UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

	I ORWI 10-Q	
☑ QUARTERLY REPORT PURS	SUANT TO SECTION 13 OR 15(d) OF THI For the quarterly period ended March 3	E SECURITIES EXCHANGE ACT OF 1934
	OR	
☐ TRANSITION REPORT PURS	SUANT TO SECTION 13 OR 15(d) OF THI	E SECURITIES EXCHANGE ACT OF 1934
	1-16725 (Commission file number)	<u>-</u>
PRIN	CIPAL FINANCIAL GE	ROUP, INC.
1 1111	(Exact name of registrant as specified in its	-
Delaware		42-1520346
(State or other jurisdiction of incorpo	ration or organization) (I	.R.S. Employer Identification Number)
	711 High Street, Des Moines, Iowa 50 (Address of principal executive office	
	(515) 247-5111 (Registrant's telephone number, including an	rea code)
Securities registered pursuant to Section 1	2(b) of the Act:	
Title of each class Common Stock	Trading symbol(s) PFG	Name of each exchange on which registered Nasdaq Global Select Market
	hs (or for such shorter period that the Registra	d by Section 13 or 15(d) of the Securities Exchange nt was required to file such reports) and (2) has been
	this chapter) during the preceding 12 months (tive Data File required to be submitted pursuant to or for such shorter period that the registrant was
	. See the definitions of "large accelerated filer,	filer, a non-accelerated filer, a smaller reporting " "accelerated filer," "smaller reporting company"
Large accelerated filer 🛛 Accelerated fi	iler 🛘 Non-accelerated filer 🗘 Smaller rep	orting company \square Emerging growth company \square
	by check mark if the registrant has elected not ing standards provided pursuant to Section 13(to use the extended transition period for complying a) of the Exchange Act. \square
Indicate by check mark whether the regist	rant is a shell company (as defined in Rule 12b	o-2 of the Exchange Act). Yes □ No ⊠
The total number of shares of the registran	nt's Common Stock, \$0.01 par value, outstandin	ng as of April 22, 2020, was 273,867,770.

PRINCIPAL FINANCIAL GROUP, INC.

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PART I — FINANCIAL INFORMATION

Item 1. Financial Statements

Principal Financial Group, Inc. Condensed Consolidated Statements of Financial Position

	March 31, 2020		De	cember 31, 2019
	(1	Unaudited)		
Access		(in m	illions)	
Assets Fixed maturities, available-for-sale (2020 and 2019 include \$34.8 million and \$99.4 million related to consolidated variable	•	60 =0= 0	•	E0 406 0
interest entities) Fixed maturities, trading	\$	68,707.8 596.0	\$	70,106.2 675.9
Equity securities (2020 and 2019 include \$728.5 million and \$810.9 million related to consolidated variable interest entities)		1.664.1		1,879.4
Mortgage loans		16,645.9		16,486.9
Real estate (2020 and 2019 include \$395.7 million and \$457.6 million related to consolidated variable interest entities)		1,657.5		1,714.8
Policy loans Other investments (2020 and 2019 include \$270.4 million and \$263.7 million related to consolidated variable interest entities and		797.0		798.0
\$22.7 million and \$22.8 million measured at fair value under the fair value option)		4,707.0		4,690.2
Total investments		94,775.3	-	96,351.4
Cash and cash equivalents		3,482.7		2,515.9
Accrued investment income		721.7		686.6
Premiums due and other receivables Deferred acquisition costs		1,691.0 3,679.8		1,740.3 3.521.3
Property and equipment		973.8		967.7
Goodwill		1,616.4		1,693.8
Other intangibles		1,716.6		1,786.7
Separate account assets (2020 and 2019 include \$30,858.6 million and \$39,130.3 million related to consolidated variable interest entities)		120 020 0		105 400 0
entues) Other assets		136,836.0 1,410.6		165,468.0 1,356.1
Total assets	\$	246,903.9	\$	276,087.8
Liabilities	_	.,		-,
Contractholder funds (2020 and 2019 include \$397.5 million and \$394.6 million related to consolidated variable interest entities)	\$	42,126.6	\$	41,367.5
Future policy benefits and claims		41,244.0		40,838.2
Other policyholder funds Short-term debt		860.9 105.6		959.4 93.4
Long-term debt (2019 includes \$64.2 million related to consolidated variable interest entities)		3,670.1		3.734.1
Income taxes currently payable		14.7		16.2
Deferred income taxes		1,450.3		1,796.6
Separate account liabilities (2020 and 2019 include \$30,858.6 million and \$39,130.3 million related to consolidated variable interest entities)		136.836.0		165,468,0
other liabilities (2020 and 2019 include \$69.6 million and \$124.4 million related to consolidated variable interest entities)		7,383.4		6,863.7
Total liabilities		233,691.6		261,137.1
		ŕ		•
Redeemable noncontrolling interest (2020 and 2019 include \$187.6 million and \$215.4 million related to consolidated variable		239.7		264.9
interest entities)		239.7		264.9
Stockholders' equity				
Common stock, par value \$0.01 per share — 2,500.0 million shares authorized, 480.5 million and 479.3 million shares issued,				
and 273.4 million and 276.6 million shares outstanding in 2020 and 2019		4.8		4.8
Additional paid-in capital Retained earnings		10,216.5 11,198.8		10,182.6 11,074.3
Accumulated other comprehensive income(loss)		(599.2)		1,037.9
Treasury stock, at cost (207.1 million and 202.7 million shares in 2020 and 2019)		(7 <u>,</u> 913.4 <u>)</u>		(7,681.6)
Total stockholders' equity attributable to Principal Financial Group, Inc.		12,907.5		14,618.0
Noncontrolling interest Total stockholders' equity		65.1		67.8
Total liabilities and stockholders' equity	•	12,972.6 246,903.9	\$	14,685.8 276.087.8
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Principal Financial Group, Inc. Condensed Consolidated Statements of Operations (Unaudited)

		e months ended rch 31,
	2020	2019
Revenues	(in millions, exc	cept per share data)
Premiums and other considerations	\$ 2,291.0	\$ 1,724.9
Fees and other revenues	1,145.3	973.5
Net investment income	983.6	961.0
Net realized capital gains	131.4	84.5
Total revenues		
	4,551.3	3,743.9
Expenses	2.050.7	2.105.1
Benefits, claims and settlement expenses	2,858.7	2,195.1
Dividends to policyholders	28.9	30.1
Operating expenses	1,335.5	992.7
Total expenses	4,223.1	3,217.9
Income before income taxes	328.2	526.0
Income taxes	43.2	73.9
Net income	285.0	452.1
Net income (loss) attributable to noncontrolling interest	(3.9)	22.2
Net income attributable to Principal Financial Group, Inc.	\$ 288.9	\$ 429.9
	<u> </u>	120.0
Farnings pay common share		
Earnings per common share	Φ 4.05	Φ 1.54
Basic earnings per common share	<u>\$ 1.05</u>	\$ 1.54
Diluted earnings per common share	\$ 1.04	\$ 1.53

Principal Financial Group, Inc. Condensed Consolidated Statements of Comprehensive Income (Unaudited)

For the three months ended March 31,			
	2020		2019
(in millions)			
\$	285.0	\$	452.1
	(1,411.6)		1,104.3
			(2.5)
	48.6		(4.5)
	(294.3)		37.9
	11.0		11.5
	(1,646.3)		1,146.7
	(1,361.3)		1,598.8
	(13.1)		22.7
\$	(1,348.2)	\$	1,576.1
	\$	\$ 285.0 (1,411.6) 	March 31, 2020 (in million \$ 285.0 \$ (1,411.6) 48.6 (294.3) 11.0 (1,646.3) (1,361.3) (13.1)

Principal Financial Group, Inc. Condensed Consolidated Statements of Stockholders' Equity (Unaudited)

					Ac	ccumulated					
			Additional			other					Total
	Cor	nmon	paid-in	Retained	con	nprehensive	Treasury	No	oncontrolling	sto	ckholders'
	st	ock	capital	earnings	in	come (loss)	stock		interest		equity
						(in millions	5)				
Balances as of January 1, 2019	\$	4.8	\$ 10,060.7	\$ 10,290.2	\$	(1,565.1)	\$ (7,400.6)	\$	66.0	\$	11,456.0
Common stock issued		_	5.8	_		_	_		_		5.8
Stock-based compensation		_	26.8	(2.0)		_	_		_		24.8
Treasury stock acquired, common		_	_	_		_	(153.6)		_		(153.6)
Dividends to common stockholders		_	_	(150.2)		_	_		_		(150.2)
Distributions to noncontrolling interest		_	_	_		_	_		(1.3)		(1.3)
Contributions from noncontrolling interest		_	_	_		_	_		0.8		0.8
Adjustments to redemption amount of											
redeemable noncontrolling interest		_	(2.5)	_		_	_		_		(2.5)
Effects of implementation of accounting											
change related to leases, net		_	_	4.0		_	_		_		4.0
Net income (1)		_	_	429.9		_	_		1.9		431.8
Other comprehensive income (1)		_	_	_		1,146.2	_		0.4		1,146.6
Balances as of March 31, 2019	\$	4.8	\$ 10,090.8	\$ 10,571.9	\$	(418.9)	\$ (7,554.2)	\$	67.8	\$	12,762.2
	<u> </u>		<u> </u>		_			=			
Balances as of January 1, 2020	\$	4.8	\$ 10,182.6	\$ 11,074.3	\$	1,037.9	\$ (7,681.6)	\$	67.8	\$	14,685.8
Common stock issued		_	9.0	_		_	·				9.0
Stock-based compensation		_	25.8	(2.4)		_	_		_		23.4
Treasury stock acquired, common		_	_	`		_	(231.8)		_		(231.8)
Dividends to common stockholders		_	_	(153.6)		_	` _		_		(153.6)
Distributions to noncontrolling interest		_		· _		_	_		(22.1)		(22.1)
Contributions from noncontrolling interest		_	_	_		_	_		2.6		2.6
Purchase of subsidiary shares from											
noncontrolling interest (1)		_	(0.6)	_		_	_		(0.3)		(0.9)
Adjustments to redemption amount of			` '						` ′		` ,
redeemable noncontrolling interest			(0.3)	_		_	_		(0.1)		(0.4)
Effects of implementation of accounting			` ,						` /		` ,
change related to credit losses, net			_	(8.4)		_	_		_		(8.4)
Net income (1)		_	_	288.9			_		19.8		308.7
Other comprehensive loss (1)		_	_	_		(1,637.1)	_		(2.6)		(1,639.7)
Balances as of March 31, 2020	\$	4.8	\$ 10,216.5	\$ 11,198.8	\$	(599.2)	\$ (7,913.4)	\$	65.1	\$	12,972.6

⁽¹⁾ Excludes amounts attributable to redeemable noncontrolling interest. See Note 9, Stockholders' Equity, for further details.

Principal Financial Group, Inc. Condensed Consolidated Statements of Cash Flows (Unaudited)

For the three months ended

	March 31,			
	2020			2019
		(in mi	llions)	
Net cash provided by operating activities	\$	1,589.1	\$	1,176.4
Investing activities				
Fixed maturities available-for-sale and equity securities with intent to hold:				
Purchases		(3,190.1)		(2,886.7)
Sales		582.4		342.6
Maturities		1,984.1		1,548.9
Mortgage loans acquired or originated		(827.3)		(625.1)
Mortgage loans sold or repaid		581.6		382.4
Real estate acquired		(39.6)		(10.5)
Net purchases of property and equipment		(18.0)		(29.4)
Net change in other investments		14.2		(213.3)
Net cash used in investing activities		(912.7)		(1,491.1)
Financing activities				
Issuance of common stock		9.0		5.8
Acquisition of treasury stock		(231.8)		(153.6)
Payments for financing element derivatives		(7.1)		(6.5)
Purchase of subsidiary shares from noncontrolling interest		(0.9)		(450.0)
Dividends to common stockholders		(153.6)		(150.2)
Issuance of long-term debt		(64.5)		6.7
Principal repayments of long-term debt		(64.5)		(0.3)
Net proceeds from short-term borrowings		24.6		0.1 1.872.2
Investment contract deposits Investment contract withdrawals		2,725.7 (2,255.6)		(1,947.4)
		(2,255.6) 244.5		
Net increase (decrease) in banking operation deposits Other		244.5 0.1		(35.4) 5.5
Net cash provided by (used in) financing activities		290.4		(403.1)
Net increase (decrease) in cash and cash equivalents				
Cash and cash equivalents at beginning of period		966.8 2,515.9		(717.8) 2,977.5
Cash and cash equivalents at beginning or period	<u> </u>		Φ.	
Cash and Cash equivalents at end of period	3	3,482.7	\$	2,259.7
Supplemental disclosure of non-cash activities:	•			400.5
Lease assets established upon adoption of accounting guidance	\$	_	\$	168.8
Lease liabilities established upon adoption of accounting guidance	\$		\$	164.0
Assets received in kind from pension risk transfer transaction	\$	909.6	\$	_

1. Nature of Operations and Significant Accounting Policies

Basis of Presentation

The accompanying unaudited condensed consolidated financial statements of Principal Financial Group, Inc. ("PFG") have been prepared in conformity with accounting principles generally accepted in the U.S. ("U.S. GAAP") for interim financial statements and with the instructions to Form 10-Q and Article 10 of Regulation S-X. In the opinion of management, all adjustments (consisting of normal recurring accruals) considered necessary for a fair presentation have been included. Operating results for the three months ended March 31, 2020, are not necessarily indicative of the results that may be expected for the year ended December 31, 2020, especially when considering the risks and uncertainties associated with the novel coronavirus ("COVID-19") and the impact it may have on our business, results of operations and financial condition. Our use of estimates and assumptions affect amounts reported and disclosed and includes, but is not limited to, the fair value of investments in the absence of quoted market values, investment impairments and valuation allowances, the fair value of derivatives, deferred acquisition costs ("DAC") and other actuarial balances, measurement of goodwill and intangible assets, the liability for future policy benefits and claims, the value of pension and other postretirement benefits and accounting for income taxes and the valuation of deferred tax assets. Our estimates and assumptions could change in the future as more information becomes known about the impact of COVID-19. Our results of operations and financial condition may also be impacted by evolving regulatory, legislative and standard-setter accounting interpretations and guidance.

These interim unaudited condensed consolidated financial statements should be read in conjunction with our annual audited financial statements as of December 31, 2019, included in our Form 10-K for the year ended December 31, 2019, filed with the United States Securities and Exchange Commission ("SEC"). The accompanying condensed consolidated statement of financial position as of December 31, 2019, has been derived from the audited consolidated statement of financial position but does not include all of the information and footnotes required by U.S. GAAP for complete financial statements.

Certain reclassifications have been made to the prior period consolidated statements of cash flows to conform to the current period presentation.

Consolidation

We have relationships with various special purpose entities and other legal entities that must be evaluated to determine if the entities meet the criteria of a variable interest entity ("VIE") or a voting interest entity ("VOE"). This assessment is performed by reviewing contractual, ownership and other rights, including involvement of related parties, and requires use of judgment. First, we determine if we hold a variable interest in an entity by assessing if we have the right to receive expected losses and expected residual returns of the entity. If we hold a variable interest, then the entity is assessed to determine if it is a VIE. An entity is a VIE if the equity at risk is not sufficient to support its activities, if the equity holders lack a controlling financial interest or if the entity is structured with non-substantive voting rights. In addition to the previous criteria, if the entity is a limited partnership or similar entity, it is a VIE if the limited partners do not have the power to direct the entity's most significant activities through substantive kick-out rights or participating rights. A VIE is evaluated to determine the primary beneficiary. The primary beneficiary of a VIE is the enterprise with (1) the power to direct the activities of a VIE that most significantly impact the entity's economic performance and (2) the obligation to absorb losses of the entity or the right to receive benefits from the entity that could potentially be significant to the VIE. When we are the primary beneficiary, we are required to consolidate the entity in our financial statements. We reassess our involvement with VIEs on a quarterly basis. For further information about VIEs, refer to Note 2, Variable Interest Entities.

If an entity is not a VIE, it is considered a VOE. VOEs are generally consolidated if we own a greater than 50% voting interest. If we determine our involvement in an entity no longer meets the requirements for consolidation under either the VIE or VOE models, the entity is deconsolidated. Entities in which we have management influence over the operating and financing decisions but are not required to consolidate, other than investments accounted for at fair value under the fair value option, are reported using the equity method.

Recent Accounting Pronouncements

Description	Date of	Effect on our consolidated financial statements or other
Description Standards not yet adopted:	adoption	significant matters
 contracts This authoritative guidance updates certain requirements in the accounting for long-duration insurance and annuity contracts. 1. The assumptions used to calculate the liability for future policy benefits on traditional and limited-payment contracts will be reviewed and updated periodically. Cash flow assumptions will be reviewed at least annually and updated when necessary with the impact recognized in net income. Discount rate assumptions are prescribed as the current upper-medium grade (low credit risk) fixed income instrument yield and will be updated quarterly with the impact recognized in other comprehensive income ("OCI"). 2. Market risk benefits, which are certain market-based options or guarantees associated with deposit or account balance contracts, will be measured at fair value. The periodic change in fair value related to instrument-specific credit risk will be recognized in OCI while the remaining change in fair value will be recognized in net income. 3. DAC for all insurance and annuity contracts will be amortized on a constant basis over the expected term of the related contracts. 4. Additional disclosures are required, including disaggregated rollforwards of significant insurance liabilities and other account balances and disclosures about significant inputs, judgments, assumptions and methods used in measurement. The guidance for the liability for future policy benefits for traditional and limited-payment contracts and DAC will be applied on a modified retrospective basis; that is, to contracts in force as of the beginning of the earliest period presented based on their existing carrying amounts. An entity may elect to apply the changes retrospectively. The guidance for market risk benefits will be applied retrospectively. Early adoption is permitted. 	January 1, 2022	Our implementation and evaluation process to date includes, but is not limited to the following: • identifying and documenting contracts and contract features in scope of the guidance; • identifying the actuarial models, systems and processes to be updated; • evaluating and selecting our systems solutions for implementing the new guidance; • beginning to build key models; • evaluating our key accounting policies; • assessing the impact to our chart of accounts; • developing format and content of new disclosures and • evaluating transition requirements and impacts. As we progress through our implementation, we will be able to better assess the impact to our consolidated financial statements; however, we expect this guidance to significantly change how we account for many of our insurance and annuity products.
Simplifying the accounting for income taxes This authoritative guidance simplifies the accounting for income taxes by removing certain exceptions, including exceptions related to the incremental approach for intraperiod tax allocation, calculating income taxes in an interim period and the recognition of deferred tax liabilities for outside basis differences. Also, the guidance clarifies the accounting for franchise taxes, transactions that result in a step-up in the tax basis of goodwill and enacted changes in tax laws or rates. It specifies that an entity is not required to allocate the consolidated amount of current and deferred tax expense to a legal entity that is not subject to tax in its separate financial statements, although an entity may elect to do so. The guidance will be applied based on varying transition methods defined by amendment. Early adoption is permitted.	January 1, 2021	We are currently evaluating the impact this guidance will have on our consolidated financial statements.

Standards adopted:		
Facilitation of the effects of reference rate reform on financial reporting This authoritative guidance provides optional expedients and exceptions for contracts and hedging relationships affected by reference rate reform. An entity may elect not to apply certain modification accounting requirements to contracts affected by reference rate reform and instead account for the modified contract as a continuation of the existing contract. Also, an entity may apply optional expedients to continue hedge accounting for hedging relationships in which the critical terms change due to reference rate reform.	March 12, 2020	We adopted the guidance upon issuance prospectively through December 31, 2022.
Goodwill impairment testing This authoritative guidance simplifies how an entity is required to test goodwill for impairment by eliminating Step 2 (which measures a goodwill impairment loss by comparing the implied fair value of a reporting unit's goodwill to the carrying amount of that goodwill) from the goodwill impairment test. A goodwill impairment loss will be the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. Entities will continue to have the option to perform a qualitative assessment to determine if a quantitative impairment test is necessary. Early adoption is permitted.	January 1, 2020	This guidance reduces complexity and costs associated with performing a Step 2 test, should one be needed in the future. However, the impact of eliminating the Step 2 test from any such future impairment assessment will be dependent on modeling factors that are not currently determinable. This guidance did not have a material impact on our consolidated financial statements.
Credit losses This authoritative guidance requires entities to use a current expected credit loss ("CECL") model to measure impairment for most financial assets that are not recorded at fair value through net income. Under the CECL model, an entity will estimate lifetime expected credit losses considering available relevant information about historical events, current conditions and reasonable and supportable forecasts. The CECL model does not apply to available-for-sale debt securities. This guidance also expands the required credit loss disclosures.	January 1, 2020	We adopted the guidance using the modified retrospective approach. A cumulative effect adjustment of \$8.4 million was recorded as a decrease to retained earnings. We recorded an offsetting increase in the allowance for credit loss for mortgage loans, reinsurance recoverables and commitments and a decrease for deferred tax impacts. See Note 3, Investments, for further details.
Implementation costs in a cloud computing arrangement that is a service contract This authoritative guidance aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. This guidance can be applied either retrospectively or prospectively and early adoption is permitted.	January 1, 2019	The effective date of the guidance is January 1, 2020; however, we elected to early-adopt this guidance on a prospective basis, effective January 1, 2019. This guidance did not have a material impact on our consolidated financial statements.
Nonemployee share-based payment accounting This authoritative guidance simplifies the accounting for share-based payments to nonemployees by generally aligning it with the accounting for share-based payments to employees. Under the guidance, the measurement of equity-classified nonemployee awards will be fixed at the grant date, where previously the measurement was fixed at performance completion date. The guidance will be applied to equity-classified nonemployee awards for which a measurement date has not been established as of the date of adoption.	January 1, 2019	This guidance did not have a material impact on our consolidated financial statements.

