share repurchases were available under the program, which may be effected from time to time in open market or privately negotiated transactions through December 31, 2021. The timing and amount of the repurchase transactions under this program will depend on a variety of factors, including market conditions and corporate and regulatory considerations. Depending upon results of operations, market conditions and the development of the economy, as well as other factors, generally we will consider share repurchases on an opportunistic basis from time to time. During the 2020 third quarter, we have not repurchased any shares under our share repurchase program.

CATASTROPHIC EVENTS AND SEVERE ECONOMIC EVENTS

We have large aggregate exposures to natural and man-made catastrophic events, pandemic events like COVID-19 and severe economic events. Natural catastrophes can be caused by various events, including hurricanes, floods, windstorms, earthquakes, hailstorms, tornadoes, explosions, severe winter weather, fires, droughts and other natural disasters. Man-made catastrophic events may include acts of war, acts of terrorism and political instability. Catastrophes can also cause losses in non-property business such as mortgage insurance, workers' compensation or general liability. In addition to the nature of property business, we believe that economic and geographic trends affecting insured property, including inflation, property value appreciation and geographic concentration, tend to generally increase the size of losses from catastrophic events over time.

Our models employ both proprietary and vendor-based systems and include cross-line correlations for property, marine, offshore energy, aviation, workers compensation and personal accident. We seek to limit the probable maximum pre-tax loss to a specific level for severe catastrophic events. Currently, we seek to limit our 1-in-250 year return period net probable maximum loss from a severe catastrophic event in any geographic zone to approximately 25% of tangible shareholders' equity available to Arch (total shareholders' equity).

equity available to Arch less goodwill and intangible assets). We reserve the right to change this threshold at any time.

Based on in-force exposure estimated as of October 1, 2020, our modeled peak zone catastrophe exposure was a windstorm affecting the Florida Tri-County, with a net probable maximum pre-tax loss of \$918 million, followed by windstorms affecting Northeastern U.S. and the Gulf of Mexico regions with net probable maximum pre-tax losses of \$674 and \$644 million, respectively. Our exposures to other perils, such as U.S. earthquake and international events, were less than the exposures arising from U.S. windstorms and hurricanes. As of October 1, 2020, our modeled peak zone earthquake exposure (San Francisco earthquake) represented approximately 57% of our peak zone catastrophe exposure, and our modeled peak zone international exposure (Japan earthquake) was substantially less than both our peak zone windstorm and earthquake exposures.

Effective July 1, 2020, our insurance operations had in effect a reinsurance program which provided coverage for certain property-catastrophe related losses equal to \$243 million in excess of various retentions per occurrence.

We also have significant exposure to losses due to mortgage defaults resulting from severe economic events in the future. For our U.S. mortgage insurance business, we have developed a proprietary risk model (“Realistic Disaster Scenario” or “RDS”) that simulates the maximum loss resulting from a severe economic downturn impacting the housing market. The RDS models the collective impact of adverse conditions for key economic indicators, the most significant of which is a decline in home prices. The RDS model projects paths of future home prices, unemployment rates, income levels and interest rates and assumes correlation across states and geographic regions. The resulting future performance of our in-force portfolio is then estimated under the economic stress scenario, reflecting loan and borrower information.

Currently, we seek to limit our modeled RDS loss from a severe economic event to approximately 25% of tangible shareholders’ equity available to Arch. We reserve the right to change this threshold at any time. Based on in-force exposure estimated as of October 1, 2020, our modeled RDS loss was approximately 8% of tangible shareholders’ equity available to Arch.

Net probable maximum loss estimates are net of expected reinsurance recoveries, before income tax and before excess reinsurance reinstatement premiums. RDS loss estimates are net of expected reinsurance recoveries and before income tax. Catastrophe loss estimates are reflective of the zone indicated and not the entire portfolio. Since hurricanes and windstorms can affect more than one zone and make multiple landfalls, our catastrophe loss estimates include clash estimates from