Leases This authoritative guidance requires lessee recognition of lease assets and lease liabilities on the balance sheet. The concept of an operating lease, where the lease assets and liabilities are off balance sheet, is eliminated under the new guidance. For lessors, the guidance modifies lease classification criteria and accounting for certain types of leases. Other key aspects of the guidance relate to the removal of the current real estate-specific guidance and new presentation and disclosure requirements. Lessees and lessors are required to recognize and measure leases using a modified retrospective approach, which includes certain optional practical expedients that may be elected. We elected the alternative transition method, which allows entities to initially apply the new standard at the adoption date and recognize a cumulative effect adjustment to the opening balance of retained earnings in the period of adoption.	January 1, 2019	We adopted the guidance using the modified retrospective approach. A cumulative effect adjustment of \$4.0 million was recorded as a increase to retained earnings.
Targeted improvements to accounting for hedging activities This authoritative guidance updated certain recognition and measurement requirements for hedge accounting. The objective of the guidance is to more closely align the economics of a company's risk management activities in its financial results and reduce the complexity of applying hedge accounting. The updates included the expansion of hedging strategies that are eligible for hedge accounting, elimination of the separate measurement and reporting of hedge ineffectiveness, presentation of the changes in the fair value of the hedging instrument in the same consolidated statement of operations line as the earnings effect of the hedged item and simplification of hedge effectiveness assessments. This guidance also included new disclosures.	January 1, 2019	This guidance did not have a material impact on our consolidated financial statements. See Note 4, Derivative Financial Instruments, for further details.
Premium amortization on purchased callable debt securities This authoritative guidance applies to entities that hold certain non- contingently callable debt securities, where the amortized cost basis is at a premium to the price repayable by the issuer at the earliest call date. Under the guidance the premium will be amortized to the first call date.	January 1, 2019	This guidance did not have a material impact on our consolidated financial statements.

When we adopt new accounting standards, we have a process in place to perform a thorough review of the pronouncement, identify the financial statement and system impacts and create an implementation plan among our impacted business units to ensure we are compliant with the pronouncement on the date of adoption. This includes having effective processes and controls in place to support the reported amounts. Each of the standards listed above is in varying stages in our implementation process based on its issuance and adoption dates. We are on track to implement guidance by the respective effective dates.

Separate Accounts

The separate accounts are legally segregated and are not subject to the claims that arise out of any of our other business. The client, rather than us, directs the investments and bears the investment risk of these funds. The separate account assets represent the fair value of funds that are separately administered by us for contracts with equity, real estate and fixed income investments and are presented as a summary total within the consolidated statements of financial position. An equivalent amount is reported as separate account liabilities, which represent the obligation to return the monies to the client. We receive fees for mortality, withdrawal and expense risks, as well as administrative, maintenance and investment advisory services that are included in the consolidated statements of operations. Net deposits, net investment income and realized and unrealized capital gains and losses of the separate accounts are not reflected in the consolidated statements of operations.

Separate account assets and separate account liabilities include certain international retirement accumulation products where the segregated funds and associated obligation to the client are consolidated within our financial statements. We have determined that summary totals are the most meaningful presentation for these funds.

As of March 31, 2020 and December 31, 2019, the separate accounts included a separate account valued at \$55.8 million and \$100.4 million, respectively, which primarily included shares of our stock that were allocated and issued to eligible participants of qualified employee benefit plans administered by us as part of the policy credits issued under our 2001 demutualization. These shares are included in both basic and diluted earnings per share calculations. In the consolidated statements of financial position, the separate account shares are recorded at fair value and are reported as separate account assets with a corresponding separate account liability. Changes in fair value of the separate account shares are reflected in both the separate account assets and separate account liabilities and do not impact our results of operations.

2. Variable Interest Entities

We have relationships with various types of entities which may be VIEs. Certain VIEs are consolidated in our financial results. See Note 1, Nature of Operations and Significant Accounting Policies, under the caption "Consolidation" for further details of our consolidation accounting policies. We did not provide financial or other support to investees designated as VIEs for the periods ended March 31, 2020 and December 31, 2019.

Consolidated Variable Interest Entities

Grantor Trust

We contributed undated subordinated floating rate notes to a grantor trust. The trust separated its cash flows by issuing an interest-only certificate and a residual certificate related to each note contributed. Each interest-only certificate entitles the holder to interest on the stated note for a specified term, while the residual certificate entitles the holder to interest payments subsequent to the term of the interest-only certificate and to all principal payments. We retained the interest-only certificates and the residual certificates were subsequently sold to third parties. We determined the grantor trust is a VIE due to insufficient equity to sustain it. We determined we are the primary beneficiary as a result of our contribution of securities into the trust and our significant continuing interest in the trust.

Mandatory Retirement Savings Funds

We hold an equity interest in Chilean mandatory privatized social security funds in which we provide asset management services. We determined the mandatory privatized social security funds, which also include contributions for voluntary pension savings, voluntary non-pension savings and compensation savings accounts, are VIEs. This is because the equity holders as a group lack the power, due to voting rights or similar rights, to direct the activities of the entity that most significantly impact the entity's economic performance and also because equity investors are protected from below-average market investment returns relative to the industry's return, due to a regulatory guarantee that we provide. Further we concluded we are the primary beneficiary through our power to make decisions and our significant variable interest in the funds. The purpose of the funds, which reside in legally segregated entities, is to provide long-term retirement savings. The obligation to the customer is directly related to the assets held in the funds and, as such, we present the assets as separate account assets and the obligation as separate account liabilities within our consolidated statements of financial position.

Principal International Hong Kong offers retirement pension schemes in which we provide trustee, administration and asset management services to employers and employees under the Hong Kong Mandatory Provident Fund and Occupational Retirement Schemes Ordinance pension schemes. Each pension scheme has various guaranteed and non-guaranteed constituent funds, or investment options, in which customers can invest their money. The guaranteed funds provide either a guaranteed rate of return to the customer or a minimum guarantee on withdrawals under certain qualifying events. We determined the guaranteed funds are VIEs due to the fact the equity holders, as a group, lack the obligation to absorb expected losses due to the guarantee we provide. We concluded we are the primary beneficiary because we have the power to make decisions and to receive benefits and the obligation to absorb losses that could be potentially significant to the VIE. Therefore, we consolidate the underlying assets and liabilities of the funds and present as separate accounts or within the general account, depending on the terms of the guarantee.

Real Estate

We invest in several real estate limited partnerships and limited liability companies. The entities invest in real estate properties. Certain of these entities are VIEs based on the combination of our significant economic interest and related voting rights. We determined we are the primary beneficiary as a result of our power to control the entities through our significant ownership. Due to the nature of these real estate investments, the investment balance will fluctuate as we purchase and sell interests in the entities and as capital expenditures are made to improve the underlying real estate.

Sponsored Investment Funds

We sponsor and invest in certain investment funds for which we provide asset management services. Although our asset management fee is commensurate with the services provided and consistent with fees for similar services negotiated at arms-length, we have a variable interest for funds where our other interests are more than insignificant. The funds are VIEs as the equity holders lack power through voting rights to direct the activities of the entity that most significantly impact its economic performance. We determined we are the primary beneficiary of the VIEs where our interest in the entity is more than insignificant and we are the asset manager.

We also invest in certain series of another investment fund. These series are VIEs as the equity holders of each series lack the power to direct the most significant activities of the VIE. We determined we are the primary beneficiary of these series as our interest is more than insignificant and collectively we have the power to direct the most significant activities of the fund.

Assets and Liabilities of Consolidated Variable Interest Entities

The carrying amounts of our consolidated VIE assets, which can only be used to settle obligations of consolidated VIEs, and liabilities of consolidated VIEs for which creditors do not have recourse were as follows:

	March 31, 2020		Decembe	er 31, 2019	
	Total	Total	Total	Total	
	assets	liabilities	assets	liabilities	
		(in m	illions)		
Grantor trust (1)	\$ 35.1	\$ 34.7	\$ 99.9	\$ 98.6	
Mandatory retirement savings funds (2)	31,535.3	31,256.1	39,891.1	39,524.9	
Real estate (3)	421.5	26.9	479.7	88.0	
Sponsored investment funds (4)	339.7	8.3	331.4	2.2	
Total	\$ 32,331.6	\$ 31,326.0	\$ 40,802.1	\$ 39,713.7	

- (1) The assets of the grantor trust are primarily fixed maturities, available-for-sale. The liabilities are primarily other liabilities that reflect an embedded derivative of the forecasted transaction to deliver the underlying securities.
- (2) The assets of the mandatory retirement savings funds include separate account assets and equity securities. The liabilities include separate account liabilities and contractholder funds.
- (3) The assets of the real estate VIEs primarily include real estate and cash. Liabilities primarily include other liabilities and included long-term debt as of December 31, 2019.
- (4) The assets of sponsored investment funds are primarily fixed maturities and equity securities, certain of which are reported with other investments, and cash. The consolidated statements of financial position included a \$187.6 million and \$215.4 million redeemable noncontrolling interest for sponsored investment funds as of March 31, 2020 and December 31, 2019, respectively.

Unconsolidated Variable Interest Entities

We hold a variable interest in a number of VIEs where we are not the primary beneficiary. Our investments in these VIEs are reported in fixed maturities, available-for-sale; fixed maturities, trading; equity securities and other investments in the consolidated statements of financial position and are described below.

Unconsolidated VIEs include certain commercial mortgage-backed securities ("CMBS"), residential mortgage-backed pass-through securities ("RMBS") and other asset-backed securities ("ABS"). All of these entities were deemed VIEs because the equity within these entities is insufficient to sustain them. We determined we are not the primary beneficiary in the entities within these categories of investments. This determination was based primarily on the fact we do not own the class of security that controls the unilateral right to replace the special servicer or equivalent function.

We invest in cash collateralized debt obligations, collateralized bond obligations, collateralized loan obligations and other collateralized structures, which are VIEs due to insufficient equity to sustain the entities. We have determined we are not the primary beneficiary of these entities primarily because we do not control the economic performance of the entities and were not involved with the design of the entities or because we do not have a potentially significant variable interest in the entities for which we are the asset manager.

We have invested in various VIE trusts and similar entities as a debt holder. Most of these entities are classified as VIEs due to insufficient equity to sustain them. In addition, we have an entity classified as a VIE based on the combination of our significant economic interest and lack of voting rights. We have determined we are not the primary beneficiary primarily because we do not control the economic performance of the entities and were not involved with the design of the entities.

We have invested in partnerships and other funds, which are classified as VIEs. The entities are VIEs as equity holders lack the power to control the most significant activities of the entities because the equity holders do not have either the ability by a simple majority to exercise substantive kick-out rights or substantive participating rights. We have determined we are not the primary beneficiary because we do not have the power to direct the most significant activities of the entities.

As previously discussed, we sponsor and invest in certain investment funds that are VIEs. We determined we are not the primary beneficiary of the VIEs for which we are the asset manager but do not have a potentially significant variable interest in the funds.

We hold an equity interest in Mexican mandatory privatized social security funds in which we provide asset management services. Our equity interest in the funds is considered a variable interest. We concluded the funds are VIEs because the equity holders as a group lack decision-making ability through their voting rights. We are not the primary beneficiary of the VIEs because although we, as the asset manager, have the power to direct the activities of the VIEs, we do not have a potentially significant variable interest in the funds.

The carrying value and maximum loss exposure for our unconsolidated VIEs were as follows:

_	Asset carrying value		num exposure to loss (1)
NK 1 04 0000	(in m	illions)	
March 31, 2020			
Fixed maturities, available-for-sale:	400 =	ф	455.0
Corporate		\$	177.6
Residential mortgage-backed pass-through securities	3,201.9		3,063.8
Commercial mortgage-backed securities	4,493.7		4,793.6
Collateralized debt obligations (2)	3,348.3		3,555.6
Other debt obligations	7,786.3		7,806.8
Fixed maturities, trading:			
Residential mortgage-backed pass-through securities	272.2		272.2
Commercial mortgage-backed securities	24.9		24.9
Collateralized debt obligations (2)	19.8		19.8
Other debt obligations	11.5		11.5
Equity securities	97.1		97.1
Other investments:			
Other limited partnership and fund interests (3)	915.3		1,463.6
December 31, 2019			
Fixed maturities, available-for-sale:			
Corporate	3 238.2	\$	225.7
Residential mortgage-backed pass-through securities	2,982.4		2,913.9
Commercial mortgage-backed securities	4,850.2		4,746.6
Collateralized debt obligations (2)	3,215.3		3,226.7
Other debt obligations	8,191.1		8,076.4
Fixed maturities, trading:			
Residential mortgage-backed pass-through securities	282.3		282.3
Commercial mortgage-backed securities	28.2		28.2
Collateralized debt obligations (2)	20.9		20.9
Other debt obligations	13.2		13.2
Equity securities	123.2		123.2
Other investments:			
Other limited partnership and fund interests (3)	911.9		1,467.0

⁽¹⁾ Our risk of loss is limited to our initial investment measured at amortized cost for fixed maturities, available-for-sale. Our risk of loss is limited to our investment measured at fair value for our fixed maturities, trading and equity securities. Our risk of loss is limited to our carrying value plus any unfunded commitments and/or guarantees and similar provisions for our other investments. Unfunded commitments are not liabilities on our consolidated statements of financial position because we are only required to fund additional equity when called upon to do so by the general partner or investment manager.

Money Market Funds

We are the investment manager for certain money market mutual funds. These types of funds are exempt from assessment under any consolidation model due to a scope exception for money market funds registered under Rule 2a-7 of the Investment Company Act of 1940 or similar funds. As of March 31, 2020 and December 31, 2019, money market mutual funds we manage held \$4.7 billion and \$4.0 billion in total assets, respectively. We have no contractual obligation to contribute to these funds; however, we provide support through the waiver of fees and through expense reimbursements. The amount of fees waived and expenses reimbursed was insignificant.

⁽²⁾ Primarily consists of collateralized loan obligations backed by secured corporate loans.

⁽³⁾ As of March 31, 2020 and December 31, 2019, the maximum exposure to loss for other limited partnership and fund interests includes \$126.0 million and \$129.1 million, respectively, of debt within certain of our managed international real estate funds that is fully secured by assets whose value exceeds the amount of the debt, but also includes recourse to the investment manager.

3. Investments

Fixed Maturities and Equity Securities

Fixed maturities include bonds, ABS, redeemable preferred stock and certain non-redeemable preferred securities. Equity securities include mutual funds, common stock, non-redeemable preferred stock and required regulatory investments. We classify fixed maturities as either available-for-sale or trading at the time of the purchase and, accordingly, carry them at fair value. Equity securities are also carried at fair value. See Note 10, Fair Value Measurements, for methodologies related to the determination of fair value. Unrealized gains and losses related to fixed maturities, available-for-sale, excluding those in fair value hedging relationships, are reflected in stockholders' equity, net of adjustments associated with DAC and related actuarial balances, derivatives in cash flow hedge relationships and applicable income taxes. Mark-to-market adjustments on equity securities and mark-to-market adjustments on certain fixed maturities, trading are reflected in net realized capital gains (losses). Unrealized gains and losses related to hedged portions of fixed maturities, available-for-sale in fair value hedging relationships are reflected in net investment income. Mark-to-market adjustments related to certain securities carried at fair value with an investment objective to realize economic value through mark-to-market changes are reflected in net investment income.

The amortized cost of fixed maturities includes cost adjusted for amortization of premiums and discounts, computed using the interest method. The amortized cost of fixed maturities, available-for-sale is adjusted for changes in fair value of the hedged portions of securities in fair value hedging relationships and excludes accrued interest receivable. Accrued interest receivable is reported in accrued investment income on the consolidated statements of financial position. Beginning in 2020, fixed maturities, available-for-sale are subject to an allowance for credit loss and changes in the allowance are reported in net income as a component of net realized capital gains (losses). Prior to 2020, the amortized cost of fixed maturities, available-for-sale was adjusted for declines in value that were other than temporary. Prior to 2020, impairments in value deemed to be other than temporary were primarily reported in net income as a component of net realized capital gains (losses), with noncredit impairment losses for certain fixed maturities, available-for-sale reported in OCI. Interest income, as well as prepayment fees and the amortization of the related premium or discount, is reported in net investment income. For loan-backed and structured securities, we recognize income using a constant effective yield based on currently anticipated cash flows.

Available-for-sale securities were as follows:

		Amortized cost (1)	ι	Gross inrealized gains		Gross unrealized losses (in millions)		Allowance for credit loss	Fair value		
March 31, 2020						(in minions)					
Fixed maturities, available-for-sale:											
U.S. government and agencies	\$	1,463.6	\$	267.6	\$	_	\$	_	\$	1,731.2	
Non-U.S. governments		837.4		120.9		1.6				956.7	
States and political subdivisions		7,077.8		709.6		24.0		_		7,763.4	
Corporate		38,044.9		2,446.8		1,063.5		7.0		39,421.2	
Residential mortgage-backed pass-through						Ź				ĺ	
securities		3,063.8		138.4		0.3		_		3,201.9	
Commercial mortgage-backed securities		4,793.6		20.7		320.2		0.4		4,493.7	
Collateralized debt obligations (2)		3,555.6		3.9		211.1		0.1		3,348.3	
Other debt obligations		7,812.0		172.1		192.6		0.1		7,791.4	
Total fixed maturities, available-for-sale	\$	66,648.7	\$	3,880.0	\$	1,813.3	\$	7.6	\$	68,707.8	
			Gross Amortized unrealized cost gains			Gross unrealized losses	Fair value	ir	Other-than- temporary npairments in OCI (3)		
						(in milli	ons)				
December 31, 2019											
Fixed maturities, available-for-sale:											
U.S. government and agencies	\$	1,627.0	\$	100.2	\$	3.0	\$	1,724.2	\$	_	
Non-U.S. governments		852.3		144.1		0.2		996.2		_	
States and political subdivisions		6,857.1		644.5		11.6		7,490.0		_	
Corporate		36,993.1		3,706.5		52.2		40,647.4		_	
Residential mortgage-backed pass-through											
securities		2,913.9		72.3		3.8		2,982.4		_	
Commercial mortgage-backed securities		4,746.6		127.6		24.0		4,850.2		15.8	
Collateralized debt obligations (2)		3,226.7		2.9		14.3		3,215.3		0.9	
Other debt obligations		8,085.8		129.6		14.9		8,200.5		31.7	
Total fixed maturities, available-for-sale	\$	65,302.5	\$	4,927.7	\$	124.0	\$	70,106.2	\$	48.4	

⁽¹⁾ Amortized cost excludes accrued interest receivable of \$569.8 million as of March 31, 2020.

⁽²⁾ Primarily consists of collateralized loan obligations backed by secured corporate loans.

⁽³⁾ Excludes \$62.3 million as of December 31, 2019, of net unrealized gains on impaired fixed maturities, available-for-sale related to changes in fair value subsequent to the impairment date, which are included in gross unrealized gains and gross unrealized losses.

The amortized cost and fair value of fixed maturities, available-for-sale as of March 31, 2020, by expected maturity, were as follows:

	An	nortized cost	1	Fair value
	<u></u>	(in m	illions)	
Due in one year or less	\$	2,170.7	\$	2,173.4
Due after one year through five years		10,179.8		10,168.8
Due after five years through ten years		12,378.6		12,459.7
Due after ten years		22,694.6		25,070.6
Subtotal		47,423.7		49,872.5
Mortgage-backed and other asset-backed securities		19,225.0		18,835.3
Total	\$	66,648.7	\$	68,707.8

Actual maturities may differ because borrowers may have the right to call or prepay obligations. Our portfolio is diversified by industry, issuer and asset class. Credit concentrations are managed to established limits.

Net Realized Capital Gains and Losses

Net realized capital gains and losses on sales of investments are determined on the basis of specific identification. In general, in addition to realized capital gains and losses on investment sales and periodic settlements on derivatives not designated as hedges, we report gains and losses related to the following in net realized capital gains (losses): mark-to-market adjustments on equity securities, mark-to-market adjustments on certain fixed maturities, trading, mark-to-market adjustments on sponsored investment funds, mark-to-market adjustments on derivatives not designated as hedges, cash flow hedge gains (losses) when the hedged item impacts realized capital gains (losses), changes in the valuation allowance for fixed maturities available-for-sale and certain financing receivables, impairments of real estate held for investment, impairments on equity method investments and, prior to 2020, other-than-temporary impairments of securities and subsequent realized recoveries. Investment gains and losses on sales of certain real estate held for sale due to investment strategy and mark-to-market adjustments on certain securities carried at fair value with an investment objective to realize economic value through mark-to-market changes are reported as net investment income and are excluded from net realized capital gains (losses). The major components of net realized capital gains (losses) on investments were as follows:

	March 31,							
	 2020		2019					
	 (in mi	llions)						
Fixed maturities, available-for-sale:								
Gross gains	\$ 23.1	\$	2.5					
Gross losses	(4.2)		(1.5)					
Net credit losses (1)	(7.9)		(6.8)					
Hedging, net (2)	(1.5)		_					
Fixed maturities, trading (3)	(16.4)		14.2					
Equity securities (4)	(63.7)		21.0					
Mortgage loans	(15.7)		0.3					
Derivatives	290.5		5.0					
Other	(72.8)		49.8					
Net realized capital gains	\$ 131.4	\$	84.5					

⁽¹⁾ Upon adoption of authoritative guidance effective January 1, 2020, net credit losses include adjustments to the credit loss valuation allowance, write-offs and recoveries on available-for-sale securities. Prior to 2020, net credit losses included net other-than-temporary impairment losses and recoveries on available-for-sale securities.

⁽²⁾ The change in fair value of fixed maturities, available-for-sale and the change in fair value of derivative hedging instruments in fair value hedging relationships are reported in net investment income with the earnings effect of fixed maturities, available-for-sale.

⁽³⁾ Unrealized gains (losses) on fixed maturities, trading still held at the reporting date were \$(14.2) million and \$14.2 million for the three months ended March 31, 2020 and 2019, respectively.

(4) Unrealized gains (losses) on equity securities still held at the reporting date were \$(66.0) million and \$19.8 million for the three months ended March 31, 2020 and 2019, respectively. This excludes \$(38.5) million and \$22.5 million of unrealized gains (losses) on equity securities still held at the reporting date for the three months ended March 31, 2020 and 2019, respectively, that were reported in net investment income.

Proceeds from sales of investments (excluding call and maturity proceeds) in fixed maturities, available-for-sale were \$541.6 million and \$163.0 million for the three months ended March 31, 2020 and 2019, respectively.

Allowance for Credit Loss

We have a process in place to identify fixed maturity securities that could potentially require an allowance for credit loss. This process involves monitoring market events that could impact issuers' credit ratings, business climate, management changes, litigation and government actions and other similar factors. This process also involves monitoring late payments, pricing levels, downgrades by rating agencies, key financial ratios, financial statements, revenue forecasts and cash flow projections as indicators of credit issues.

Each reporting period, all securities in an unrealized loss position are reviewed to determine whether a decline in value is due to credit. Relevant facts and circumstances considered include: (1) the extent the fair value is below cost; (2) the reasons for the decline in value; (3) the financial position and access to capital of the issuer, including the current and future impact of any specific events and (4) for structured securities, the adequacy of the expected cash flows. To the extent we determine an unrealized loss is due to credit, an allowance for credit loss is recognized through a reduction to net income.

We estimate the amount of the allowance for credit loss as the difference between amortized cost and the present value of the expected cash flows of the security. The present value is determined using the best estimate cash flows discounted at the effective interest rate implicit to the security at the date of purchase or the current yield to accrete an asset-backed or floating rate security. The methodology and assumptions for establishing the best estimate cash flows vary depending on the type of security. The ABS cash flow estimates are based on security specific facts and circumstances that may include collateral characteristics, expectations of delinquency and default rates, loss severity and prepayment speeds and structural support, including subordination and guarantees. The corporate security cash flow estimates are derived from scenario-based outcomes of expected corporate restructurings or liquidations using bond specific facts and circumstances including timing, security interests and loss severity. We do not measure a credit loss allowance on accrued interest receivable because we write off the accrued interest receivable balance to net investment income in a timely manner when we have concern regarding collectability.

Amounts on fixed maturities, available-for-sale deemed to be uncollectible are written off and removed from the allowance for credit loss. A write-off may also occur if we intend to sell a security or whether it is more likely than not we will be required to sell the security before the recovery of its amortized cost which, in some cases, may extend to maturity.

The following table provides a rollforward of the allowance for credit loss by major security type.

						Fo	r the t	three m	onths e	nded M	1arch 3	1, 2020					
									Reside	ential							
									mortg		C		C-11-	teralized			
	U.S govern	ment	Non-		F			backed pass- through				nercial gage- ked		debt igations	d	ther ebt	
	and age	encies	govern	ments	subdiv	isions	Cor	porate	secur		secu	rities		(2)	obliș	ations	Total
Beginning balance (1) Additions for credit losses not	\$	_	\$	_	\$	_	\$	_	(in mill \$	ions)	\$	_	\$	_	\$	_	\$ —
previously recorded	¢		<u>¢</u>		<u>¢</u>		<u>¢</u>	7.0	<u>¢</u>		<u>c</u>	0.4	<u>c</u>	0.1	<u>¢</u>	0.1	7.6 \$ 7.6
Ending balance	Φ	_	Ф	_	D		Þ	7.0	J	=	D	U.4	Þ	0.1	Þ	U.1	J 7.0

⁽¹⁾ The allowance for credit loss associated with fixed maturities, available-for-sale was applied prospectively upon adoption of authoritative guidance effective January 1, 2020.

⁽²⁾ Primarily consists of collateralized loan obligations backed by secured corporate loans.

During 2020, we did not write off any accrued interest to net investment income.

Other-Than-Temporary Impairments

Prior to the implementation of authoritative guidance in 2020, we had a process in place to identify fixed maturity securities that could potentially have an impairment that is other than temporary. This process involved monitoring market events that could impact issuers' credit ratings, business climate, management changes, litigation and government actions and other similar factors. This process also involved monitoring late payments, pricing levels, downgrades by rating agencies, key financial ratios, financial statements, revenue forecasts and cash flow projections as indicators of credit issues.

Each reporting period, all securities were reviewed to determine whether an other-than-temporary decline in value existed and whether losses should be recognized. We considered relevant facts and circumstances in evaluating whether a credit or interest rate related impairment of a security was other than temporary. Relevant facts and circumstances considered include: (1) the extent and length of time the fair value was below cost; (2) the reasons for the decline in value; (3) the financial position and access to capital of the issuer, including the current and future impact of any specific events; (4) for structured securities, the adequacy of the expected cash flows and (5) our intent to sell a security or whether it is more likely than not we will be required to sell the security before the recovery of its amortized cost which, in some cases, may extend to maturity. To the extent we determined a security was deemed to be other than temporarily impaired, an impairment loss was recognized.

The way in which impairment losses on fixed maturities were recognized in the financial statements was dependent on the facts and circumstances related to the specific security. If we intended to sell a security or it was more likely than not that we would be required to sell a security before the recovery of its amortized cost, we recognized an other-than-temporary impairment in net income for the difference between amortized cost and fair value. If we did not expect to recover the amortized cost basis, we did not plan to sell the security and if it was not more likely than not that we would be required to sell a security before the recovery of its amortized cost, the recognition of the other-than-temporary impairment was bifurcated. We recognized the credit loss portion in net income and the noncredit loss portion in OCI ("bifurcated OTTI").

Prior to 2020, net realized capital gains (losses) included total other-than-temporary impairment losses, net of recoveries from the sale of previously impaired securities, as follows:

	M	larch 31, 2019
	· · · · · · · · · · · · · · · · · · ·	(in millions)
Net realized capital gains, excluding impairment losses on available-for-sale securities	\$	91.3
Net other-than-temporary impairment losses on available-for-sale securities		(9.6)
Other-than-temporary impairment losses on fixed maturities, available-for-sale reclassified to other		
comprehensive income (1)		2.8
Net impairment losses on available-for-sale securities		(6.8)
Net realized capital gains	\$	84.5

For the three months ended

We estimated the amount of the credit loss component of a fixed maturity security impairment as the difference between amortized cost and the present value of the expected cash flows of the security. The present value was determined using the best estimate cash flows discounted at the effective interest rate implicit to the security at the date of purchase or the current yield to accrete an asset-backed or floating rate security. The methodology and assumptions for establishing the best estimate cash flows varied depending on the type of security. The ABS cash flow estimates were based on security specific facts and circumstances that may include collateral characteristics, expectations of delinquency and default rates, loss severity and prepayment speeds and structural support, including subordination and guarantees. The corporate security cash flow estimates were derived from scenario-based outcomes of expected corporate restructurings or liquidations using bond specific facts and circumstances including timing, security interests and loss severity.

⁽¹⁾ Represents the net impact of (a) gains resulting from reclassification of noncredit impairment losses for fixed maturities with bifurcated OTTI from net realized capital gains (losses) to OCI and (b) losses resulting from reclassification of previously recognized noncredit impairment losses from OCI to net realized capital gains (losses) for fixed maturities with bifurcated OTTI that had additional credit losses or fixed maturities that previously had bifurcated OTTI that have now been sold or are intended to be sold.

The following table provides a rollforward of accumulated credit losses for fixed maturities with bifurcated credit losses prior to the implementation of new accounting guidance in 2020. The purpose of the table is to provide detail of (1) additions to the bifurcated credit loss amounts recognized in net realized capital gains (losses) during the period and (2) decrements for previously recognized bifurcated credit losses where the loss is no longer bifurcated and/or there has been a positive change in expected cash flows or accretion of the bifurcated credit loss amount.

	FOr	March 31, 2019
		(in millions)
Beginning balance	\$	(117.5)
Credit losses for which an other-than-temporary impairment was not previously recognized		(2.0)
Credit losses for which an other-than-temporary impairment was previously recognized		(4.3)
Reduction for credit losses previously recognized on fixed maturities now sold, paid down or intended to be		
sold		20.4
Net reduction for positive changes in cash flows expected to be collected and amortization (1)		1.1
Ending balance	\$	(102.3)

⁽¹⁾ Amounts are recognized in net investment income.

Available-for-Sale Securities in Unrealized Loss Positions Without an Allowance for Credit Loss

For available-for-sale securities with unrealized losses for which an allowance for credit loss has not been recorded, the gross unrealized losses and fair value, aggregated by investment category and length of time that individual securities have been in a continuous unrealized loss position were as follows:

	_	Less twelve	than mont	hs		March Greate equal to tw	r than	or		To	otal	
		Fair value	u	Gross inrealized losses	Gross ed Fair unrealized value losses			realized		Fair value	u	Gross inrealized losses
Fixed maturities, available-for-sale (1):		(in millions)										
Non-U.S. governments	\$	115.4	\$	1.6	\$	5.2	\$	_	\$	120.6	\$	1.6
States and political subdivisions	•	812.6		23.7		26.1		0.3		838.7		24.0
Corporate		13,248.9		1,021.9		150.9		41.7		13,399.8		1,063.6
Residential mortgage-backed pass-through												
securities		15.1		0.2		3.7		0.1		18.8		0.3
Commercial mortgage-backed securities		3,691.3		302.2		161.8		15.5		3,853.1		317.7
Collateralized debt obligations (2)		2,419.4		164.5		797.0		45.7		3,216.4		210.2
Other debt obligations		4,598.9		185.4		82.9		7.2		4,681.8		192.6
Total fixed maturities, available-for-sale	\$	24,901.6	\$	1,699.5	\$	1,227.6	\$	110.5	\$	26,129.2	\$	1,810.0

⁽¹⁾ Fair value and gross unrealized losses are excluded for available-for-sale securities for which an allowance for credit loss has been recorded.

Of the total amounts, Principal Life's consolidated portfolio represented \$25,549.9 million in available-for-sale fixed maturities with gross unrealized losses of \$1,741.6 million. Of the available-for-sale fixed maturities within Principal Life's consolidated portfolio in a gross unrealized loss position, 89% were investment grade (rated AAA through BBB-) with an average price of 94 (carrying value/amortized cost) as of March 31, 2020. Gross unrealized losses in our fixed maturities portfolio increased during the three months ended March 31, 2020, primarily due to widening of credit spreads, partially offset by a decrease in interest rates.

⁽²⁾ Primarily consists of collateralized loan obligations backed by secured corporate loans.

For those securities that had been in a continuous unrealized loss position for less than twelve months, Principal Life's consolidated portfolio held 3,571 securities with a carrying value of \$24,340.6 million and unrealized losses of \$1,632.4 million reflecting an average price of 94 as of March 31, 2020. Of this portfolio, 89% was investment grade (rated AAA through BBB-) as of March 31, 2020, with associated unrealized losses of \$1,224.3 million. The unrealized losses on these securities can primarily be attributed to changes in market interest rates and changes in credit spreads since the securities were acquired.

For those securities that had been in a continuous unrealized loss position greater than or equal to twelve months, Principal Life's consolidated portfolio held 205 securities with a carrying value of \$1,209.3 million and unrealized losses of \$109.2 million. The average credit rating of this portfolio was AA with an average price of 92 as of March 31, 2020. Of the \$109.2 million in unrealized losses, the corporate sector accounts for \$41.7 million in unrealized losses with an average price of 78 and an average credit rating of BB+. The remaining unrealized losses also include \$45.4 million within the collateralized debt obligation sector accounts with an average price of 95 and an average credit rating of AA+. The unrealized losses on these securities can primarily be attributed to changes in market interest rates and changes in credit spreads since the securities were acquired.

Because we expected to recover our amortized cost, we did not record an allowance for credit loss on these securities as of March 31, 2020. Because it was not our intent to sell the fixed maturity available-for-sale securities with unrealized losses and it was not more likely than not that we would be required to sell these securities before recovery of the amortized cost, which may be at maturity, we did not write down these investments to fair value.

Gross Unrealized Losses for Available-for-Sale Securities

	_	Less twelve	than mont	hs	Decembe Greater equal to tw	r than elve m	or onths		To	otal	
	Fair value				Fair value		Gross realized osses (2)	Fair value		un	Gross realized sses (2)
Fixed maturities, available-for-sale:					(in m	illions)					
U.S. government and agencies	\$	100.0	\$	1.9	\$ 74.2	\$	1.1	\$	174.2	\$	3.0
Non-U.S. governments		17.6		0.2	12.4		_		30.0		0.2
States and political subdivisions		559.9		11.2	86.3		0.4		646.2		11.6
Corporate		1,041.5		27.8	394.7		24.4		1,436.2		52.2
Residential mortgage-backed pass-through											
securities		429.6		1.4	237.3		2.4		666.9		3.8
Commercial mortgage-backed securities		829.3		9.2	268.5		14.8		1,097.8		24.0
Collateralized debt obligations (1)		639.4		1.8	1,447.8		12.5		2,087.2		14.3
Other debt obligations		1,772.8		9.5	613.7		5.4		2,386.5		14.9
Total fixed maturities, available-for-sale	\$	5,390.1	\$	63.0	\$ 3,134.9	\$	61.0	\$	8,525.0	\$	124.0

⁽¹⁾ Primarily consists of collateralized loan obligations backed by secured corporate loans.

Of the total amounts, Principal Life's consolidated portfolio represented \$8,380.7 million in available-for-sale fixed maturities with gross unrealized losses of \$103.9 million. Of the available-for-sale fixed maturities within Principal Life's consolidated portfolio in a gross unrealized loss position, 97% were investment grade (rated AAA through BBB-) with an average price of 99 (carrying value/amortized cost) as of December 31, 2019. Gross unrealized losses in our fixed maturities portfolio decreased during the year ended December 31, 2019, primarily due to a decrease in interest rates and tightening of credit spreads.

For those securities that had been in a continuous unrealized loss position for less than twelve months, Principal Life's consolidated portfolio held 882 securities with a carrying value of \$5,302.7 million and unrealized losses of \$44.0 million reflecting an average price of 99 as of December 31, 2019. Of this portfolio, 98% was investment grade (rated AAA through BBB-) as of December 31, 2019, with associated unrealized losses of \$43.1 million. The unrealized losses on these securities can primarily be attributed to changes in market interest rates and changes in credit spreads since the securities were acquired.

⁽²⁾ Prior to the implementation of authoritative guidance in 2020, other than temporary impairment losses reported in OCI were included with gross unrealized losses resulting in total gross unrealized losses for fixed maturities, available-for-sale being reported in the table.

For those securities that had been in a continuous unrealized loss position greater than or equal to twelve months, Principal Life's consolidated portfolio held 502 securities with a carrying value of \$3,078.0 million and unrealized losses of \$59.9 million. The average credit rating of this portfolio was AA+ with an average price of 98 as of December 31, 2019. Of the \$59.9 million in unrealized losses, the corporate sector accounts for \$23.6 million in unrealized losses with an average price of 94 and an average credit rating of BBB-. The remaining unrealized losses also include \$14.6 million within the commercial mortgage-backed securities sector with an average price of 95 and an average credit rating of AA+. The unrealized losses on these securities can primarily be attributed to changes in market interest rates and changes in credit spreads since the securities were acquired.

Because we expected to recover our amortized cost, it was not our intent to sell the fixed maturity available-for-sale securities with unrealized losses and it was not more likely than not that we would be required to sell these securities before recovery of the amortized cost, which may be at maturity, we did not consider these investments to be other-than-temporarily impaired as of December 31, 2019.

Net Unrealized Gains and Losses on Available-for-Sale Securities and Derivative Instruments

The net unrealized gains and losses on investments in available-for-sale securities and the net unrealized gains and losses on derivative instruments in cash flow hedge relationships are reported as separate components of stockholders' equity. The cumulative amount of net unrealized gains and losses on available-for-sale securities and derivative instruments in cash flow hedge relationships net of adjustments related to DAC and related actuarial balances, policyholder liabilities, noncontrolling interest and applicable income taxes was as follows:

	Ma	rch 31, 2020	Dece	mber 31, 2019
		(in mi	illions)	
Net unrealized gains on fixed maturities, available-for-sale (1)	\$	2,026.1	\$	4,834.2
Noncredit component of impairment losses on fixed maturities, available-for-sale (2)				(48.4)
Net unrealized gains on derivative instruments		154.7		94.1
Adjustments for assumed changes in amortization patterns		71.2		(261.0)
Adjustments for assumed changes in policyholder liabilities		(470.1)		(1,133.5)
Net unrealized gains on other investments and noncontrolling interest adjustments		69.6		96.8
Provision for deferred income taxes		(398.9)		(766.9)
Net unrealized gains on available-for-sale securities and derivative instruments	\$	1,452.6	\$	2,815.3

- (1) Excludes net unrealized gains (losses) on fixed maturities, available-for-sale included in fair value hedging relationships.
- (2) Prior to the implementation of authoritative guidance in 2020, the noncredit component of impairment losses on fixed maturities, available-for-sale was included as a separate component of stockholders' equity.

Financing Receivables

Mortgage Loans

Mortgage loans consist of commercial and residential mortgage loans. Our commercial mortgage loan portfolio consists primarily of non-recourse, fixed rate mortgages on stabilized properties. Our residential mortgage loan portfolio is composed of first lien and home equity mortgages concentrated in Chile and the United States.