other zones. Our catastrophe loss estimates and RDS loss estimates do not represent our maximum exposures and it is highly likely that our actual incurred losses would vary materially from the modeled estimates. There can be no assurances that we will not suffer pre-tax losses greater than 25% of our tangible shareholders’ equity from one or more catastrophic events or severe economic events due to several factors. These factors include the inherent uncertainties in estimating the frequency and severity of such events and the margin of error in making such determinations resulting from potential inaccuracies and inadequacies in the data provided by clients and brokers, the modeling techniques and the application of such techniques or as a result of a decision to change the percentage of shareholders’ equity exposed to a single catastrophic event or severe economic event. In addition, actual losses may increase if our reinsurers fail to meet their obligations to us or the reinsurance protections purchased by us are exhausted or are otherwise unavailable. See “Risk Factors—Risks Relating to Our Industry” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Catastrophic Events and Severe Economic Events” in our 2019 Form 10-K, updated where applicable in [“ITEM 1A—Risk Factors”](#)

OFF-BALANCE SHEET ARRANGEMENTS

Off-balance sheet arrangements are discussed in Management’s Discussion and Analysis of Financial Condition and Results of Operations contained in our 2019 Form 10-K.

MARKET SENSITIVE INSTRUMENTS AND RISK MANAGEMENT

In accordance with the SEC’s Financial Reporting Release No. 48, we performed a sensitivity analysis to determine the effects that market risk exposures could have on the future earnings, fair values or cash flows of our financial instruments as of September 30, 2020. Market risk represents the risk of changes in the fair value of a financial instrument and is comprised of several components, including liquidity, basis and price risks. We have not included Watford in the following analyses as we do not guarantee or provide credit support for Watford, and our financial exposure to Watford is limited to our investment in Watford’s senior notes, common and preferred shares and counterparty credit risk (mitigated by collateral) arising from reinsurance transactions.

An analysis of material changes in market risk exposures at September 30, 2020 that affect the quantitative and qualitative disclosures presented in our 2019 Form 10-K (see section captioned “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Market

Sensitive Instruments and Risk Management”) were as follows:

Investment Market Risk

Fixed Income Securities. We invest in interest rate sensitive securities, primarily debt securities. We consider the effect of interest rate movements on the fair value of our fixed maturities, fixed maturities pledged under securities lending agreements, short-term investments and certain of our other investments, equity securities and investment funds accounted for using the equity method which invest in fixed income securities (collectively, “Fixed Income Securities”) and the corresponding change in unrealized appreciation. As interest rates rise, the fair value of our Fixed Income Securities falls, and the converse is also true. Based on historical observations, there is a low probability that all interest rate yield curves would shift in the same direction at the same time. Furthermore, at times interest rate movements in certain credit sectors exhibit a much lower correlation to changes in U.S. Treasury yields. Accordingly, the actual effect of interest rate movements may differ materially from the amounts set forth in the following tables.

The following table summarizes the effect that an immediate, parallel shift in the interest rate yield curve would have had on our Fixed Income Securities:

(U.S. dollars in billions)	Interest Rate Shift in Basis Points				
	-100	-50	—	+50	+100
Sep 30, 2020					
Total fair value	\$ 24.84	\$ 24.45	\$ 24.07	\$ 23.68	\$ 23.30
Change from base	3.2 %	1.6 %		(1.6)%	(3.2)%
Change in unrealized value \$	0.77	\$ 0.39		\$ (0.39)	\$ (0.77)
Dec 31, 2019					
Total fair value	\$ 21.54	\$ 21.19	\$ 20.83	\$ 20.48	\$ 20.13
Change from base	3.4 %	1.7 %		(1.7)%	(3.4)%
Change in unrealized value \$	0.71	\$ 0.35		\$ (0.35)	\$ (0.71)

In addition, we consider the effect of credit spread movements on the market value of our Fixed Income Securities and the corresponding change in unrealized value. As credit spreads widen, the fair value of our Fixed Income Securities falls, and the converse is also true. In periods where the spreads on our Fixed Income Securities are much higher than their historical average due to short-term market dislocations, a parallel shift in credit spread levels would result in a much more pronounced change in unrealized value.