Commercial and residential mortgage loans are generally reported at cost adjusted for amortization of premiums and accrual of discounts, computed using the interest method and net of valuation allowances. Amortized cost excludes accrued interest receivable. Interest income is accrued on the principal amount of the loan based on the loan's contractual interest rate. Interest income, as well as prepayment of fees and the amortization of the related premium or discount, is reported in net investment income on the consolidated statements of operations. Accrued interest receivable is reported in accrued investment income on the consolidated statements of financial position. Any changes in the loan valuation allowances are reported in net realized capital gains (losses) on the consolidated statements of operations. Further details relating to our valuation allowance are included under the caption "Financing Receivables Valuation Allowance."

Direct Financing Leases

Our direct financing leases are concentrated in Chile. Our Chilean operations enter into private placement contracts for commercial, industrial and office space properties whereby our Chilean operations purchase the real estate and/or building from the seller-lessee but then lease the property back to the seller-lessee. Ownership of the property is transferred to the lessee by the end of the lease term. Direct financing leases are reported as a component of other investments in the consolidated statements of financial position.

Reinsurance Recoverables

Our reinsurance recoverables include amounts due from reinsurers for paid or unpaid claims, claims incurred but not reported or policy benefits. We cede life, disability, medical and long-term care insurance to other insurance companies through reinsurance. Reinsurance recoverables are reported with premiums due and other receivables in the consolidated statements of financial position.

Credit Quality Information for Financing Receivables

The amortized cost of our financing receivables by credit risk and vintage as of March 31, 2020, was as follows:

	20	020		2019		2018		2017		2016		Prior	Total
								(in millions	s)				
Commercial mortgage loans (1):													
A- and above	\$ 5	36.3	\$ 2	2,593.6	\$ 2	2,556.5	\$ 2	2,006.5	\$ 1	1,575.2	\$ 4	4,680.4	\$ 13,948.5
BBB+ thru BBB-		12.4		165.2		322.5		182.0		76.0		398.4	1,156.5
BB+ thru BB-		_		28.8		4.3		_		_		_	33.1
B+ and below		_		_		_						4.5	4.5
Total	\$ 5	48.7	\$ 2	2,787.6	\$ 2	2,883.3	\$ 2	2,188.5	\$ 1	1,651.2	\$:	5,083.3	\$ 15,142.6
Direct financing leases:													
A- and above	\$	9.6	\$	1.4	\$	35.6	\$	16.0	\$	29.4	\$	233.4	\$ 325.4
BBB+ thru BBB-		40.3		22.3		38.4		23.8		16.7		157.6	299.1
BB+ thru BB-		5.6		6.7		3.4		_		_		4.1	19.8
B+ and below		_		_		_		_		_		1.3	1.3
Total	\$	55.5	\$	30.4	\$	77.4	\$	39.8	\$	46.1	\$	396.4	\$ 645.6
Residential mortgage loans (1):													
Performing	\$	73.6	\$	509.4	\$	210.5	\$	196.6	\$	138.2	\$	409.1	\$ 1,537.4
Non-performing		_		0.7		0.9		0.6		_		7.5	9.7
Total	\$	73.6	\$	510.1	\$	211.4	\$	197.2	\$	138.2	\$	416.6	\$ 1,547.1
Reinsurance recoverables													\$ 510.4

⁽¹⁾ The amortized cost of mortgage loans excluded accrued interest receivable of \$56.0 million as of March 31, 2020.

The amortized cost of our commercial mortgage loan portfolio by credit risk, as determined by our internal rating system expressed in terms of an S&P bond equivalent rating, was as follows:

	December 31, 2019 (1)										
	Brick and mortar CTL					Total					
			(iı	n millions)							
A- and above	\$	13,885.2	\$	76.7	\$	13,961.9					
BBB+ thru BBB-		943.1		83.8		1,026.9					
BB+ thru BB-		23.3		_		23.3					
B+ and below		5.1		_		5.1					
Total	\$	14,856.7	\$	160.5	\$	15,017.2					
					_						

⁽¹⁾ Prior to the implementation of authoritative guidance in 2020, commercial mortgage loan credit quality disclosures included information about classes of those mortgages and information by vintage was excluded. Beginning in 2020, we determined that total commercial mortgage loans by credit risk and vintage is the most meaningful presentation.

The amortized cost of our performing and non-performing residential mortgage loans was as follows:

		December 31, 2019 (1)										
]	First liens		Total								
			(in	millions)								
Performing	\$	1,474.2	\$	8.0	\$	1,482.2						
Non-performing		11.5		3.0		14.5						
Total	\$	1,485.7	\$	11.0	\$	1,496.7						

⁽¹⁾ Prior to the implementation of authoritative guidance in 2020, residential mortgage loan credit quality disclosures included information about classes of those mortgages and information by vintage was excluded. Beginning in 2020, we determined that total residential mortgage loans by credit risk and vintage is the most meaningful presentation.

Financing Receivables Credit Monitoring

Commercial Credit Risk Profile Based on Internal Rating

We actively monitor and manage our commercial mortgage loan and direct financing lease portfolios. All commercial mortgage loans and direct financing leases are analyzed regularly and substantially all are internally rated, based on a proprietary risk rating cash flow model, in order to monitor the financial quality of these assets. The models stress expected cash flows at various levels and at different points in time depending on the durability of the income stream, which includes our assessment of factors such as location (macro and micro markets), tenant quality and lease expirations. Our internal rating analysis presents expected losses in terms of an S&P Global ("S&P") bond equivalent rating for domestic commercial mortgage loans and Feller rate equivalent for Chilean commercial mortgage loans and direct financing leases. As the credit risk for commercial mortgage loans and direct financing leases increases, we adjust our internal ratings downward with loans in the category "B+ and below" having the highest risk for credit loss. Internal ratings on commercial mortgage loans and direct financing leases are updated at least annually and potentially more often for certain investments with material changes in collateral value or occupancy and for investments on an internal "watch list".

Commercial mortgage loans and direct financing leases that require more frequent and detailed attention are identified and placed on an internal "watch list". Among the criteria that may indicate a potential problem are significant negative changes in ratios of loan to value or contract rents to debt service, major tenant vacancies or bankruptcies, borrower sponsorship problems, late payments, delinquent taxes and loan relief/restructuring requests.

Residential Credit Risk Profile Based on Performance Status

Our residential mortgage loan portfolio is monitored based on performance of the loans. Monitoring on a residential mortgage loan increases when the loan is delinquent or earlier if there is an indication of potential impairment. We define non-performing domestic residential mortgage loans as loans 90 days or greater delinquent or on non-accrual status. We define non-performing residential first lien mortgages in the Chilean market as loans that have missed a specified number of coupon payments based on the nature of the loans and collection practices in that market.

Non-Accrual Financing Receivables

Financing receivables are placed on non-accrual status if we have concern regarding the collectability of future payments or if a financing receivable has matured without being paid off or extended. Factors considered may include conversations with the borrower, loss of major tenant, bankruptcy of borrower or major tenant, decreased property cash flow for commercial mortgage loans and direct financing leases or number of days past due and other circumstances for residential mortgage loans. Based on an assessment as to the collectability of the principal, a determination is made to apply any payments received either against the principal, against the valuation allowance or according to the contractual terms. When a financing receivable is placed on non-accrual status, the accrued unpaid interest receivable is reversed against interest income. Accrual of interest resumes after factors resulting in doubts about collectability have improved. Financing receivables in the Chilean market are carried on accrual for a longer period of delinquency than domestic financing receivables, as assessment of collectability is based on the nature of the financing receivables and collection practices in that market.

The amortized cost of financing receivables on non-accrual status was as follows:

		March 31, 2020					
	amoi	Beginning amortized cost on nonaccrual		Ending amortized cost on nonaccrual		rtized cost onaccrual s without oluation	
		tatus	status		allowance		
Commercial mortgage loans	\$	5.0	\$ (II	n millions) 4.5	\$	_	
Residential mortgage loans		6.8		6.9		8.0	
Total	\$	11.8	\$	11.4	\$	8.0	
Residential:			-		e r 31, 201 millions)	9 (1)	
First liens			9	5		8.8	
Home equity						3.0	
Total			9	5		11.8	

⁽¹⁾ Prior to the implementation of authoritative guidance in 2020, commercial and residential mortgage loan non-accrual disclosures included information about classes of those mortgages. Beginning in 2020, we determined that total commercial and residential mortgage loans on non-accrual status is the most meaningful presentation.

As of March 31, 2020, no interest income was recognized on non-accrual financing receivables.

The aging of our financing receivables, based on amortized cost, was as follows:

		March 31, 2020										
		30-59 days 60-89 days				90 days or more past Total past					90 d mo	ortized cost days or re and
	pa	st due	past due			due due			Current Total (1		accruing	
							(in	millions)				
Commercial mortgage loans	\$	5.8	\$	_	\$	4.4	\$	10.2	\$ 15,132.4	\$ 15,142.6	\$	_
Direct financing leases		4.9		_		_		4.9	640.7	645.6		_
Residential mortgage loans		35.0		8.0		6.1		49.1	1,498.0	1,547.1		2.8
Total	\$	45.7	\$	8.0	\$	10.5	\$	64.2	\$ 17,271.1	\$ 17,335.3	\$	2.8

⁽¹⁾ No reinsurance recoverables were considered past due as of March 31, 2020.

		December 31, 2019 (1)										
	30-59 days past due			_ 5			Total past due		Current	Total loans	invo 90 mo	corded estment days or ore and cruing
							(ir	n millions)				
Commercial-brick and mortar	\$	_	\$	_	\$	_	\$	_	\$ 14,856.7	\$ 14,856.7	\$	_
Commercial-CTL		_				_		_	160.5	160.5		_
Residential-first liens		46.6		9.3		11.2		67.1	1,418.6	1,485.7		2.7
Residential-home equity		0.8		_		0.3		1.1	9.9	11.0		
Total	\$	47.4	\$	9.3	\$	11.5	\$	68.2	\$ 16,445.7	\$ 16,513.9	\$	2.7

⁽¹⁾ Prior to the implementation of authoritative guidance in 2020, commercial and residential mortgage loan past due disclosures included information about classes of those mortgages. Beginning in 2020, we determined that aging for total commercial and residential mortgage loans is the most meaningful presentation.

Financing Receivables Valuation Allowance

We establish a valuation allowance to provide for the risk of credit losses inherent in our financing receivables. The valuation allowance is maintained at a level believed adequate by management to absorb estimated expected credit losses. The valuation allowance is based on amortized cost excluding accrued interest receivable and includes reserves for pools of financing receivables with similar risk characteristics. We do not measure a credit loss allowance on accrued interest receivable because we write off the uncollectible accrued interest receivable balance to net investment income in a timely manner, generally within 90 days domestically or, in the Chilean market, based on the nature of the loans and collection practices in that market. We wrote off \$0.0 million of commercial mortgage loan accrued interest receivable and \$0.0 million of residential mortgage loan accrued interest receivable during the three months ended March 31, 2020.

For commercial and residential mortgage loans and direct financing leases, management's periodic evaluation and assessment of the valuation allowance adequacy is based on known and inherent risks in the portfolio, adverse situations that may affect a borrower's ability to repay, the estimated value of the underlying collateral, composition of the portfolio, portfolio delinquency information, underwriting standards, peer group information, current and forecasted economic conditions, loss experience and other relevant factors. For reinsurance recoverables, management's periodic evaluation and assessment of the valuation allowance adequacy is based on known and inherent risks, adverse situations that may affect a reinsurer's ability to repay, current and forecasted economic conditions, industry loss experience and other relevant factors.

Our commercial mortgage loans and direct financing leases are pooled by risk rating level with an estimated loss ratio applied against each risk rating level. The loss ratio is generally based upon historical loss experience for each risk rating level as adjusted for certain current and forecasted environmental factors management believes to be relevant. Environmental factors are forecasted for two years or less with immediate reversion to historical experience. The allowance for direct financing leases is also adjusted for the residual value of the leased assets. A commercial mortgage loan or direct financing lease is evaluated individually if it does not continue to share similar risk characteristics of a pool. We analyze the need for an individual evaluation for any domestic commercial mortgage loan that is delinquent for 60 days or more, in process of foreclosure, restructured, on the internal "watch list" or that currently is evaluated individually. We analyze the need for an individual evaluation for any Chilean commercial mortgage loan or direct financing lease that is considered past due based on collection practices in the Chilean market and the nature of the loan or lease.

We estimate expected credit losses for certain commercial mortgage loan or direct financing lease commitments where we have a contractual obligation to extend credit. The expected credit losses are estimated based on the commercial mortgage loan or direct financing lease valuation allowance process described previously, adjusted for probability of funding. The estimated expected credit losses for loan commitments are reported in other liabilities on the consolidated statements of financial position.

We evaluate residential mortgage loans based on aggregated risk factors and historical loss experience by pool type. We adjust these quantitative factors for qualitative factors of present and forecasted conditions. Qualitative factors include items such as economic and business conditions, changes in the portfolio, value of underlying collateral and concentrations.

A residential mortgage loan is evaluated individually if it does not continue to share similar risk characteristics of a pool. We analyze the need for an individual evaluation for any domestic residential mortgage loan that is delinquent for 60 days or more, in process of foreclosure, restructured, on the internal "watch list" or that currently is evaluated individually. We analyze the need for an individual evaluation for any Chilean residential mortgage loan that is considered past due based on collection practices in the Chilean market and the nature of the loan.

As discussed previously, commercial and residential mortgage loans and direct financing leases are evaluated individually if the asset does not continue to share similar risk characteristics of a pool. When we determine a commercial or residential mortgage loan is probable of foreclosure, a valuation allowance is established equal to the difference between the carrying amount of the mortgage loan and the estimated value of the collateral reduced by the cost to sell. For certain commercial mortgage loans where repayment is expected to be provided substantially through the operation or sale of the collateral and the borrower is experiencing financial difficulty, we elect to establish a valuation allowance equal to the difference between the carrying amount of the mortgage loan and the estimated value of the real estate collateral, which may be reduced by the cost to sell. Estimated value may also be based on either the present value of the expected future cash flows discounted at the asset's effective interest rate or the asset's observable market price. Subsequent changes in the estimated value are reflected in the valuation allowance. Amounts on financing receivables deemed to be uncollectible are charged off and removed from the valuation allowance. The change in the valuation allowance for loans and direct financing leases is included in net realized capital gains (losses) on the consolidated statements of operations.

Our reinsurance recoverables are pooled by reinsurer risk rating with an estimated loss ratio applied against each risk rating level. The loss ratio is generally based upon industry historical loss experience and expected recovery timing as adjusted for certain current and forecasted environmental factors management believes to be relevant. Environmental factors are forecasted for five years or less with immediate reversion to industry historical experience. A reinsurance recoverable is evaluated individually if it does not continue to share similar risk characteristics of a pool. We analyze the need for an individual evaluation for any reinsurance recoverable based on past due payments and changes in reinsurer risk ratings. The change in the valuation allowance for reinsurance recoverables is included in benefits, claims and settlement expenses on the consolidated statements of operations.

A rollforward of our valuation allowance was as follows:

Beginning balance (1)
Provision (2)
Charge-offs
Recoveries
Ending balance

			For the three	e month	s ended Mar	ch 31, 2	020		
Direct Commercial financing						surance			
mort	gage loans		leases	mor	mortgage loans		recoverables		Total
				(in i	millions)				
\$	27.3	\$		\$	3.3	\$	2.5	\$	33.1
	10.4		0.2		2.3		_		12.9
	_		_		(0.1)		_		(0.1)
	_		_		0.6		_		0.6
\$	37.7	\$	0.2	\$	6.1	\$	2.5	\$	46.5

	Commercial Residential (in millions)					Total		
For the three months ended March 31, 2019 (3)								
Beginning balance	\$	24.3	\$	3.1	\$	27.4		
Provision		0.4		(8.0)		(0.4)		
Charge-offs		_		(0.1)		(0.1)		
Recoveries		_		0.7		0.7		
Ending balance	\$	24.7	\$	2.9	\$	27.6		
Allowance ending balance by basis of impairment method:								
Individually evaluated for impairment	\$	_	\$	1.4	\$	1.4		
Collectively evaluated for impairment		24.7		1.5		26.2		
Allowance ending balance	\$	24.7	\$	2.9	\$	27.6		
Loan balance by basis of impairment method:								
Individually evaluated for impairment	\$	_	\$	8.1	\$	8.1		
Collectively evaluated for impairment		14,274.2		1,342.8		15,617.0		
Loan ending balance	\$	14,274.2	\$	1,350.9	\$	15,625.1		

⁽¹⁾ Upon adoption of authoritative guidance effective January 1, 2020, we updated accounting policies and methodology, adjusted the commercial and residential mortgage loan valuation allowance and established a valuation allowance for reinsurance recoverables. See Note 1, Nature of Operations and Significant Accounting Policies under the caption, "Recent Accounting Pronouncements" for further details.

Mortgage Loans

We periodically purchase mortgage loans as well as sell mortgage loans we have originated. Mortgage loans purchased and sold were as follows:

	For the three months ended March 31,				
	2020		2019		
	(in m	illions)			
Commercial mortgage loans:					
Purchased	\$ 12.8	\$	12.9		
Sold	1.1		0.5		
Residential mortgage loans:					
Purchased	226.8		33.2		
Sold	24.9		10.9		

⁽²⁾ During the three months ended March 31, 2020, the outbreak of COVID-19 adversely impacted global economic activity and contributed to significant volatility in financial markets. As a result, certain current and forecasted environmental factors management believes to be relevant were adjusted, resulting in an increase in the valuation allowance for commercial and residential mortgage loans and direct financing leases.

⁽³⁾ Prior to the implementation of authoritative guidance in 2020, only commercial and residential mortgage loans were included in the allowance rollforward and the allowance was based on either individual or collective evaluation.

Our commercial mortgage loan portfolio is diversified by geographic region and specific collateral property type as follows:

	March 31	, 2020	December	31, 2019	
	Amortized	Percent	Amortized	Percent	
	cost	of total (\$ in mill	ions)	of total	
Geographic distribution		(ψ ιπ πιπ	ions)		
New England	\$ 682.7	4.5 %	\$ 613.9	4.1 %	
Middle Atlantic	4,168.0	27.6	4,139.7	27.5	
East North Central	615.4	4.1	624.5	4.2	
West North Central	226.7	1.5	237.2	1.6	
South Atlantic	2,306.9	15.2	2,318.4	15.4	
East South Central	431.7	2.9	438.5	2.9	
West South Central	1,443.8	9.5	1,450.0	9.7	
Mountain	943.5	6.2	931.8	6.2	
Pacific	4,047.2	26.7	3,963.7	26.4	
International	276.7	1.8	299.5	2.0	
Total	\$ 15,142.6	100.0 %	\$ 15,017.2	100.0 %	
Property type distribution					
Office	\$ 4,812.6	31.8 %	\$ 4,887.1	32.6 %	
Retail	1,954.4	12.9	2,052.6	13.7	
Industrial	2,335.2	15.4	2,268.5	15.1	
Apartments	5,522.0	36.5	5,246.9	34.9	
Hotel	90.0	0.6	90.8	0.6	
Mixed use/other	428.4	2.8	471.3	3.1	
Total	\$ 15,142.6		\$ 15,017.2	100.0 %	

Impaired Mortgage Loans

Prior to 2020, impaired mortgage loans were loans with a related specific valuation allowance, loans whose carrying amount had been reduced to the expected collectible amount because the impairment had been considered other than temporary or a loan modification had been classified as a troubled debt restructuring ("TDR"). Based on an assessment as to the collectability of the principal, a determination was made to apply any payments received either against the principal, against the valuation allowance or according to the contractual terms of the loan. We did not have any significant impaired mortgage loans in 2019.

Mortgage Loan Modifications

Our commercial and residential mortgage loan portfolios can include loans that have been modified. We assess loan modifications on a case-by-case basis to evaluate whether a TDR has occurred. When we have commercial mortgage loan TDRs, they are modified to delay or reduce principal payments and to reduce or delay interest payments. The commercial mortgage loan modifications result in delayed cash receipts, a decrease in interest income and loan rates that are considered below market. When we have residential mortgage loan TDRs, they include modifications of interest-only payment periods, delays in principal balloon payments and interest rate reductions. Residential mortgage loan modifications result in delayed or decreased cash receipts and a decrease in interest income.

When we have commercial mortgage loan TDRs, they are reserved for in the mortgage loan valuation allowance at the estimated fair value of the underlying collateral reduced by the cost to sell.

When we have residential mortgage loan TDRs, they are specifically reserved for in the mortgage loan valuation allowance if losses result from the modification. Residential mortgage loans that have defaulted or have been discharged through bankruptcy are reduced to the expected collectible amount.