The following table summarizes the effect that an immediate, parallel shift in credit spreads in a static interest rate environment would have had on our Fixed Income Securities:

(U.S. dollars in billions)	Credit Spread Shift in Percentage Points				
	-100	-50	—	+50	+100
Sep 30, 2020					
Total fair value	\$ 24.74	\$ 24.40	\$ 24.07	\$ 23.73	\$ 23.39
Change from base	2.8 %	1.4 %		(1.4)%	(2.8)%
Change in unrealized value \$	0.67	\$ 0.34		\$ (0.34)	\$ (0.67)
Dec 31, 2019					
Total fair value	\$ 21.19	\$ 21.02	\$ 20.83	\$ 20.65	\$ 20.48
Change from base	1.7 %	0.9 %		(0.9)%	(1.7)%
Change in unrealized value \$	0.35	\$ 0.19		\$ (0.19)	\$ (0.35)

Another method that attempts to measure portfolio risk is Value-at-Risk (“VaR”). VaR measures the worst expected loss under normal market conditions over a specific time interval at a given confidence level. The 1-year 95th percentile parametric VaR reported herein estimates that 95% of the time, the portfolio loss in a one-year horizon would be less than or equal to the calculated number, stated as a percentage of the measured portfolio’s initial value. The VaR is a variance-covariance based estimate, based on linear sensitivities of a portfolio to a broad set of systematic market risk factors and idiosyncratic risk factors mapped to the portfolio exposures. The relationships between the risk factors are estimated using historical data, and the most recent data points are generally given more weight. As of September 30, 2020, our portfolio’s VaR was estimated to be 5.4% compared to an estimated 3.19% at December 31, 2019. In periods where the volatility of the risk factors mapped to our portfolio’s exposures is higher due to market conditions, the resulting VaR is higher than in other periods.

Equity Securities. At September 30, 2020 and December 31, 2019, the fair value of our investments in equity securities (excluding securities included in Fixed Income Securities above) totaled \$877.6 million and \$827.8 million, respectively. These investments are exposed to price risk, which is the potential loss arising from decreases in fair value. An immediate hypothetical 10% decline in the value of each position would reduce the fair value of such investments by approximately \$87.8 million and \$82.8 million at September 30, 2020 and December 31, 2019, respectively, and would have decreased book value per share by approximately \$0.22 and \$0.20, respectively. An immediate hypothetical 10% increase in the value of each position would increase the fair value of such investments by approximately \$87.8 million and \$82.8 million at September 30, 2020 and December 31, 2019, respectively, and would have increased book value per share by approximately \$0.22 and \$0.20, respectively.

Investment-Related Derivatives. At September 30, 2020, the notional value of all derivative instruments (excluding to-be-announced mortgage backed securities which are included in the fixed income securities analysis above and foreign currency forward contracts which are included in the foreign currency exchange risk analysis below) was \$8.70 billion, compared to \$8.04 billion at December 31, 2019. If the underlying exposure of each investment-related derivative held at September 30, 2020 depreciated by 100 basis points, it would have resulted in a reduction in net income of approximately \$87.0 million, and a decrease in book value per share of approximately \$0.21 per share, compared to \$80.4 million and \$0.20 per share, respectively, on investment-related derivatives held at December 31, 2019. If the underlying exposure of each investment-related derivative held at September 30, 2020 appreciated by 100 basis points, it would have resulted in an increase in net income of approximately \$87.0 million, and an increase in book value per share of approximately \$0.21 per share, compared to \$80.4 million and \$0.20 per share, respectively, on investment-related derivatives held at December 31, 2019. See [note 9, “Derivative Instruments,”](#) to our consolidated financial statements for additional disclosures concerning derivatives.

For further discussion on investment activity, please refer to “Financial Condition—Investable Assets.”

Foreign Currency Exchange Risk

Foreign currency rate risk is the potential change in value, income and cash flow arising from adverse changes in foreign currency exchange rates. Through our subsidiaries and branches located in various foreign countries, we conduct our insurance and reinsurance operations in a variety of local currencies other than the U.S. Dollar. We generally hold investments in foreign currencies which are intended to mitigate our exposure to foreign currency fluctuations in our net insurance liabilities. We may also utilize foreign currency forward contracts and currency options as part of our investment strategy. See [note 9, “Derivative Instruments,”](#) to our consolidated financial statements for additional information.