We did not have any significant loans that were modified and met the criteria of a TDR for the three months ended March 31, 2020 and 2019.

Securities Posted as Collateral

As of March 31, 2020 and December 31, 2019, we posted \$4,382.7 million and \$4,062.0 million, respectively, in commercial mortgage loans and residential first lien mortgages to satisfy collateral requirements associated with our obligation under funding agreements with Federal Home Loan Bank of Des Moines ("FHLB Des Moines"). In addition, as of March 31, 2020 and December 31, 2019, we posted \$2,793.4 million and \$2,749.4 million, respectively, in fixed maturities, available-for-sale and trading securities to satisfy collateral requirements primarily associated with a reinsurance arrangement, our derivative credit support annex (collateral) agreements, Futures Commission Merchant ("FCM") agreements, a lending arrangement and our obligation under funding agreements with FHLB Des Moines. Since we did not relinquish ownership rights on these instruments, they are reported as mortgage loans, fixed maturities, available-for-sale and fixed maturities, trading, respectively, on our consolidated statements of financial position. Of the securities posted as collateral, as of March 31, 2020 and December 31, 2019, \$307.2 million and \$163.9 million, respectively, could be sold or repledged by the secured party.

Balance Sheet Offsetting

Financial assets subject to master netting agreements or similar agreements were as follows:

			GI	consolidated of financi					
	Gross amount								
		gnized		nancial		ollateral received	Net amount		
-	assets (1) ins			instruments (2) received (in millions)				Net amount	
March 31, 2020				(/				
Derivative assets	\$	616.2	\$	(93.8)	\$	(517.5)	\$	4.9	
Reverse repurchase agreements		9.7		· —		(9.7)		_	
Total	\$	625.9	\$	(93.8)	\$	(527.2)	\$	4.9	
December 31, 2019							-		
Derivative assets	\$	288.7	\$	(88.4)	\$	(197.6)	\$	2.7	
Reverse repurchase agreements		23.6		_		(23.6)		_	
Total	\$	312.3	\$	(88.4)	\$	(221.2)	\$	2.7	

⁽¹⁾ The gross amount of recognized derivative and reverse repurchase agreement assets are reported with other investments and cash and cash equivalents, respectively, on the consolidated statements of financial position. The above excludes \$1.4 million and \$6.0 million of derivative assets as of March 31, 2020 and December 31, 2019, respectively, that are not subject to master netting agreements or similar agreements. The gross amounts of derivative and reverse repurchase agreement assets are not netted against offsetting liabilities for presentation on the consolidated statements of financial position.

⁽²⁾ Represents amount of offsetting derivative liabilities that are subject to an enforceable master netting agreement or similar agreement that are not netted against the gross derivative assets for presentation on the consolidated statements of financial position.

Financial liabilities subject to master netting agreements or similar agreements were as follows:

			Gi	oss amounts consolidated of financia				
	Gross amount of recognized liabilities (1)			ancial ments (2)		ollateral pledged	Ne	t amount
				(in mi	llions)			
March 31, 2020								
Derivative liabilities	\$	203.7	\$	(93.8)	\$	(92.9)	\$	17.0
December 31, 2019					-		-	
Derivative liabilities	\$	216.0	\$	(88.4)	\$	(118.3)	\$	9.3

- (1) The gross amount of recognized derivative liabilities is reported with other liabilities on the consolidated statements of financial position. The above excludes \$596.9 million and \$314.5 million of derivative liabilities as of March 31, 2020 and December 31, 2019, respectively, which are primarily embedded derivatives that are not subject to master netting agreements or similar agreements. The gross amounts of derivative liabilities are not netted against offsetting assets for presentation on the consolidated statements of financial position.
- (2) Represents amount of offsetting derivative assets that are subject to an enforceable master netting agreement or similar agreement that are not netted against the gross derivative liabilities for presentation on the consolidated statements of financial position.

The financial instruments that are subject to master netting agreements or similar agreements include right of setoff provisions. Derivative instruments include provisions to setoff positions covered under the agreements with the same counterparties and provisions to setoff positions outside of the agreements with the same counterparties in the event of default by one of the parties. Derivative instruments also include collateral or variation margin provisions, which are generally settled daily with each counterparty. See Note 4, Derivative Financial Instruments, for further details.

Repurchase and reverse repurchase agreements include provisions to setoff other repurchase and reverse repurchase balances with the same counterparty. Repurchase and reverse repurchase agreements also include collateral provisions with the counterparties. For reverse repurchase agreements we require the counterparties to pledge collateral with a value greater than the amount of cash transferred. We have the right but do not sell or repledge collateral received in reverse repurchase agreements. Repurchase agreements are structured as secured borrowings for all counterparties. We pledge fixed maturities available-for-sale, which the counterparties have the right to sell or repledge. Interest incurred on repurchase agreements is reported as part of operating expenses on the consolidated statements of operations. Net proceeds related to repurchase agreements are reported as a component of financing activities on the consolidated statements of cash flows. We did not have any outstanding repurchase agreements as of March 31, 2020 and December 31, 2019.

4. Derivative Financial Instruments

Derivatives are generally used to hedge or reduce exposure to market risks associated with assets held or expected to be purchased or sold and liabilities incurred or expected to be incurred. Derivatives are used to change the characteristics of our asset/liability mix consistent with our risk management activities. Derivatives are also used in asset replication strategies.

Types of Derivative Instruments

Interest Rate Contracts

Interest rate risk is the risk we will incur economic losses due to adverse changes in interest rates. Sources of interest rate risk include the difference between the maturity and interest rate changes of assets with the liabilities they support, timing differences between the pricing of liabilities and the purchase or procurement of assets and changing cash flow profiles from original projections due to prepayment options embedded within asset and liability contracts. We use various derivatives to manage our exposure to fluctuations in interest rates.

Interest rate swaps are contracts in which we agree with other parties to exchange, at specified intervals, the difference between fixed rate and/or floating rate interest amounts based upon designated market rates or rate indices and an agreed upon notional principal amount. Generally, no cash is exchanged at the outset of the contract and no principal payments are made by any party. Cash is paid or received based on the terms of the swap. We use interest rate swaps primarily to more closely match the interest rate characteristics of assets and liabilities and to mitigate the risks arising from timing mismatches between assets and liabilities (including duration mismatches). We also use interest rate swaps to hedge against changes in the value of assets we anticipate acquiring and other anticipated transactions and commitments. Interest rate swaps are used to hedge against changes in the value of the guaranteed minimum withdrawal benefit ("GMWB") liability. The GMWB rider on our variable annuity products provides for guaranteed minimum withdrawal benefits regardless of the actual performance of various equity and/or fixed income funds available with the product.

Interest rate options, including interest rate caps and interest rate floors, which can be combined to form interest rate collars, are contracts that entitle the purchaser to pay or receive the amounts, if any, by which a specified market rate exceeds a cap strike interest rate, or falls below a floor strike interest rate, respectively, at specified dates. We use interest rate options to manage prepayment risks in our assets and minimum guaranteed interest rates and lapse risks in our liabilities.

A swaption is an option to enter into an interest rate swap at a future date. We purchase swaptions to hedge interest rate exposure for certain assets and liabilities. Swaptions not only hedge against the downside risk, but also allow us to take advantage of any upside benefits.

In exchange-traded futures transactions, we agree to purchase or sell a specified number of contracts, the values of which are determined by the values of designated classes of securities, and to post variation margin on a daily basis in an amount equal to the difference in the daily market values of those contracts. We enter into exchange-traded futures with regulated futures commissions merchants who are members of a trading exchange. We have used exchange-traded futures to reduce market risks from changes in interest rates and to alter mismatches between the assets in a portfolio and the liabilities supported by those assets.

Foreign Exchange Contracts

Foreign currency risk is the risk we will incur economic losses due to adverse fluctuations in foreign currency exchange rates. This risk arises from foreign currency -denominated funding agreements issued to nonqualified institutional investors in the international market, foreign currency-denominated fixed maturity and equity securities, and our international operations, including expected cash flows and potential acquisition and divestiture activity. We use various derivatives to manage our exposure to fluctuations in foreign currency exchange rates.

Currency swaps are contracts in which we agree with other parties to exchange, at specified intervals, a series of principal and interest payments in one currency for that of another currency. Generally, the principal amount of each currency is exchanged at the beginning and termination of the currency swap by each party. The interest payments are primarily fixed-to-fixed rate; however, they may also be fixed-to-floating rate or floating-to-fixed rate. These transactions are entered into pursuant to master agreements that provide for a single net payment to be made by one counterparty for payments made in the same currency at each due date. We use currency swaps to reduce market risks from changes in currency exchange rates with respect to investments or liabilities denominated in foreign currencies that we either hold or intend to acquire or sell.

Currency forwards are contracts in which we agree with other parties to deliver or receive a specified amount of an identified currency at a specified future date. Typically, the price is agreed upon at the time of the contract and payment for such a contract is made at the specified future date. We use currency forwards to reduce market risks from changes in currency exchange rates with respect to investments or liabilities denominated in foreign currencies that we either hold or intend to acquire or sell. We use currency forwards to hedge certain net equity investments in foreign operations, including certain sponsored investment funds.

Currency options are contracts that give the holder the right, but not the obligation to buy or sell a specified amount of the identified currency within a limited period of time at a contracted price. The contracts are net settled in cash, based on the differential in the current foreign exchange rate and the strike price. Purchased and sold options can be combined to form a foreign currency collar where we receive a payment if the foreign exchange rate is below the purchased option strike price and make a payment if the foreign exchange rate is above the sold option strike price. We use currency options to hedge expected cash flows from our foreign operations.

Equity Contracts

Equity risk is the risk that we will incur economic losses due to adverse fluctuations in common stock prices. We use various derivatives to manage our exposure to equity risk, which arises from products in which the return or interest we credit is tied to an external equity index as well as products subject to minimum contractual guarantees.

We purchase equity call spreads ("option collars") to hedge the equity participation rates promised to contractholders in conjunction with our fixed deferred annuity and universal life products that credit interest based on changes in an external equity index. We use exchange-traded futures and equity put options to hedge against changes in the value of the GMWB liability related to the GMWB rider on our variable annuity product. The premium associated with certain options is paid quarterly over the life of the option contract.

We also use exchange-traded futures in various fund strategies to manage an absolute return and volatility reduction objective for equity risk against respective benchmarks.

Credit Contracts

Credit risk relates to the uncertainty associated with the continued ability of a given obligor to make timely payments of principal and interest. We use credit default swaps to enhance the return on our investment portfolio by providing comparable exposure to fixed income securities that might not be available in the primary market. They are also used to hedge credit exposures in our investment portfolio. Credit derivatives are used to sell or buy credit protection on an identified name or names on an unfunded or synthetic basis in return for receiving or paying a quarterly premium. The premium generally corresponds to a referenced name's credit spread at the time the agreement is executed. In cases where we sell protection, we also buy a quality cash bond to match against the credit default swap, thereby entering into a synthetic transaction replicating a cash security. When selling protection, if there is an event of default by the referenced name, as defined by the agreement, we are obligated to pay the counterparty the referenced amount of the contract and receive in return the referenced security in a principal amount equal to the notional value of the credit default swap.

Other Contracts

Embedded Derivatives. We purchase or issue certain financial instruments or products that contain a derivative instrument that is embedded in the financial instrument or product. When it is determined that the embedded derivative possesses economic characteristics that are not clearly or closely related to the economic characteristics of the host contract and a separate instrument with the same terms would qualify as a derivative instrument, the embedded derivative is bifurcated from the host instrument for measurement purposes. The embedded derivative, which is reported with the host instrument in the consolidated statements of financial position, is carried at fair value.

We offer group annuity contracts that have guaranteed separate accounts as an investment option. We also offer funds with embedded fixed-rate guarantees as investment options in our defined contribution plans in Hong Kong.

We have structured investment relationships with trusts we have determined to be VIEs, which are consolidated in our financial statements. The notes issued by these trusts include obligations to deliver an underlying security to residual interest holders and the obligations contain an embedded derivative of the forecasted transaction to deliver the underlying security.

We have fixed deferred annuities and universal life products that credit interest based on changes in an external equity index. We also have certain variable annuity products with a GMWB rider, which allows the customer to make withdrawals of a specified annual amount, either for a fixed number of years or for the lifetime of the customer, even if the account value is fully exhausted. Declines in the equity markets may increase our exposure to benefits under contracts with the GMWB. We economically hedge the exposure in these contracts, as previously explained.

Exposure

Our risk of loss is typically limited to the fair value of our derivative instruments and not to the notional or contractual amounts of these derivatives. We are also exposed to credit losses in the event of nonperformance of the counterparties. Our current credit exposure is limited to the value of derivatives that have become favorable to us. This credit risk is minimized by purchasing such agreements from financial institutions with high credit ratings and by establishing and monitoring exposure limits. We also utilize various credit enhancements, including collateral and credit triggers to reduce the credit exposure to our derivative instruments.

Derivatives may be exchange-traded or they may be privately negotiated contracts, which are usually referred to as over-the-counter ("OTC") derivatives. Certain of our OTC derivatives are cleared and settled through central clearing counterparties ("OTC cleared"), while others are bilateral contracts between two counterparties ("bilateral OTC"). Our derivative transactions are generally documented under International Swaps and Derivatives Association, Inc. ("ISDA") Master Agreements. Management believes that such agreements provide for legally enforceable set-off and close-out netting of exposures to specific counterparties. Under such agreements, in connection with an early termination of a transaction, we are permitted to set off our receivable from a counterparty against our payables to the same counterparty arising out of all included transactions. For reporting purposes, we do not offset fair value amounts of bilateral OTC derivatives for the right to reclaim cash collateral or the obligation to return cash collateral against fair value amounts recognized for derivative instruments executed with the same counterparties under master netting agreements. OTC cleared derivatives have variation margin that is legally characterized as settlement of the derivative exposure, which reduces their fair value in the consolidated statements of financial position.

We posted \$290.9 million and \$271.6 million in cash and securities under collateral arrangements as of March 31, 2020 and December 31, 2019, respectively, to satisfy collateral and initial margin requirements associated with our derivative credit support agreements and FCM agreements.

Certain of our derivative instruments contain provisions that require us to maintain an investment grade rating from each of the major credit rating agencies on our debt. If the ratings on our debt were to fall below investment grade, it would be in violation of these provisions and the counterparties to the derivative instruments could request immediate payment or demand immediate and ongoing full overnight collateralization on derivative instruments in net liability positions. The aggregate fair value, inclusive of accrued interest, of all derivative instruments with credit-risk-related contingent features that were in a liability position without regard to netting under derivative credit support annex agreements as of March 31, 2020 and December 31, 2019, was \$102.3 million and \$164.7 million, respectively. Cleared derivatives have contingent features that require us to post excess margin as required by the FCM. The terms surrounding excess margin vary by FCM agreement. With respect to derivatives containing collateral triggers, we posted collateral and initial margin of \$290.9 million and \$271.6 million as of March 31, 2020 and December 31, 2019, respectively, in the normal course of business, which reflects netting under derivative agreements. If the credit-risk-related contingent features underlying these agreements were triggered on March 31, 2020, we would be required to post an additional \$78.8 million of collateral to our counterparties.

As of March 31, 2020 and December 31, 2019, we had received \$473.5 million and \$156.8 million, respectively, of cash collateral associated with our derivative credit support annex agreements and FCM agreements, for which we recorded a corresponding liability reflecting our obligation to return the collateral.

Notional amounts are used to express the extent of our involvement in derivative transactions and represent a standard measurement of the volume of our derivative activity. Notional amounts represent those amounts used to calculate contractual flows to be exchanged and are not paid or received, except for contracts such as currency swaps. Credit exposure represents the gross amount owed to us under derivative contracts as of the valuation date. The notional amounts and credit exposure of our derivative financial instruments by type were as follows:

	Ma	arch 31, 2020		ember 31, 2019
		(in m	illions)	
Notional amounts of derivative instruments				
Interest rate contracts:	Φ.	25.050.6	Φ.	05.450.6
Interest rate swaps	\$	37,078.6	\$	35,173.6
Interest rate options		1,886.9		1,416.9
Interest rate futures		539.0		142.5
Swaptions		62.0		62.0
Foreign exchange contracts:				
Currency forwards		1,257.6		1,262.6
Currency swaps		1,005.1		1,027.2
Currency options		95.2		53.8
Equity contracts:				
Equity options		1,742.0		1,672.8
Equity futures		667.8		149.5
Credit contracts:				
Credit default swaps		160.0		165.0
Other contracts:				
Embedded derivatives		9,772.7		9,742.3
Total notional amounts at end of period	\$	54,266.9	\$	50,868.2
Credit exposure of derivative instruments				
Interest rate contracts:				
Interest rate swaps	\$	355.3	\$	181.9
Interest rate options		63.8		28.3
Foreign exchange contracts:				
Currency swaps		89.7		55.4
Currency forwards		36.4		4.9
Currency options		7.4		0.1
Equity contracts:				
Equity options		74.7		30.5
Credit contracts:				
Credit default swaps		1.7		0.5
Total gross credit exposure		629.0		301.6
Less: collateral received		536.0		208.3
Net credit exposure	\$	93.0	\$	93.3
	-	23.0		22.0

The fair value of our derivative instruments classified as assets and liabilities was as follows:

	Derivative assets (1)					Derivative liabilities (2)			
	Mar	ch 31, 2020	Decem	ber 31, 2019	March 31, 2020		Decen	ıber 31, 2019	
			(in millions)						
Derivatives designated as hedging instruments									
Interest rate contracts	\$	_	\$		\$	31.1	\$	21.3	
Foreign exchange contracts		87.6		30.0		_		15.2	
Total derivatives designated as hedging instruments	\$	87.6	\$	30.0	\$	31.1	\$	36.5	
					-				
Derivatives not designated as hedging instruments									
Interest rate contracts	\$	409.3	\$	204.2	\$	40.1	\$	16.7	
Foreign exchange contracts		44.3		29.5		137.0		100.2	
Equity contracts		74.7		30.5		2.2		63.1	
Credit contracts		1.7		0.5		0.1		1.2	
Other contracts		_				590.1		312.8	
Total derivatives not designated as hedging instruments		530.0		264.7		769.5		494.0	
		a.= a							
Total derivative instruments	\$	617.6	\$	294.7	\$	800.6	\$	530.5	

⁽¹⁾ The fair value of derivative assets is reported with other investments on the consolidated statements of financial position.

Credit Derivatives Sold

When we sell credit protection, we are exposed to the underlying credit risk similar to purchasing a fixed maturity security instrument. Our credit derivative contracts sold reference a single name or reference security (referred to as "single name credit default swaps"). These instruments are either referenced in an OTC credit derivative transaction or embedded within an investment structure that has been fully consolidated into our financial statements.

These credit derivative transactions are subject to events of default defined within the terms of the contract, which normally consist of bankruptcy, failure to pay, or modified restructuring of the reference entity and/or issue. If a default event occurs for a reference name or security, we are obligated to pay the counterparty an amount equal to the notional amount of the credit derivative transaction. As a result, our maximum future payment is equal to the notional amount of the credit derivative. In certain cases, we also may have purchased credit protection with identical underlyings to certain of our sold protection transactions. As of March 31, 2020 and December 31, 2019, we did not purchase credit protection relating to our sold protection transactions. In certain circumstances, our potential loss could also be reduced by any amount recovered in the default proceedings of the underlying credit name.

⁽²⁾ The fair value of derivative liabilities is reported with other liabilities on the consolidated statements of financial position, with the exception of certain embedded derivative liabilities. Embedded derivatives with a net liability fair value of \$555.4 million and \$214.2 million as of March 31, 2020 and December 31, 2019, respectively, are reported with contractholder funds on the consolidated statements of financial position.

The following tables show our credit default swap protection sold by types of contract, types of referenced/underlying asset class and external agency rating for the underlying reference security. The maximum future payments are undiscounted and have not been reduced by the effect of any offsetting transactions, collateral or recourse features described above.