The following table provides a summary of our net foreign currency exchange exposures, as well as foreign currency derivatives in place to manage these exposures:

(U.S. dollars in thousands, except per share data)	September 30, 2020	December 31, 2019
Net assets (liabilities), denominated in foreign currencies, excluding shareholders' equity and derivatives	\$ (336,400)	\$ 265,501
Shareholders' equity denominated in foreign currencies (1)	773,491	744,690
Net foreign currency forward contracts outstanding (2)	368,379	81,731
Net exposures denominated in foreign currencies	\$ 805,470	\$ 1,091,922
Pre-tax impact of a hypothetical 10% appreciation of the U.S. Dollar against foreign currencies:		
Shareholders' equity	\$ (80,547)	\$ (109,192)
Book value per share	\$ (0.20)	\$ (0.27)
Pre-tax impact of a hypothetical 10% decline of the U.S. Dollar against foreign currencies:		
Shareholders' equity	\$ 80,547	\$ 109,192
Book value per share	\$ 0.20	\$ 0.27

- (1) Represents capital contributions held in the foreign currencies of our operating units.
- (2) Represents the net notional value of outstanding foreign currency forward contracts.

Although we generally attempt to match the currency of our projected liabilities with investments in the same currencies, from time to time we may elect to over or underweight one or more currencies, which could increase our exposure to foreign currency fluctuations and increase the volatility of our shareholders' equity. Historical observations indicate a low probability that all foreign currency exchange rates would shift against the U.S. Dollar in the same direction and at the same time and, accordingly, the actual effect of foreign currency rate movements may differ materially from the amounts set forth above. For further discussion on foreign exchange activity, please refer to “Results of Operations.”

Effects of Inflation

We do not believe that inflation has had a material effect on our consolidated results of operations, except insofar as inflation may affect our reserve for losses and loss adjustment expenses and interest rates. The potential exists, after a catastrophe loss or pandemic events like COVID-19, for the development of inflationary pressures in a local economy. The anticipated effects of inflation on us are considered in our catastrophe loss models. The actual effects of inflation on our results cannot be accurately known until claims are ultimately settled.

OTHER FINANCIAL INFORMATION

The consolidated financial statements as of September 30, 2020 and for the three month and nine month periods ended September 30, 2020 and 2019 have been reviewed by PricewaterhouseCoopers LLP, the registrant's independent public accountants, whose report is included as an exhibit to this filing. The report of PricewaterhouseCoopers LLP states that they did not audit and they do not express an opinion on that unaudited financial information. Accordingly, the degree of reliance on their report on such information should be restricted in light of the limited nature of the review procedures applied. PricewaterhouseCoopers LLP is not subject to the liability provisions of Section 11 of the Securities Act of 1933 for their report on the unaudited financial information because that report is not a "report" or a "part" of the registration statement prepared or certified by PricewaterhouseCoopers LLP within the meaning of Sections 7 and 11 of the Securities Act of 1933.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Reference is made to the information appearing above under the subheading "Market Sensitive Instruments and Risk Management" under the caption "Management's Discussion and Analysis of Financial Condition and Results of Operations," which information is hereby incorporated by reference.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

In connection with the filing of this Form 10-Q, our management, including the Chief Executive Officer and Chief Financial Officer, conducted an evaluation of the effectiveness of disclosure controls and procedures pursuant to applicable Exchange Act Rules as of the end of the period covered by this report. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that the disclosure controls and procedures were effective as of the end of and during the period covered by this report with respect to information being recorded, processed, summarized and reported within time periods specified in the SEC's rules and forms and with respect to timely communication to them and other members of management responsible for preparing periodic reports of all material information required to be disclosed in this report as it relates to Arch Capital and its consolidated subsidiaries.

We continue to enhance our operating procedures and internal controls to effectively support our business and our regulatory and reporting requirements. Our management does not expect that our disclosure controls or our internal controls will prevent all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. As a result of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within the company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons or by collusion of two or more people. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with the policies or procedures may deteriorate. As a result of the inherent limitations in a cost-effective control system, misstatement due to error or fraud may occur and not be detected. Accordingly, our disclosure controls and procedures are designed to provide reasonable, not absolute, assurance that the disclosure controls and procedures are met.

Changes in Internal Controls Over Financial Reporting

There have been no changes in internal control over financial reporting that occurred during the quarter ended September 30, 2020 that have materially affected, or are reasonably likely to materially affect, internal control over financial reporting. We have not experienced any material impact to our internal controls over financial reporting despite the fact that most of our employees are working remotely due to the COVID-19. We are continually monitoring and assessing COVID-19 situation on our internal controls to minimize the impact on their design and operating effectiveness.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

We, in common with the insurance industry in general, are subject to litigation and arbitration in the normal course of our business. As of September 30, 2020, we were not a party to any litigation or arbitration which is expected by management to have a material adverse effect on our results of operations and financial condition and liquidity.

ITEM 1A. RISK FACTORS

Our business is subject to a number of risks, including those identified in Part I—Item 1A of our 2019 Form 10-K, that could have a material adverse effect on our business, results of operations, financial condition and/or liquidity and that could cause our operating results to vary significantly from period to period. The risks described in our 2019 Form 10-K are not the only risks we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also could have a material adverse effect on our business, results of operations, financial condition and/or liquidity. Other than as described below, there have been no material changes to the risk factors disclosed in Part I—Item 1A of our 2019 Form 10-K.

The impact of COVID-19 and related risks could materially affect our results of operations, financial position and/or liquidity.

The continuing global pandemic related to the novel coronavirus COVID-19 has impacted the global economy, financial markets and our results of operations. In addition, COVID-19 could materially disrupt the business operations of third parties with whom we interact. The resurgence of the pandemic in many countries has resulted in continued disruption in global supply chains, and adversely impacted operations in many sectors of the economy. Because of the size and breadth of this pandemic, all of the direct and indirect consequences of COVID-19 are not yet known and may not emerge for some time.

The pandemic could have a significant effect on our Company's business, results of operations, and current and future financial performance. We may experience higher levels of loss and claims activity in certain lines of business and our premiums written and earned could also be adversely affected by a suppression of global commercial activity that results in a reduction in insurable assets and other exposure. Conditions of the financial markets resulting from the virus may also have a negative effect on the value and quality of

the assets we hold within our portfolio of invested assets, thereby adversely affecting our investment income and increasing our credit and related risk. Certain lines of our business may require additional forms of collateral in the event of a decline in the fair value of securities and benchmarks to which those repayment mechanisms are linked. The continued impacts of the pandemic to the financial markets may also adversely affect our ability to fund through public or private equity offerings, debt financings, and through other means at acceptable terms. For a further discussion, see *"We could face unanticipated losses from war, terrorism, cyber-attacks, pandemics and political instability, and these or other unanticipated losses could have a material adverse effect on our financial condition and results of operations"* and *"Emerging claim and coverage issues may adversely affect our business"* included in "Part I—Item 1A—Risk Factors" in our 2019 Form 10-K.

The disruption in the financial markets related to COVID-19 has contributed to net realized losses, primarily due to the impact of changes in fair value on our equity investments and, to a lesser extent, our fixed-income investment portfolio. Our corporate fixed income portfolio may be adversely impacted by ratings downgrades, increased bankruptcies and credit spread widening in distressed industries, such as energy, gaming, lodging and leisure, autos, airlines and retail. In addition, in recent years, many state and local governments have been operating under deficits or projected deficits. These deficits may be exacerbated by the costs of responding to COVID-19 and reduced tax revenues due to adverse economic conditions. The severity and duration of these deficits could have an adverse impact on the collectability and valuation of our municipal bond portfolio. Our investment portfolio also includes residential mortgage-backed securities, commercial mortgage-backed securities and commercial mortgage loans, all of which could be adversely impacted by declines in real estate valuations and/or financial market disruption, including a heightened collection risk on the underlying mortgages and on rent receivables. Further disruptions in global financial markets due to the continuing impact of COVID-19 could result in additional net realized investment losses, including potential impairments in our fixed income portfolio. In addition, declines in fixed income yields would result in decreases in net investment income from future investment activity, including re-investments. Furthermore, issuers of the investments we hold under the equity method of accounting report their financial information to us one month to three months following the end of the reporting period. Accordingly, the adverse impact of any disruptions in global financial markets on equity method income from these investments would likely not be reflected in our current quarter results and would instead be reported in the subsequent quarter. Further disruptions in global financial markets could adversely impact our net investment income in

future periods from its non-fixed income investment portfolio. For further discussion of the risks related to our investment portfolio see *“We may be adversely affected by changes in economic conditions, including interest rate changes”* and *“The determination of the amount of allowances and impairments taken on our investments is highly subjective and could materially impact our results of operations or financial position”* included in “Part I—Item 1A—Risk Factors” in our 2019 Form 10-K.