		March 31, 2020						
		Notional amount		Fair value		aximum future syments	Weighted average expected life (in years)	
Single name credit default swaps			(in i	nillions)				
Corporate debt								
A	\$	5.0	\$	_	\$	5.0	0.2	
BBB	•	55.0	4	0.4	Ψ	55.0	3.1	
Sovereign		3310		•••		3310	5,1	
BBB		15.0		0.1		15.0	1.7	
Total credit default swap protection sold	\$	75.0	\$	0.5	\$	75.0	2.6	
		December 31, 2019						
				Decembe	r 31, 201	9		
		otional mount	v	Fair value	Ma	9 aximum future yments	Weighted average expected life (in years)	
			v	Fair	Ma	aximum future	average expected life	
Single name credit default swaps			v	Fair value	Ma	aximum future	average expected life	
Corporate debt	<u>a</u>	mount	(in i	Fair value	M; f	aximum future syments	average expected life (in years)	
Corporate debt A		5.0	v	Fair value nillions)	Ma	aximum future syments	average expected life (in years)	
Corporate debt A BBB	<u>a</u>	mount	(in i	Fair value	M; f	aximum future syments	average expected life (in years)	
Corporate debt A BBB Sovereign	<u>a</u>	5.0 70.0	(in i	Fair value nillions) 0.2	M; f	eximum future syments 5.0 70.0	average expected life (in years) 0.5 2.6	
Corporate debt A BBB	<u>a</u>	5.0	(in i	Fair value nillions)	M; f	aximum future syments	average expected life (in years)	

Fair Value and Cash Flow Hedges

Fair Value Hedges

We use fixed-to-floating rate interest rate swaps to more closely align the interest rate characteristics of certain assets and have used them to align the interest rate characteristics of certain liabilities. In general, these swaps are used in asset and liability management to modify duration, which is a measure of sensitivity to interest rate changes.

The net interest effect of interest rate swap transactions for derivatives in fair value hedges is recorded as an adjustment to income or expense of the underlying hedged item in our consolidated statements of operations.

The following amounts were recorded on the consolidated statements of financial position related to cumulative basis adjustments for fair value hedges. The amortized cost includes the amortized cost basis and the fair value hedging basis adjustment.

Line item in the consolidated statements of financial position in which the							Cumulative amount of fair value hedging basis adjustment included in the amortized cost of the hedged item						
hedged item is included	N	March 31, 2020 December 31, 2019			Marc	ch 31, 2020	December 31, 2019						
	<u>-</u>			(in m	illions)								
Fixed maturities, available-for-sale:													
Active hedging relationships	\$	152.8	\$	142.0	\$	29.1	\$	18.1					
Discontinued hedging relationships		141.5		159.3		7.1		7.7					
Total fixed maturities, available-for-sale in active													
or discontinued hedging relationships	\$	294.3	\$	301.3	\$	36.2	\$	25.8					

Cash Flow Hedges

We utilized floating-to-fixed rate interest rate swaps to eliminate the variability in cash flows of recognized financial assets and liabilities and forecasted transactions.

We enter into currency exchange swap agreements to convert both principal and interest payments of certain foreign denominated assets and liabilities into U.S. dollar denominated fixed-rate instruments to eliminate the exposure to future currency volatility on those items.

The net interest effect of interest rate swap and currency swap transactions for derivatives in cash flow hedges is recorded as an adjustment to income or expense of the underlying hedged item in our consolidated statements of operations.

The maximum length of time we are hedging our exposure to the variability in future cash flows for forecasted transactions, excluding those related to the payments of variable interest on existing financial assets and liabilities, is 0.2 years. As of March 31, 2020, we had \$0.0 million of net gains reported in accumulated other comprehensive income ("AOCI") on the consolidated statements of financial position related to active hedges of forecasted transactions. If a hedged forecasted transaction is no longer probable of occurring, cash flow hedge accounting is discontinued. If it is probable that the hedged forecasted transaction will not occur, the deferred gain or loss is immediately reclassified from AOCI into net income.

The following table shows the effect of derivatives in cash flow hedging relationships on the consolidated statements of financial position.

	in AOCI on derivatives for the three months ended March 31,					
Related hedged item		2020		2019		
		(in m	illions)			
Fixed maturities, available-for-sale	\$	4.4	\$	(4.2)		
Fixed maturities, available-for-sale		65.3		(8.6)		
	\$	69.7	\$	(12.8)		
	Fixed maturities, available-for-sale	Related hedged item Fixed maturities, available-for-sale \$	Fixed maturities, available-for-sale	Related hedged item Related hedged item Fixed maturities, available-for-sale In AOCI on derivatives for three months ended Marco 2020 (in millions)		

Amount of gain (loss) recognized

We expect to reclassify net gains of \$25.0 million from AOCI into net income in the next 12 months, which includes both net deferred gains on discontinued hedges and net losses on periodic settlements of active hedges. Actual amounts may vary from this amount as a result of market conditions.

Effect of Fair Value and Cash Flow Hedges on Consolidated Statements of Operations

The following tables show the effect of derivatives in fair value and cash flow hedging relationships and the related hedged items on the consolidated statements of operations.

	For the three months ended March 31, 2020							
	Net investment income related to hedges of fixed maturities, available- for-sale		Net realized capital gains (losses) related to hedges of fixed maturities, available-for-sale		ss settlement d to expenses ed related to , hedges of		1	Operating expenses related to lges of debt
Total amounts of consolidated statement of operations line items in				(ın m	iiiions)			
which the effects of fair value and cash flow hedges are reported	\$	983.6	\$	131.4	\$	2,858.7	\$	1,335.5
Losses on fair value hedging relationships:								
Interest rate contracts:								
Gain recognized on hedged item	\$	11.0	\$	_	\$	_	\$	_
Loss recognized on derivatives		(11.3)				_		_
Amortization of hedged item basis adjustments		(0.7)				_		_
Amounts related to periodic settlements on derivatives		(1.1)				_		_
Total loss recognized for fair value hedging relationships	\$	(2.1)	\$		\$		\$	
Gains on cash flow hedging relationships:								
Interest rate contracts:								
Gain (loss) reclassified from AOCI on derivatives	\$	4.7	\$	(1.3)	\$	_	\$	_
Foreign exchange contracts:								
Gain reclassified from AOCI on derivatives		_		2.2		_		_
Amounts related to periodic settlements on derivatives		2.1						
Total gain recognized for cash flow hedging relationships	\$	6.8	\$	0.9	\$		\$	

	For the three months ended March 31, 2019							
	inco to ma	investment me related) hedges of fixed aturities, vailable- or-sale	cap re hedg ma av	realized ital gains lated to es of fixed iturities, ailable- or-sale	c s	Benefits, laims and settlement expenses related to hedges of nvestment contracts	e re	perating xpenses elated to ges of debt
Total amounts of consolidated statement of operations line items in				(in m	illions)			
which the effects of fair value and cash flow hedges are reported	\$	961.0	\$	84.5	\$	2,195.1	\$	992.7
Losses on fair value hedging relationships: Interest rate contracts: Gain recognized on hedged item	\$	2.4	\$	_	\$	_	\$	_
Loss recognized on derivatives Amortization of hedged item basis adjustments Amounts related to periodic settlements on derivatives Total loss recognized for fair value hedging relationships	\$	(2.5) (1.3) (0.8) (2.2)	\$	<u></u>	\$		\$	
Gains (losses) on cash flow hedging relationships:								
Interest rate contracts:								
Gain (loss) reclassified from AOCI on derivatives	\$	5.1	\$	_	\$	_	\$	(2.8)
Foreign exchange contracts:								
Amounts related to periodic settlements on derivatives		1.6						
Total gain (loss) recognized for cash flow hedging relationships	\$	6.7	\$		\$		\$	(2.8)

Net Investment Hedges

We may take measures to hedge our net equity investments in our foreign operations from currency risk. This is accomplished with the use of currency forwards.

Gains and losses associated with net investment hedges are recorded in AOCI and will be released into net income if our investment in the foreign operation is sold or substantially liquidated.

The following table shows the effect of foreign exchange contracts used to hedge a portion of our net investment in certain sponsored investment funds on the consolidated financial statements.

	Amount of gain recognized in AOCI on derivatives for the three months ended					Amount of gain reclassified from AOCI into net realized capital gains (losses) for the three months ended				
	 March 31,				March 31,					
Derivatives in net investment hedging relationships	 2020		2019	20	020		2019			
			(in ı	nillions)						
Foreign exchange contracts	\$ 7. 5	\$	_	\$	_	\$	_			
Total	\$ 7.5	\$		\$	_	\$				

Derivatives Not Designated as Hedging Instruments

Our use of futures, certain swaptions and swaps, option collars, options and forwards are effective from an economic standpoint, but they have not been designated as hedges for financial reporting purposes. As such, periodic changes in the market value of these instruments, which includes mark-to-market gains and losses as well as periodic and final settlements, primarily flow directly into net realized capital gains (losses) on the consolidated statements of operations.

The following table shows the effect of derivatives not designated as hedging instruments, including fair value changes of embedded derivatives that have been bifurcated from the host contract, on the consolidated statements of operations.

Amount of gain (loss) recognized in

	net income on derivatives for the three months ended March 31,								
Derivatives not designated as hedging instruments		2020	2019						
	(in millions)								
Interest rate contracts	\$	500.4	\$	67.3					
Foreign exchange contracts		(56.9)		4.6					
Equity contracts		177.1		(75.0)					
Credit contracts		2.4		1.3					
Other contracts		(359.8)		4.7					
Total	\$	263.2	\$	2.9					

5. Insurance Liabilities

Liability for Unpaid Claims

The liability for unpaid claims is reported in future policy benefits and claims within our consolidated statements of financial position. Activity associated with unpaid claims was as follows:

	For the three mo	For the three months ended March 31,						
	2020		2019					
	`	millions)						
Balance at beginning of period	\$ 2,365.5	\$	2,252.7					
Less: reinsurance recoverable	403.8		404.3					
Net balance at beginning of period	1,961.7		1,848.4					
Incurred:								
Current year	324.8		325.5					
Prior years	19.5		25.1					
Total incurred	344.3		350.6					
Payments:								
Current year	168.7		162.9					
Prior years	166.3		157.6					
Total payments	335.0		320.5					
Net balance at end of period	1,971.0		1,878.5					
Plus: reinsurance recoverable	413.9		397.5					
Balance at end of period	\$ 2,384.9	\$	2,276.0					
		_						
Amounts not included in the rollforward above:								
Claim adjustment expense liabilities	\$ 58.0	\$	54.7					

Incurred liability adjustments relating to prior years, which affected current operations during 2020 and 2019, resulted in part from developed claims for prior years being different than were anticipated when the liabilities for unpaid claims were originally estimated. These trends have been considered in establishing the current year liability for unpaid claims.

6. Income Taxes

Effective Income Tax Rate

Our provision for income taxes may not have the customary relationship of taxes to income. A reconciliation between the U.S. corporate income tax rate and the effective income tax rate was as follows:

	For the three mont March 31,	
	2020	2019
U.S. corporate income tax rate	21 %	21 %
Dividends received deduction	(5)	(5)
Tax credits	(3)	(2)
Impact of equity method presentation	(1)	(1)
Interest exclusion from taxable income	(1)	(1)
Local country permanent tax adjustments	2	1
Other	_	1
Effective income tax rate	13 %	14 %

7. Employee and Agent Benefits

Components of Net Periodic Benefit Cost

	 Pension benefits For the three months ended March 31,				ben For the three	Other postretirement benefits For the three months ended March 31,				
	 2020		2019		2020		2019			
			(in mi	llions)						
Service cost	\$ 18.1	\$	16.8	\$	_	\$				
Interest cost	29.3		32.8		0.7		0.9			
Expected return on plan assets	(39.2)		(35.5)		(9.0)		(8.3)			
Amortization of prior service benefit	(4.2)		(0.9)		(0.2)		(0.3)			
Recognized net actuarial loss	18.8		16.9		_		_			
Net periodic benefit cost (income)	\$ 22.8	\$	30.1	\$	(8.5)	\$	(7.7)			

The components of net periodic benefit cost including the service cost component are included in operating expenses on the consolidated statements of operations.

Contributions

Our funding policy for our qualified pension plan is to fund the plan annually in an amount at least equal to the minimum annual contribution required under the Employee Retirement Income Security Act ("ERISA") and, generally, not greater than the maximum amount that can be deducted for federal income tax purposes. It is too early to determine, but we do not anticipate that we will be required to fund a minimum required contribution under ERISA. Regardless, it is possible that we may fund the qualified and nonqualified pension plans in 2020 for a combined total of up to \$35.0 million. During the three months ended March 31, 2020, we contributed \$5.7 million to these plans.

8. Contingencies, Guarantees and Indemnifications

Litigation and Regulatory Contingencies

We are regularly involved in litigation, both as a defendant and as a plaintiff, but primarily as a defendant. Litigation naming us as a defendant ordinarily arises out of our business operations as a provider of asset management and accumulation products and services, individual life insurance, specialty benefits insurance and our investment activities. Some of the lawsuits may be class actions, or purport to be, and some may include claims for unspecified or substantial punitive and treble damages.

We may discuss such litigation in one of three ways. We accrue a charge to income and disclose legal matters for which the chance of loss is probable and for which the amount of loss can be reasonably estimated. We may disclose contingencies for which the chance of loss is reasonably possible and provide an estimate of the possible loss or range of loss or a statement that such an estimate cannot be made. Finally, we may voluntarily disclose loss contingencies for which the chance of loss is remote in order to provide information concerning matters that potentially expose us to possible losses.

In addition, regulatory bodies such as state insurance departments, the SEC, the Financial Industry Regulatory Authority ("FINRA"), the Department of Labor ("DOL") and other regulatory agencies in the U.S. and in international locations in which we do business, regularly make inquiries and conduct examinations or investigations concerning our compliance with, among other things, insurance laws, securities laws, ERISA and laws governing the activities of broker-dealers. We receive requests from regulators and other governmental authorities relating to industry issues and may receive additional requests, including subpoenas and interrogatories, in the future.

On November 12, 2014, Frederick Rozo filed a class action lawsuit in the United States District Court for the Southern District of Iowa against Principal Life and us. We were later dismissed as a defendant. The Plaintiff alleged that defendants breached fiduciary duties and engaged in prohibited transactions under ERISA in connection with a general account guaranteed product known as the Principal Fixed Income Option ("PFIO"). On May 12, 2017, the district court certified a nationwide class of participants and beneficiaries who had funds invested in one of the PFIO contracts. On September 25, 2018, the district court granted Principal Life's motion for summary judgment. On February 3, 2020, the Eighth Circuit Court of Appeals reversed that ruling and remanded the case back to the district court. Principal Life will continue to aggressively defend the case.

While the outcome of any pending or future litigation or regulatory matter cannot be predicted, management does not believe any such matter will have a material adverse effect on our business or financial position. As of March 31, 2020, we had no estimated loss accrued related to the legal matter discussed above because we believe the chance of loss from this matter is not probable and the amount of loss cannot be reasonably estimated.

To the extent such matters present a reasonably possible chance of loss, we are generally not able to estimate the possible loss or range of loss associated therewith. The outcome of such matters is always uncertain and unforeseen results can occur. It is possible that such outcomes could require us to pay damages or make other expenditures or establish accruals in amounts that we could not estimate at March 31, 2020.

Guarantees and Indemnifications

In the normal course of business, we have provided guarantees to third parties primarily related to former subsidiaries and joint ventures. The terms of these agreements range in duration and often are not explicitly defined. The maximum exposure under these agreements as of March 31, 2020, was approximately \$114.0 million. At inception, the fair value of such guarantees was insignificant. In addition, we believe the likelihood is remote that material payments will be required. Therefore, any liability accrued within our consolidated statements of financial position is insignificant. Should we be required to perform under these guarantees, we generally could recover a portion of the loss from third parties through recourse provisions included in agreements with such parties, the sale of assets held as collateral that can be liquidated in the event performance is required under the guarantees or other recourse generally available to us; therefore, such guarantees would not result in a material adverse effect on our business or financial position. While the likelihood is remote, such outcomes could materially affect net income in a particular quarter or annual period. Furthermore, in connection with our contingent funding agreements, we are required to purchase any principal and interest strips of U.S. Treasury securities that are due and not paid from the associated unconsolidated trusts. The maximum exposure under these agreements as of March 31, 2020, was \$750.0 million.

We manage mandatory privatized social security funds in Chile. By regulation, we have a required minimum guarantee on the funds' relative return. Because the guarantee has no limitation with respect to duration or amount, the maximum exposure of the guarantee in the future is indeterminable.

We are also subject to various other indemnification obligations issued in conjunction with divestitures, acquisitions and financing transactions whose terms range in duration and often are not explicitly defined. Certain portions of these indemnifications may be capped, while other portions are not subject to such limitations; therefore, the overall maximum amount of the obligation under the indemnifications cannot be reasonably estimated. At inception, the fair value of such indemnifications was insignificant. In addition, we believe the likelihood is remote that material payments will be required. Therefore, any liability accrued within our consolidated statements of financial position is insignificant. While we are unable to estimate with certainty the ultimate legal and financial liability with respect to these indemnifications, we believe that performance under these indemnifications would not result in a material adverse effect on our business or financial position. While the likelihood is remote, performance under these indemnifications could materially affect net income in a particular quarter or annual period.

9. Stockholders' Equity

Common Stock Dividends

	101	March 31,					
	2020		_	2019			
Dividends declared per common share	\$	0.56	\$	0.54			

For the three months ended

For the three months ended

Reconciliation of Outstanding Common Shares

	March 31	,
	2020	2019
	(in million	s)
Beginning balance	276.6	279.5
Shares issued	1.2	1.8
Treasury stock acquired	(4.4)	(3.1)
Ending balance	273.4	278.2

In November 2018, our Board of Directors authorized a share repurchase program of up to \$500.0 million of our outstanding common stock, which was completed in February 2020. In February 2020, our Board of Directors authorized a share repurchase program of up to \$900.0 million of our outstanding common stock, which has no expiration date.

Other Comprehensive Income (Loss)

		For		hree months en	ded	
		Pre-Tax		Tax		After-Tax
			,	in millions)		
Net unrealized losses on available-for-sale securities during the period	\$	(2,777.7)	\$	600.3	\$	(2,177.4)
Reclassification adjustment for gains included in net income (1)		(9.5)		2.6		(6.9)
Adjustments for assumed changes in amortization patterns		332.5		(69.8)		262.7
Adjustments for assumed changes in policyholder liabilities		662.2		(152.2)		510.0
Net unrealized losses on available-for-sale securities	_	(1,792.5)		380.9		(1,411.6)
		66.5		(4.4.0)		- 2.0
Net unrealized gains on derivative instruments during the period		66.2		(14.2)		52.0
Reclassification adjustment for gains included in net income (3)		(5.6)		1.5		(4.1)
Adjustments for assumed changes in amortization patterns		(0.3)		_		(0.3)
Adjustments for assumed changes in policyholder liabilities		1.2		(0.2)		1.0
Net unrealized gains on derivative instruments		61.5		(12.9)		48.6
Foreign currency translation adjustment during the period		(336.6)		10.8		(325.8)
Reclassification adjustment for losses included in net income (4)		31.5		_		31.5
Foreign currency translation adjustment	_	(305.1)		10.8	_	(294.3)
Unrecognized postretirement benefit obligation during the period		0.6		(0.1)		0.5
Amortization of amounts included in net periodic benefit cost (5)		14.4		(3.9)		10.5
Net unrecognized postretirement benefit obligation	_	15.0		(4.0)	_	11.0
Other comprehensive loss	\$	(2,021.1)	\$	374.8	\$	(1,646.3)

For the three months ended March 31, 2019 Pre-Tax After-Tax Tax (in millions) (392.5)1,424.5 Net unrealized gains on available-for-sale securities during the period \$ 1,817.0 \$ Reclassification adjustment for losses included in net income (1) 8.7 (1.7)7.0 Adjustments for assumed changes in amortization patterns (122.1)25.7 (96.4)Adjustments for assumed changes in policyholder liabilities (300.3)69.5 (230.8)Net unrealized gains on available-for-sale securities 1,403.3 (299.0)1,104.3 Noncredit component of impairment losses on fixed maturities, available-for-sale during the period (2.8)0.6 (2.2)Adjustments for assumed changes in amortization patterns 0.1 (0.4)(0.3)Noncredit component of impairment losses on fixed maturities, available-for-sale (2) (3.2)0.7 (2.5)Net unrealized losses on derivative instruments during the period (8.5)1.8 (6.7)0.3 Reclassification adjustment for gains included in net income (3) (2.3)(2.0)Adjustments for assumed changes in amortization patterns 1.9 (0.4)1.5 Adjustments for assumed changes in policyholder liabilities 3.6 (0.9)2.7 Net unrealized losses on derivative instruments (5.3)8.0 (4.5)Foreign currency translation adjustment during the period 40.9 38.3 (2.6)Reclassification adjustment for gains included in net income (0.4)(0.4)Foreign currency translation adjustment (2.6)40.5 37.9 Amortization of amounts included in net periodic benefit cost (5) 15.7 (4.2)11.5 Net unrecognized postretirement benefit obligation 15.7 (4.2)11.5 Other comprehensive income 1,451.0 (304.3)1,146.7

⁽¹⁾ Pre-tax reclassification adjustments relating to available-for-sale securities are reported in net realized capital gains (losses) on the consolidated statements of operations.