Governmental, regulatory and rating actions in response to the COVID-19 pandemic may adversely affect our financial performance and our ability to conduct our businesses as we have in the past.

Federal, state and local government actions in the U.S. and other countries where we do business to address and mitigate the impact of COVID-19 may adversely affect us. For example, we are potentially subject to legislative and/or regulatory action that seeks to retroactively mandate coverage for losses which our insurance policies were not designed or priced to cover. Currently, in some states there is proposed legislation to require insurers to cover business interruption claims irrespective of terms, exclusions or other conditions included in the policies that would otherwise preclude coverage. In addition, a number of states have instituted, and other states are considering instituting, changes designed to effectively expand workers' compensation coverage by creating presumptions of compensability of claims for certain types of workers. Regulatory restrictions or requirements could also impact pricing, risk selection and our rights and obligations with respect to our policies and insureds, including our ability to cancel policies or our right to collect premiums. Some state regulators have issued orders to review insurers' rates to determine whether premium refunds are required, and regulators in other states could take similar actions. Many insurers, including us, have also voluntarily provided, and may further provide, premium refunds to their customers. It is also possible that changes in economic conditions and steps taken by federal, state and local governments in response to COVID-19 could require an increase in taxes at the federal, state and local levels, which would adversely impact our results of operations.

We expect the pandemic to result in a material increase in new defaults as borrowers fail to make timely payments on their mortgages, including as a result of entering mortgage forbearance programs that allow borrowers to defer mortgage payments, which may impact our eligible insurers' ability to remain compliant with the Private Mortgage Insurers Eligibility Requirements (“PMIERS”) financial requirements. On March 18, 2020, the Federal Housing Finance Agency (“FHFA”) directed Fannie Mae and Freddie Mac (the “GSEs”), the primary purchasers of mortgages insured by the Company, to suspend foreclosures and evictions for at least

60 days and to provide payment forbearance to borrowers impacted by COVID-19. On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security Act (“CARES Act”) was enacted. The CARES Act suspends foreclosures and evictions for at least 60 days from March 18, 2020, on mortgages purchased or securitized by the GSEs. In addition, the CARES Act provides for payment forbearance for up to 360 days to borrowers experiencing a hardship during the COVID-19 emergency. FHFA directed Fannie Mae and Freddie Mac to extend the suspension of eviction and foreclosure-related activities through at least December 31, 2020.

Consistent with the CARES Act, the GSEs will provide a forbearance plan to any borrower who requests a forbearance with an attestation of the financial hardship caused by the COVID-19 emergency. No additional documentation other than the borrower's attestation to a financial hardship caused by the COVID-19 emergency is required. It is unclear how many borrowers will obtain forbearance plans, the length of assistance borrowers will require, and whether borrowers will be able to resume their mortgage payments thereafter. Increases in unemployment as well as borrowers entering into forbearance plans will result in higher notices of delinquency (“NODs”) which may have an adverse impact on our results or operations. In addition, as a result of COVID-19-related relief programs, the defaults related to the pandemic, if not cured, could remain in our defaulted loan inventory for a protracted period of time, potentially resulting in higher frequency (claim rate) and severity (amount of the claim) for those loans that ultimately result in a claim. Accordingly, extended or extensive forbearance programs and other changes in regulations or laws may adversely impact our mortgage insurance segment.