⁽²⁾ Prior to 2020, represents the net impact of (1) unrealized gains resulting from reclassification of previously recognized noncredit impairment losses from OCI to net realized capital gains (losses) for fixed maturities with bifurcated OTTI that had additional credit losses or fixed maturities that previously had bifurcated OTTI that have now been sold or are intended to be sold and (2) unrealized losses resulting from reclassification of noncredit impairment losses for fixed maturities with bifurcated OTTI from net realized capital gains (losses) to OCI.

⁽³⁾ See Note 4, Derivative Financial Instruments, under the caption "Effect of Fair Value and Cash Flow Hedges on Consolidated Statements of Operations" for further details.

⁽⁴⁾ The 2020 pre-tax reclassification adjustment primarily related to the release of the cumulative translation adjustment from the dissolution of a foreign subsidiary.

⁽⁵⁾ Amount is comprised of amortization of prior service cost (benefit) and recognized net actuarial (gain) loss, which is reported in operating expenses on the consolidated statements of operations. See Note 7, Employee and Agent Benefits, under the caption "Components of Net Periodic Benefit Cost" for further details.

Accumulated Other Comprehensive Income (Loss)

	avai	Net unrealized gains on available-for-sale securities (1)		Noncredit component of mpairment losses n fixed maturities ailable-for-sale (2)				Foreign currency ranslation djustment	pos	nrecognized stretirement benefit obligation	con	ccumulated other nprehensive come (loss)
Balances as of January 1, 2019 Other comprehensive income during the period, net of	\$	190.0	\$	(47.1)	\$	(in million 64.4	s) \$	(1,259.5)	\$	(512.9)	\$	(1,565.1)
adjustments Amounts reclassified from AOCI		1,097.3		(2.5)		(2.5)		37.8				1,130.1
Other comprehensive income		7.0 1,104.3	_	(2.5)		(2.0) (4.5)		(0.4) 37.4	_	11.5 11.5	_	16.1 1,146.2
Balances as of March 31, 2019	\$	1,294.3	\$	(49.6)	\$	59.9	\$	(1,222.1)	\$	(501.4)	\$	(418.9)
Balances as of January 1, 2020	\$	2,806.0	\$	(44.1)	\$	53.4	\$	(1,341.8)	\$	(435.6)	\$	1,037.9
Other comprehensive loss during the period, net of adjustments		(1,404.4)		_		52.7		(316.9)		0.5		(1,668.1)
Amounts reclassified from AOCI Other comprehensive loss		(6.9)		_		(4.1)		31.5		10.5 11.0		31.0
Effects of implementation of accounting change related		(1,411.3)	_	<u>_</u>	_	48.6	_	(285.4)		11.0	_	(1,637.1)
to credit losses, net	•	(44.1)	¢	44.1	¢	102.0	¢	(1 627 2)	¢	(424.6)	¢	(500.2)
Balances as of March 31, 2020	Ф	1,350.6	<u> </u>		<u> </u>	102.0	<u> </u>	(1,627.2)	<u> </u>	(424.6)	<u> </u>	(599.2)

⁽¹⁾ Net unrealized losses on available-for-sale debt securities for which an allowance for credit loss has been recorded were \$3.3 million as of March 31, 2020.

Noncontrolling Interest

Interests held by unaffiliated parties in consolidated entities are reflected in noncontrolling interest, which represents the noncontrolling partners' share of the underlying net assets of our consolidated subsidiaries. Noncontrolling interest that is not redeemable is reported in the equity section of the consolidated statements of financial position.

The noncontrolling interest holders in certain of our consolidated entities maintain an equity interest that is redeemable at the option of the holder, which may be exercised on varying dates. Since redemption of the noncontrolling interest is outside of our control, this interest is excluded from stockholders' equity and reported separately as redeemable noncontrolling interest on the consolidated statements of financial position. Our redeemable noncontrolling interest primarily relates to consolidated sponsored investment funds for which interests are redeemed at fair value from the net assets of the funds.

For our redeemable noncontrolling interest related to other consolidated subsidiaries, redemptions are required to be purchased at fair value or a value based on a formula that management intended to reasonably approximate fair value based on a fixed multiple of earnings over a measurement period. The carrying value of the redeemable noncontrolling interest is compared to the redemption value at each reporting period. Any adjustments to the carrying amount of the redeemable noncontrolling interest for changes in redemption value prior to exercise of the redemption option are determined after the attribution of net income or loss of the subsidiary and are recognized in the redemption value as they occur. Adjustments to the carrying value of redeemable noncontrolling interest result in adjustments to additional paid-in capital and/or retained earnings. Adjustments are recorded in retained earnings to the extent the redemption value of the redeemable noncontrolling interest exceeds its fair value and will impact the numerator in our earnings per share calculations. All other adjustments to the redeemable noncontrolling interest are recorded in additional paid-in capital.

⁽²⁾ Prior to the implementation of authoritative guidance in 2020, the noncredit component of impairment losses on fixed maturities, available-for-sale was included as a separate component of stockholders' equity.

Following is a reconciliation of the changes in the redeemable noncontrolling interest (in millions):

	For the three months ended March 31,						
		2020		2019			
	· · · · · · · · · · · · · · · · · · ·	(in m	illions)				
Balance at beginning of period	\$	264.9	\$	391.2			
Net income (loss) attributable to redeemable noncontrolling interest		(23.7)		20.3			
Contributions from redeemable noncontrolling interest		34.2		143.7			
Distributions to redeemable noncontrolling interest		(29.7)		(20.3)			
Change in redemption value of redeemable noncontrolling interest		0.6		2.7			
Other comprehensive income (loss) attributable to redeemable noncontrolling interest		(6.6)		0.1			
Balance at end of period	\$	239.7	\$	537.7			

10. Fair Value Measurements

We use fair value measurements to record fair value of certain assets and liabilities and to estimate fair value of financial instruments not recorded at fair value but required to be disclosed at fair value. Certain financial instruments, particularly policyholder liabilities other than investment contracts, are excluded from these fair value disclosure requirements.

Valuation Hierarchy

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price). The fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value into three levels. The level in the fair value hierarchy within which the fair value measurement in its entirety falls is determined based on the lowest level input that is significant to the fair value measurement in its entirety considering factors specific to the asset or liability.

- Level 1 Fair values are based on unadjusted quoted prices in active markets for identical assets or liabilities.
- Level 2 Fair values are based on inputs other than quoted prices within Level 1 that are observable for the asset or liability, either
 directly or indirectly.
- Level 3 Fair values are based on at least one significant unobservable input for the asset or liability.

Determination of Fair Value

The following discussion describes the valuation methodologies and inputs used for assets and liabilities measured at fair value on a recurring basis or disclosed at fair value. The techniques utilized in estimating the fair value of financial instruments are reliant on the assumptions used. Care should be exercised in deriving conclusions about our business, its value or financial position based on the fair value information of financial instruments presented below.

Fair value estimates are made based on available market information and judgments about the financial instrument at a specific point in time. Such estimates do not consider the tax impact of the realization of unrealized gains or losses. In addition, the disclosed fair value may not be realized in the immediate settlement of the financial instrument. We validate prices through an investment analyst review process, which includes validation through direct interaction with external sources, review of recent trade activity or use of internal models. In circumstances where broker quotes are used to value an instrument, we generally receive one non-binding quote. Broker quotes are validated through an investment analyst review process, which includes validation through direct interaction with external sources and use of internal models or other relevant information. We did not make any significant changes to our valuation processes during 2020.

Fixed Maturities

Fixed maturities include bonds, ABS, redeemable preferred stock and certain non-redeemable preferred securities. When available, the fair value of fixed maturities is based on quoted prices of identical assets in active markets. These are reflected in Level 1 and primarily include U.S. Treasury bonds and actively traded redeemable corporate preferred securities.

When quoted prices of identical assets in active markets are not available, our first priority is to obtain prices from third party pricing vendors. We have regular interaction with these vendors to ensure we understand their pricing methodologies and to confirm they are utilizing observable market information. Their methodologies vary by asset class and include inputs such as estimated cash flows, benchmark yields, reported trades, broker quotes, credit quality, industry events and economic events. Fixed maturities with validated prices from pricing services, which includes the majority of our public fixed maturities in all asset classes, are generally reflected in Level 2. Also included in Level 2 are corporate bonds when quoted market prices are not available, for which an internal model using substantially all observable inputs or a matrix pricing valuation approach is used. In the matrix approach, securities are grouped into pricing categories that vary by sector, rating and average life. Each pricing category is assigned a risk spread based on studies of observable public market data from the investment professionals assigned to specific security classes. The expected cash flows of the security are then discounted back at the current Treasury curve plus the appropriate risk spread. Although the matrix valuation approach provides a fair valuation of each pricing category, the valuation of an individual security within each pricing category may also be impacted by company specific factors.

If we are unable to price a fixed maturity security using prices from third party pricing vendors or other sources specific to the asset class, we may obtain a broker quote or utilize an internal pricing model specific to the asset utilizing relevant market information, to the extent available and where at least one significant unobservable input is utilized. These are reflected in Level 3 in the fair value hierarchy and can include fixed maturities across all asset classes. As of March 31, 2020, less than 1% of our total fixed maturities were Level 3 securities valued using internal pricing models.

The primary inputs, by asset class, for valuations of the majority of our Level 2 investments from third party pricing vendors or our internal pricing valuation approach are described below.

U.S. Government and Agencies/Non-U.S. Governments. Inputs include recently executed market transactions, interest rate yield curves, maturity dates, market price quotations and credit spreads relating to similar instruments.

States and Political Subdivisions. Inputs include Municipal Securities Rulemaking Board reported trades, U.S. Treasury and other benchmark curves, material event notices, new issue data and obligor credit ratings.

Corporate. Inputs include recently executed transactions, market price quotations, benchmark yields, issuer spreads and observations of equity and credit default swap curves related to the issuer. For private placement corporate securities valued through the matrix valuation approach inputs include the current Treasury curve and risk spreads based on sector, rating and average life of the issuance.

RMBS, CMBS, Collateralized Debt Obligations and Other Debt Obligations. Inputs include cash flows, priority of the tranche in the capital structure, expected time to maturity for the specific tranche, reinvestment period remaining and performance of the underlying collateral including prepayments, defaults, deferrals, loss severity of defaulted collateral and, for RMBS, prepayment speed assumptions. Other inputs include market indices and recently executed market transactions.

Equity Securities

Equity securities include mutual funds, common stock, non-redeemable preferred stock and required regulatory investments. Fair values of equity securities are determined using quoted prices in active markets for identical assets when available, which are reflected in Level 1. When quoted prices are not available, we may utilize internal valuation methodologies appropriate for the specific asset that use observable inputs such as underlying share prices or the net asset value (" NAV"), which are reflected in Level 2. Fair values might also be determined using broker quotes or through the use of internal models or analysis that incorporate significant assumptions deemed appropriate given the circumstances and consistent with what other market participants would use when pricing such securities, which are reflected in Level 3.

Derivatives

The fair values of exchange-traded derivatives are determined through quoted market prices, which are reflected in Level 1. Exchange-traded derivatives include futures that are settled daily, which reduces their fair value in the consolidated statements of financial position. The fair values of OTC cleared derivatives are determined through market prices published by the clearinghouses, which are reflected in Level 2. The clearinghouses may utilize the overnight indexed swap ("OIS") curve in their valuation. Variation margin associated with OTC cleared derivatives is settled daily, which reduces their fair value in the consolidated statements of financial position. The fair values of bilateral OTC derivative instruments are determined using either pricing valuation models that utilize market observable inputs or broker quotes. The majority of our bilateral OTC derivatives are valued with models that use market observable inputs, which are reflected in Level 2. Significant inputs include contractual terms, interest rates, currency exchange rates, credit spread curves, equity prices and volatilities. These valuation models consider projected discounted cash flows, relevant swap curves and appropriate implied volatilities. Certain bilateral OTC derivatives utilize unobservable market data, primarily independent broker quotes that are nonbinding quotes based on models that do not reflect the result of market transactions, which are reflected in Level 3.

Our non-cleared derivative contracts are generally documented under ISDA Master Agreements, which provide for legally enforceable set-off and close-out netting of exposures to specific counterparties. Collateral arrangements are bilateral and based on current ratings of each entity. We utilize the LIBOR interest rate curve to value our positions, which includes a credit spread. This credit spread incorporates an appropriate level of nonperformance risk into our valuations given the current ratings of our counterparties, as well as the collateral agreements in place. Counterparty credit risk is routinely monitored to ensure our adjustment for non-performance risk is appropriate. Our centrally cleared derivative contracts are conducted with regulated centralized clearinghouses, which provide for daily exchange of cash collateral or variation margin equal to the difference in the daily market values of those contracts that eliminates the non-performance risk on these trades.

Interest Rate Contracts. For non-cleared contracts we use discounted cash flow valuation techniques to determine the fair value of interest rate swaps and swaptions using observable swap curves as the inputs. These are reflected in Level 2. For centrally cleared contracts we use published prices from clearinghouses. These are reflected in Level 2. In addition, we had interest rate options that were valued using broker quotes. These were reflected in Level 3.

Foreign Exchange Contracts. We use discounted cash flow valuation techniques that utilize observable swap curves and exchange rates as the inputs to determine the fair value of foreign currency swaps. These are reflected in Level 2. Currency forwards and currency options are valued using observable market inputs, including forward currency exchange rates. These are reflected in Level 2. In addition, we have a limited number of non-standard currency swaps and currency options that are valued using broker quotes. These are reflected within Level 3.

Equity Contracts. We use an option pricing model using observable implied volatilities, dividend yields, index prices and swap curves as the inputs to determine the fair value of equity options. These are reflected in Level 2.

Credit Contracts. We use either the ISDA Credit Default Swap Standard discounted cash flow model that utilizes observable default probabilities and recovery rates as inputs to determine the fair value of credit default swaps. These are reflected in Level 2. In addition, we have a limited number of credit default swaps that are valued using broker quotes. These are reflected within Level 3.

Other Investments

Other investments reported at fair value include invested assets of consolidated sponsored investment funds, unconsolidated sponsored investment funds, other investment funds reported at fair value, equity method real estate investments for which the fair value option was elected and certain redeemable and nonredeemable preferred stock. In addition, in 2019 we had commercial mortgage loans of consolidated VIEs for which the fair value option was elected.

Invested assets of consolidated sponsored investment funds include equity securities, fixed maturities and other investments, for which fair values are determined as previously described, and are reflected in Level 1 and Level 2.

The fair value of unconsolidated sponsored investment funds and other investment funds is determined using the NAV of the fund. The NAV of the fund represents the price at which we would be able to initiate a transaction. Investments for which the NAV represents a quoted price in an active market for identical assets are reflected in Level 1. Investments that do not have a quoted price in an active market are reflected in Level 2.

Commercial mortgage loans of a consolidated VIE were valued using the more observable fair value of the liabilities of the consolidated collateralized financing entity ("CCFE") under the measurement alternative guidance and were reflected in Level 2. The liabilities were affiliated so were not reflected in our consolidated results. The trust was unwound in the third quarter of 2019.

Equity method real estate investments for which the fair value option was elected are reflected in Level 3. The equity method real estate investments consist of underlying real estate and debt. The real estate fair value is estimated using a discounted cash flow valuation model that utilizes public real estate market data inputs such as transaction prices, market rents, vacancy levels, leasing absorption, market cap rates and discount rates. The debt fair value is estimated using a discounted cash flow analysis based on our incremental borrowing rate for similar borrowing arrangements.

The fair value of certain redeemable and nonredeemable preferred stock is based on an internal model using unobservable inputs, which is reflected in Level 3.

Cash Equivalents

Certain cash equivalents are reported at fair value on a recurring basis and include money market instruments and other short-term investments with maturities of three months or less. Fair values of these cash equivalents may be determined using public quotations, when available, which are reflected in Level 1. When public quotations are not available, because of the highly liquid nature of these assets, carrying amounts may be used to approximate fair values, which are reflected in Level 2.

Separate Account Assets

Separate account assets include equity securities, debt securities, cash equivalents and derivative instruments, for which fair values are determined as previously described, and are reflected in Level 1, Level 2 and Level 3. Separate account assets also include commercial mortgage loans, for which the fair value is estimated by discounting the expected total cash flows using market rates that are applicable to the yield, credit quality and maturity of the loans. The market clearing spreads vary based on mortgage type, weighted average life, rating and liquidity. These are reflected in Level 3. Finally, separate account assets include real estate, for which the fair value is estimated using discounted cash flow valuation models that utilize various public real estate market data inputs. In addition, each property is appraised annually by an independent appraiser. The real estate included in separate account assets is recorded net of related mortgage encumbrances for which the fair value is estimated using discounted cash flow analysis based on our incremental borrowing rate for similar borrowing arrangements. The real estate within the separate accounts is reflected in Level 3.

Investment and Universal Life Contracts

Certain universal life, annuity and other investment contracts include embedded derivatives that have been bifurcated from the host contract and are measured at fair value on a recurring basis, which are reflected in Level 3. The key assumptions for calculating the fair value of the embedded derivative liabilities are market assumptions (such as equity market returns, interest rate levels, market volatility and correlations) and policyholder behavior assumptions (such as lapse, mortality, utilization and withdrawal patterns). Risk margins are included in the policyholder behavior assumptions. The assumptions are based on a combination of historical data and actuarial judgment. The embedded derivative liabilities are valued using models that incorporate a spread reflecting our own creditworthiness.

The assumption for our own non-performance risk for investment contracts and any embedded derivatives bifurcated from certain universal life, annuity and investment contracts is based on the current market credit spreads for debt-like instruments we have issued and are available in the market.

Other Liabilities

Certain obligations reported in other liabilities include embedded derivatives to deliver underlying securities of structured investments to third parties. The fair value of the embedded derivatives is calculated based on the value of the underlying securities that are valued based on prices obtained from third party pricing vendors as utilized and described in our discussion of how fair value is determined for fixed maturities, which are reflected in Level 2.