When a borrower obtains a forbearance plan and does not make mortgage payments for two consecutive months, the servicer will report the NOD with a special code that indicates the loan is subject to a COVID-19 related forbearance plan. Under PMIERS, eligible insurers are required to hold additional risk-based required assets for delinquent mortgages. However, this amount is reduced for mortgages backed by a property located in a FEMA Declared Major Disaster Area that are either 1) subject to a forbearance plan executed in response to a FEMA Declared Major Disaster Area eligible for Individual Assistance, or 2) has an initial default date occurring up to either (i) 30 days prior to or (ii) 90 days following the Major Disaster event. FEMA has issued Major Disaster Area declarations in all states related to COVID-19, noting the incident date as January 20, 2020. On June 30, 2020 as amended and restated thereafter on September 29, 2020, the GSEs published guidance clarifying the applicability of the reduced delinquent loan charges on loans with their first missed payments occurring between March 1, 2020 and December 31, 2020 in response to a hardship related to COVID-19. Additionally, through March

31, 2021, the GSEs have temporarily required eligible insurers to obtain prior approval of dividends or entering into any new arrangements or altering any existing arrangements under tax sharing and intercompany expense-sharing agreements. The Company is reliant on the accurate reporting of servicers to correctly identify which NODs are subject to COVID-19 related forbearance plans and the reduced delinquent loan charge. In addition, the rating agencies continually review the financial strength ratings assigned to the Company and its subsidiaries, and the ratings are subject to change. The COVID-19 pandemic and its impact on financial results and condition, could cause one or more of the rating agencies to downgrade the ratings assigned to the Company and its subsidiaries.

The disruption and other effects caused by COVID-19 could adversely impact our business operations, which could adversely affect our financial performance and results.

To protect our employees and in response to the global and regional restrictions on interpersonal contact and travel because of the COVID-19 pandemic, our work force (other than a small percentage of workers performing services which require them to visit the office) is working remotely, placing increased demands on our IT systems. Remote working arrangements may increase the risk of cyber-security attacks or data security incidents. While we have continued to conduct our business effectively, there is no assurance that our ability to continue to function in this new environment will not be adversely affected by an extended period of limited access to our physical facilities or by other developments such as an extended disruption to our systems that support our remote work capability. We depend on third-party platforms and other infrastructure to provide certain of our products and services, and such third-party infrastructures face similar risks. In addition, the continuation of the COVID-19 pandemic may continue to adversely affect our business operations, including decreased worker productivity, our ability to carry on business development activities and unavailability of employees due to illness or quarantines, among others. For a further discussion, see “*Our information technology systems may be unable to meet the demands of customers*” and “*Technology breaches or failures, including, but not limited to, those resulting from a malicious cyber-attack on us or our business partners and service providers, could disrupt or otherwise negatively impact our business and/or expose us to litigation*” included in “Part I—Item 1A—Risk Factors” in our 2019 Form 10-K.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

The following table summarizes our purchases of common shares for the 2020 third quarter:

Period	Issuer Purchases of Equity Securities			
	Total Number of Shares Purchased (1)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares that May Yet be Purchased Under the Plan or Programs (2)
7/1/2020 - 7/31/2020	472	\$ 30.34	—	\$ 924,514
8/1/2020 - 8/31/2020	1,964	32.26	—	\$ 924,514
9/1/2020 -9/30/2020	17,296	30.29	—	\$ 924,514
Total	19,732	\$ 30.49	—	

- (1) Represents repurchases by Arch Capital of shares, from time to time, from employees in order to facilitate the payment of withholding taxes on restricted shares granted and the exercise of stock appreciation rights. We purchased these shares at their fair value, as determined by reference to the closing price of our common shares on the day the restricted shares vested or the stock appreciation rights were exercised.
- (2) Remaining amount available at September 30, 2020 under Arch Capital's share repurchase authorization, under which repurchases may be effected from time to time in open market or privately negotiated transactions through December 31, 2021.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

In accordance with Section 10a(i)(2) of the Securities Exchange Act of 1934, as amended, we are responsible for disclosing non-audit services to be provided by our independent auditor, PricewaterhouseCoopers LLP, which are approved by the Audit Committee of our board of directors. During the 2020 third quarter, the Audit Committee approved engagements of PricewaterhouseCoopers LLP for permitted non-audit services, which consisted of tax consulting services, tax compliance services and other accounting consulting services.

ITEM 6. EXHIBITS

Exhibit Number	Exhibit Description	Incorporated by Reference			Filed Herewith
		Form	Original Number	Date Filed	
2.1	Agreement and Plan of Merger among Arch Capital Group Ltd., Greysbridge Ltd. and Watford Holdings Ltd., dated October 9, 2020.	8-K	2.1	October 14, 2020	
2.2	Amendment No. 1 to Agreement and Plan of Merger among Arch Capital Group Ltd., Greysbridge Ltd., and Watford Holdings Ltd., dated November 2, 2020.	8-K	2.1	November 2, 2020	
10.1	Voting and Support Agreement among Watford Holdings Ltd., Arch Reinsurance Ltd. and Gulf Reinsurance Ltd. dated October 9, 2020.	8-K	10.1	October 14, 2020	
15	Accountants' Awareness Letter (regarding unaudited interim financial information)				X
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				X
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				X
32.1	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				X
32.2	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				X
101.INS	XBRL Instance Document				
101.SCH	XBRL Taxonomy Extension Schema Document				
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document				
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document				
101.LAB	XBRL Taxonomy Extension Label Linkbase Document				
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document				

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.

ARCH CAPITAL GROUP LTD.

(REGISTRANT)

Date: November 5, 2020

/s/ Marc Grandisson

Marc Grandisson

President and Chief Executive Officer (Principal Executive Officer)

Date: November 5, 2020

/s/ François Morin

François Morin

Executive Vice President, Chief Financial Officer and Treasurer (Principal Financial and Accounting Officer)

November 5, 2020

Securities and Exchange Commission
100 F Street, N.E.
Washington, DC 20549

Commissioners:

We are aware that our report dated November 5, 2020, on our review of interim financial information of Arch Capital Group Ltd., which appears in this Quarterly Report on Form 10-Q, is incorporated by reference in the Registration Statements on Form S-3 (Nos. 333-221344, 333-221344-01 and 333-221344-02) and in the Registration Statements on Form S-8 (Nos. 333-211193, 333-142835, 333-181308, 333-203993 and 333-224783) of Arch Capital Group Ltd.

Very truly yours,

/s/ PricewaterhouseCoopers LLP

New York, NY

**Certification
of Chief Executive Officer
Pursuant to Section 302 of the
Sarbanes-Oxley Act of 2002**

I, Marc Grandisson, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Arch Capital Group Ltd.;
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 the report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 5, 2020

By: /s/ Marc Grandisson

Name: Marc Grandisson

Title: President and Chief Executive Officer

**Certification
of Chief Financial Officer
Pursuant to Section 302 of the
Sarbanes-Oxley Act of 2002**

I, François Morin, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Arch Capital Group Ltd.;
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 the report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 5, 2020

By: /s/ François Morin

Name: François Morin

Title: Executive Vice President, Chief Financial Officer and Treasurer

Certification Pursuant to Chapter 63, Title 18 United States Code §1350**As Adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002**

In connection with the Quarterly Report of Arch Capital Group Ltd. (the “Company”) on Form 10-Q for the period ending September 30, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), Marc Grandisson, as President and Chief Executive Officer of the Company, certifies pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) the Report fully complies with the requirements of section 13(a) of the Securities Exchange Act of 1934; and
- (2) the information contained in such report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: November 5, 2020

By: /s/ Marc Grandisson

Name: Marc Grandisson

Title: President and Chief Executive Officer

A signed original of this written statement required by Section 906 or other document authenticating, acknowledging or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Arch Capital Group Ltd. and will be retained by Arch Capital Group Ltd. and furnished to the Securities and Exchange Commission or its staff upon request.

Certification Pursuant to Chapter 63, Title 18 United States Code §1350
As Adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

In connection with the Quarterly Report of Arch Capital Group Ltd. (the “Company”) on Form 10-Q for the period ending September 30, 2020 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), François Morin, as Executive Vice President, Chief Financial Officer and Treasurer of the Company, certifies pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) the Report fully complies with the requirements of section 13(a) of the Securities Exchange Act of 1934; and
- (2) the information contained in such report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: November 5, 2020

By: /s/ François Morin

Name: François Morin

Title: Executive Vice President, Chief Financial Officer and
Treasurer

A signed original of this written statement required by Section 906 or other document authenticating, acknowledging or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Arch Capital Group Ltd. and will be retained by Arch Capital Group Ltd. and furnished to the Securities and Exchange Commission or its staff upon request.