Assets and Liabilities Measured at Fair Value on a Recurring Basis

Assets and liabilities measured at fair value on a recurring basis were as follows:

	March 31, 2020										
		Assets/ (liabilities)		Amount measured at							
		measured at					air va	lue hierarchy le	vel		
		fair value		value (4)		Level 1		Level 2		Level 3	
Assets						(in millions)					
Fixed maturities, available-for-sale:											
U.S. government and agencies	\$	1,731.2	\$	_	\$	1,369.0	\$	362.2	\$	_	
Non-U.S. governments	Ψ	956.7	Ψ	_	Ψ	2.3	Ψ	954.4	Ψ	_	
States and political subdivisions		7,763.4		_				7,763.4		_	
Corporate		39,421.2				18.1		39,232.8		170.3	
Residential mortgage-backed pass-through		55,721.2				10.1		33,232.0		170.5	
securities		3,201.9						3,201.9			
Commercial mortgage-backed securities		4,493.7						4,479.3		14.4	
Collateralized debt obligations (1)		3,348.3						3,177.0		171.3	
Other debt obligations		7,791.4						7,686.5		104.9	
Total fixed maturities, available-for-sale		68,707.8			_	1,389.4		66,857.5		460.9	
Fixed maturities, trading		596.0		_		1,369. 4 0.5		595.2		0.3	
Equity securities		1,664.1		_		603.5		1,060.6		0.5	
Derivative assets (2)		617.6		_		003.3		615.9		<u> </u>	
Other investments		617.6 686.6		 77.0		226.9		346.7		36.0	
0 0000 0000 000000000000000000000000000				//.0						36.0	
Cash equivalents		2,459.1				51.3		2,407.8		400.0	
Sub-total excluding separate account assets		74,731.2		77.0		2,271.6		71,883.7		498.9	
Separate account assets	_	136,836.0	_	140.1	_	76,626.9	_	51,202.3	_	8,866.7	
Total assets	\$	211,567.2	\$	217.1	\$	78,898.5	\$	123,086.0	\$	9,365.6	
Liabilities											
Investment and universal life contracts (3)	\$	(555.4)	\$	_	\$	_	\$	_	\$	(555.4)	
Derivative liabilities (2)		(210.5)		_		_		(193.2)		(17.3)	
Other liabilities (3)		(37.5)						(37.5)			
Total liabilities	\$	(803.4)	\$		\$		\$	(230.7)	\$	(572.7)	
Net assets	\$	210,763.8	\$	217.1	\$	78,898.5	\$	122,855.3	\$	8,792.9	

	December 31, 2019											
		Assets/ (liabilities) measured at	1	Amount measured at net asset			Fair value hierarchy level					
		fair value		value (4)		Level 1		Level 2		Level 3		
Assets						(in millions)						
Fixed maturities, available-for-sale:												
U.S. government and agencies	\$	1,724.2	\$	_	\$	1,320.0	\$	404.2	\$	_		
Non-U.S. governments		996.2		_		1.4		994.8				
States and political subdivisions		7,490.0		_				7,490.0				
Corporate		40,647.4		_		18.5		40,547.2		81.7		
Residential mortgage-backed pass-through												
securities		2,982.4		_		_		2,982.4		_		
Commercial mortgage-backed securities		4,850.2		_		_		4,837.3		12.9		
Collateralized debt obligations (1)		3,215.3		_		_		3,016.3		199.0		
Other debt obligations		8,200.5		_		_		8,109.2		91.3		
Total fixed maturities, available-for-sale		70,106.2		_		1,339.9		68,381.4		384.9		
Fixed maturities, trading		675.9		_		0.5		675.1		0.3		
Equity securities		1,879.4		_		645.8		1,233.6		_		
Derivative assets (2)		294.7		_		_		265.4		29.3		
Other investments		796.0		78.3		335.2		343.5		39.0		
Cash equivalents		1,299.0		_		40.9		1,258.1		_		
Sub-total excluding separate account assets		75,051.2		78.3		2,362.3		72,157.1		453.5		
Separate account assets		165,468.0		129.0		95,652.5		60,718.5		8,968.0		
Total assets	\$	240,519.2	\$	207.3	\$	98,014.8	\$	132,875.6	\$	9,421.5		
					_							
Liabilities												
Investment and universal life contracts (3)	\$	(214.2)	\$	_	\$		\$	_	\$	(214.2)		
Derivative liabilities (2)		(217.7)		_				(201.4)		(16.3)		
Other liabilities (3)		(98.9)		_				(98.9)				
Total liabilities	\$	(530.8)	\$		\$		\$	(300.3)	\$	(230.5)		
	<u> </u>	(===10)	<u> </u>		<u> </u>		<u> </u>	(= = = =)	<u> </u>	(= = =)		
Net assets	\$	239,988.4	\$	207.3	\$	98,014.8	\$	132,575.3	\$	9,191.0		

⁽¹⁾ Primarily consists of collateralized loan obligations backed by secured corporate loans.

⁽²⁾ Within the consolidated statements of financial position, derivative assets are reported with other investments and derivative liabilities are reported with other liabilities. The amounts are presented gross in the tables above to reflect the presentation on the consolidated statements of financial position; however, are presented net for purposes of the rollforward in the Changes in Level 3 Fair Value Measurements tables. Refer to Note 4, Derivative Financial Instruments, for further information on fair value by class of derivative instruments.

⁽³⁾ Includes bifurcated embedded derivatives that are reported at net asset (liability) fair value within the same line item in the consolidated statements of financial position in which the host contract is reported.

⁽⁴⁾ Certain investments are measured at fair value using the NAV per share (or its equivalent) practical expedient and have not been classified in the fair value hierarchy. Other investments using the NAV practical expedient consist of certain fund interests that are restricted until maturity with unfunded commitments totaling \$17.9 million and \$19.9 million as of March 31, 2020 and December 31, 2019, respectively. Separate account assets using the NAV practical expedient consist of hedge funds with varying investment strategies that also have a variety of redemption terms and conditions. We do not have unfunded commitments associated with these hedge funds.

Changes in Level 3 Fair Value Measurements

The reconciliation for all assets and liabilities measured at fair value on a recurring basis using significant unobservable inputs (Level 3) was as follows:

						For the three	mo	nths ended M	arc	h 31, 2020				
				Total realize										<u>.</u>
	I	Beginning		gains	(los	ses)		Net						Ending asset/
		asset/ (liability) balance as of January 1, 2020		Included in net income (2)		Included in other comprehensive income (3)		purchases, sales, issuances and settlements (4)	Level 3		Transfers out of Level 3		out of M	
A								(in millions)						
Assets Fixed maturities, available-for-sale:														
Corporate	\$	81.7	\$	_	\$	(16.3)	\$	26.5	\$	124.7	\$	(46.3)	\$	170.3
Commercial mortgage-backed securities	Ψ	12.9	Ψ	_	Ψ	1.5	Ψ		Ψ		Ψ	(40.5)	Ψ	14.4
Collateralized debt obligations		199.0		(0.1)		(22.1)		141.8		_		(147.3)		171.3
Other debt obligations		91.3		_		(3.1)		13.1		46.1		(42.5)		104.9
Total fixed maturities, available-for-sale		384.9		(0.1)		(40.0)		181.4		170.8		(236.1)		460.9
Fixed maturities, trading		0.3		`—′		` —′		_		_		`		0.3
Other investments		39.0		(0.1)		(2.9)		_		_		_		36.0
Separate account assets (1)		8,968.0		144.6		· —		(245.9)		_		_		8,866.7
Liabilities Investment and universal life contracts		(214.2)		(340.4)		(0.3)		(0.5)		_		_		(555.4)
Derivatives Net derivative assets (liabilities)		13.0		(0.7)		_		(1.4)		_		(26.5)		(15.6)

					For the	three	mon	ths ended M	arcl	ı 31, 2019								
	I	Beginning		Total realize gains	ed/unrealize (losses)	d		Net						Ending				
		asset/ (liability) balance as of January 1, 2019		(liability) balance as of January 1,		(liability) balance Inda as of January 1, i		ncluded in net income (2)	Included in other comprehensive income (3)		purchases, sales, issuances and settlements (4)		Transfers into Level 3		Transfers out of Level 3			asset/ (liability) balance as of March 31, 2019
Assets Fixed maturities, available-for-sale:							(in millions)										
Non-U.S. governments	\$	4.6	\$	_	\$	_	\$	(0.4)	\$	_	\$	_	\$	4.2				
Corporate		57.9		_		0.4 0.3		0.2		_		_		58.5				
Commercial mortgage-backed securities Collateralized debt obligations		9.5 8.3		(2.5)		(0.2)		2.2 0.3		_		_		12.0 5.9				
Other debt obligations		58.5		(2.3)		1.1		9.8		_		(26.0)		43.4				
Total fixed maturities, available-for-sale		138.8	_	(2.5)		1.6		12.1	_		_	(26.0)	_	124.0				
Equity securities				(2.5)		0.4				_		(20.0)		0.4				
Other investments		17.2		2.2		_		_		10.0		_		29.4				
Separate account assets (1)		8,615.5		174.6		(0.4)		(70.3)		_		(0.7)		8,718.7				
Liabilities Investment and universal life contracts		(45.2)		4.3		0.1		0.3		_		_		(40.5)				
Derivatives Net derivative assets (liabilities)		3.1		(1.6)		_		1.9		_		_		3.4				

⁽¹⁾ Gains and losses for separate account assets do not impact net income as the change in value of separate account assets is offset by a change in value of separate account liabilities. Foreign currency translation adjustments related to the Principal International segment separate account assets are recorded in AOCI and are offset by foreign currency translation adjustments of the corresponding separate account liabilities.

(2) Both realized gains (losses) and mark-to-market unrealized gains (losses) are generally reported in net realized capital gains (losses) within the consolidated statements of operations. Realized and unrealized gains (losses) on certain securities with an investment objective to realize economic value through mark-to-market changes are reported in net investment income within the consolidated statements of operations. Changes in unrealized gains (losses) included in net income relating to positions still held were:

			montns ended ch 31,	епаеа	
		2020	2019	_	
Assets Fixed maturities, available-for-sale: Collateralized debt obligations Total fixed maturities, available-for-sale Other investments Separate account assets	<u>\$</u>	(in mi	\$ (2.5) (2.5) 2.2 180.7	<u>)</u>	
Liabilities Investment and universal life contracts		(354.0)	5.6	j	
Derivatives Net derivative assets (liabilities)		(1.4)	(1.3)	6)	

(3) Includes foreign currency translation adjustments related to our Principal International segment. Changes in unrealized gains (losses) included in OCI relating to positions still held were:

	For the three months ended March 31, 2020					
Accepta		(in millions)				
Assets						
Fixed maturities, available-for-sale:						
Corporate	\$	(16.3)				
Commercial mortgage-backed securities		1.5				
Collateralized debt obligations		(22.1)				
Other debt obligations		(3.1)				
Total fixed maturities, available-for-sale		(40.0)				
Other investments		(2.9)				
Liabilities						
Investment and universal life contracts		(0.3)				

Net derivative assets (liabilities)

Principal Financial Group, Inc. Notes to Condensed Consolidated Financial Statements — (continued) March 31, 2020 (Unaudited)

(4) Gross purchases, sales, issuances and settlements were:

		For the three months ended March 31, 2020										
	1	Purchases		Sales	I	ssuances		Settlements	sale	purchases, es, issuances settlements		
					(in	millions)						
Assets Fixed maturities, available-for-sale: Corporate Collateralized debt obligations	\$	27.5 141.8	\$	(0.5)	\$	Ξ	\$	(0.5)	\$	26.5 141.8		
Other debt obligations Total fixed maturities, available-for-sale Separate account assets (5)		14.3 183.6 67.6		(0.5) (184.1)		— — (174.2)		(1.2) (1.7) 44.8		13.1 181.4 (245.9)		
Liabilities Investment and universal life contracts		_		_		(6.7)		6.2		(0.5)		
Derivatives Net derivative assets (liabilities)		_		(1.4)		_		_		(1.4)		
	For the three months ended March 31, 2019											
	I	Purchases		Sales	I	ssuances		Settlements	sale	purchases, s, issuances settlements		
					(in	millions)						
Assets Fixed maturities, available-for-sale:												
Non-U.S. governments Corporate Commercial mortgage-backed securities	\$	0.5 2.4	\$	(0.2)	\$	_	\$	(0.4) (0.1) (0.2)	\$	(0.4) 0.2 2.2		
Collateralized debt obligations Other debt obligations		10.0		_ 				0.3 (0.2)		0.3 9.8		
Total fixed maturities, available-for-sale Separate account assets (5)		12.9 79.0		(0.2) (101.7)		— (47.3)		(0.6) (0.3)		12.1 (70.3)		
Liabilities Investment and universal life contracts		_		_		(1.3)		1.6		0.3		
Derivatives												

⁽⁵⁾ Issuances and settlements include amounts related to mortgage encumbrances associated with real estate in our separate accounts.

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1.9

Transfers

Transfers of assets and liabilities measured at fair value on a recurring basis between fair value hierarchy levels were as follows:

	For the three months ended March 31, 2020											
	of Lev	sfers out vel 1 into evel 3	Transfers out of Level 2 into Level 3		of Le	nsfers out evel 3 into evel 1	of L	nsfers out evel 3 into Level 2				
Assets				(in m	illions)							
Fixed maturities, available-for-sale:												
Corporate	\$	_	\$	124.7	\$	_	\$	46.3				
Collateralized debt obligations		_		_				147.3				
Other debt obligations				46.1				42.5				
Total fixed maturities, available-for-sale		_		170.8		_		236.1				
Derivatives												
Net derivative assets (liabilities)		_		_		_		26.5				
			For th	he three months	ended Ma	rch 31, 2019						
	of Lev	sfers out vel 1 into evel 3	of L	nsfers out evel 2 into Level 3	of Le	nsfers out evel 3 into evel 1	of L	nsfers out evel 3 into Level 2				
	<u></u>			(in m	illions)							
Assets Fixed maturities, available-for-sale:												
Other debt obligations	\$		\$		\$		\$	26.0				
Total fixed maturities, available-for-sale		_		_				26.0				
Other investments		_		10.0		_		_				
Separate account assets		_		_		_		0.7				

Assets transferred into Level 3 during the three months ended March 31, 2020, primarily included those assets for which we are now unable to obtain pricing from a recognized third party pricing vendor as well as assets that were previously priced using a matrix valuation approach that may no longer be relevant when applied to asset-specific situations. Other investments transferred from Level 2 into Level 3 during the three months ended March 31, 2019, included certain redeemable preferred stock for which at least one significant unobservable input is now used to determine fair value.

Assets transferred out of Level 3 during the three months ended March 31, 2020 and 2019, primarily included those assets for which we are now able to obtain pricing from a recognized third party pricing vendor or from internal models using substantially all market observable information.

Quantitative Information about Level 3 Fair Value Measurements

The following table provides quantitative information about the significant unobservable inputs used for recurring fair value measurements categorized within Level 3, excluding assets and liabilities for which significant quantitative unobservable inputs are not developed internally, which primarily consists of those valued using broker quotes or the measurement alternative for CCFEs. Refer to "Assets and liabilities measured at fair value on a recurring basis" for a complete valuation hierarchy summary.

			March 31, 2020				
Acceta	Assets / (liabilities) measured at fair value (in millions)	Valuation technique(s)	Unobservable input description		Input/range of inputs		Weighted average
Assets Fixed maturities, available-							
for-sale:							
Corporate	\$ 66.1	Discounted cash flow	Discount rate (1)	3.1	% -	14.0 %	6.0 %
GF	•		Illiquidity premium		asis points ("bps")-	75 bps	46 bps
			Comparability adjustment	0	bps -	31 bps	7 bps
Commercial mortgage- backed securities	14.4	Discounted cash flow	Discount rate (1)			2.3 %	2.3 %
			Probability of default			100.0 %	100.0 %
			Potential loss severity			53.4 %	53.4 %
Collateralized debt obligations	53.0	Discounted cash flow	Discount rate (1)	3.1	% -	6.0 %	4.5 %
			Potential loss severity			45.2 %	45.2 %
			Probability of default			100.0 %	100.0 %
Other debt obligations	25.3	Discounted cash flow	Discount rate (1)	4.2	% -	5.0	4.4 %
İ			Illiquidity premium			500 bps	500 bps
Other investments	34.6	Discounted cash flow - other investments	Discount rate (1)	25.0	% -	30.0 %	27.5 %
			Terminal earnings before interest, taxes, depreciation and amortization multiple	3.8	X-	4.7 x	4.2 x
		Market comparables - other investments	Revenue multiples (2)	0.8	Х-	7.0 x	3.8 x
		Discounted cash flow - real estate	Discount rate (1)			8.4 %	8.4 %
			Terminal capitalization rate			5.3 %	5.3 %
l			Average market rent growth			2.6 %	2.6 %
		Discounted cash flow - real estate debt	Loan to value			55.1 %	55.1 %
<u>i</u>			Credit spread			2.6 %	2.6 %
Separate account assets	8,864.5	Discounted cash flow - mortgage loans	Discount rate (1)			3.7 %	3.7 %
			Illiquidity premium			60 bps	60 bps
			Credit spread rate			338 bps	338 bps
		Discounted cash flow - real estate	Discount rate (1)	5.5	%-		6.6 %
			Terminal capitalization rate	4.5	%-	9.3 %	5.6 %
			Average market rent growth rate	2.0	%-	4.7 %	2.9 %
		Discounted cash flow - real estate debt	Loan to value	8.0	%-	80.4 %	46.5 %
ĺ			Market interest rate	3.4	%-	5.8 %	3.8 %

•	•			
	.เล	hi	liti	PS

Investment and universal	(555.4)	Discounted cash flow	Long duration interest	0.9 % (3)	0.9 %
life contracts (6)			rate		
			Long-term equity market volatility	16.9 %- 31.7 %	19.5 %
			Non-performance risk	2.1 %- 3.0 %	2.6 %
			Utilization rate	See note (4)	
			Lapse rate	0.0 % - 18.0 %	6.3 %
			Mortality rate	See note (5)	

December 31, 2019

(liabilities) measured at fair value (in millions)	Valuation technique(s)	Unobservable input description	Input/range of inputs	Weighted average
,				

Assets

Assets							
Fixed maturities, available-for-sale:							
Corporate	\$ 72.5	Discounted cash flow	Discount rate (1)	1.9	%-	5.1 %	3.8 %
			Illiquidity premium	0 b	ps-	410 bps	152 bps
Commercial mortgage-backed securities	2.4	Discounted cash flow	Probability of default			100.0 %	100.0 %
			Potential loss severity			53.1 %	53.1 %
Collateralized debt obligations	108.7	Discounted cash flow	Discount rate (1)	2.9	%-	10.0 %	3.4 %
G			Potential loss severity			23.0 %	23.0 %
			Probability of default			100.0 %	100.0 %
Other debt obligations	1.2	Discounted cash flow	Discount rate (1)			5.0 %	5.0 %
			Illiquidity premium			500 bps	500 bps
Other investments	14.8	Discounted cash flow	Discount rate (1)	25.0	%-	30.0 %	27.5 %
			Terminal earnings before	3.5 x	-	4.5 x	4.0 x
			interest, taxes, depreciation				
			and amortization multiple				
		Market comparables	Revenue multiples (2)	0.8 x	-	7.0 x	4.1 x
Separate account assets	8,966.2	Discounted cash flow - mortgage loans	Discount rate (1)			2.8 %	2.8 %
			Illiquidity premium			60 bps	60 bps
			Credit spread rate			120 bps	120 bps
		Discounted cash flow -	Discount rate (1)	5.5	%-	11.8 %	6.7 %
		real estate					
			Terminal capitalization rate		%-	9.3 %	5.7 %
			Average market rent growth	2.0	%-	4.7 %	3.0 %
			rate				
		Discounted cash flow - real estate debt	Loan to value	8.0	%-	80.4 %	45.9 %
			Market interest rate	3.2	%-	5.8 %	3.6 %

Liabilities

Liabilities					
Investment and universal life contracts (6)	(214.2)	Discounted cash flow	Long duration interest rate	2.0 %- 2.1 % (3)	
			Long-term equity market volatility	15.0 %- 26.9 %	
			Non-performance risk	0.2 %- 1.3 %	
			Utilization rate	See note (4)	
			Lapse rate	0.0 %- 18.0 %	
			Mortality rate	See note (5)	

- (1) Represents market comparable interest rate or an index adjusted rate used as the base rate in the discounted cash flow analysis prior to any illiquidity or other adjustments, where applicable.
- (2) Revenue multiples are amounts used when we have determined market participants would use such multiples to value the investments.
- (3) Represents the range of rate curves used in the valuation analysis that we have determined market participants would use when pricing the instrument. Derived from interpolation between various observable swap rates.
- (4) This input factor is the number of contractholders taking withdrawals as well as the amount and timing of the withdrawals and a range does not provide a meaningful presentation.
- (5) This input is based on an appropriate industry mortality table and a range does not provide a meaningful presentation.
- (6) Includes bifurcated embedded derivatives that are reported at net asset (liability) fair value within the same line item in the consolidated statements of financial position in which the host contract is reported.

Market comparable discount rates are used as the base rate in the discounted cash flows used to determine the fair value of certain assets. The use of a higher or lower discount rate would have caused the fair value of the assets to significantly decrease or increase, respectively. Additionally, we may adjust the base discount rate or the modeled price by applying an illiquidity premium given the highly structured nature of certain assets. The use of a higher or lower illiquidity premium would have caused significant decreases or increases, respectively, in the fair value of the asset.

Embedded derivatives within our investment and universal life contracts liability can be in either an asset or liability position, depending on certain inputs at the reporting date. Increases to an asset or decreases to a liability are described as increases to fair value. The use of a higher or lower market volatility would have caused significant decreases or increases, respectively, in the fair value of embedded derivatives in investment contracts. Long duration interest rates are used as the mean return when projecting the growth in the value of associated account value and impact the discount rate used in the discounted future cash flows valuation. The amount of claims will increase if account value is not sufficient to cover guaranteed withdrawals. The use of higher or lower risk-free rates would have caused the fair value of the embedded derivative to significantly increase or decrease, respectively. The use of a higher or lower rate for our own credit risks, which impact the rates used to discount future cash flows, would have significantly increased or decreased, respectively, the fair value of the embedded derivative. All of these changes in fair value would impact net income.

The use of a lower or higher mortality rate assumption would have caused the fair value of the embedded derivative to decrease or increase, respectively. The use of a lower or higher overall lapse rate assumption would have caused the fair value of the embedded derivative to decrease or increase, respectively. The lapse rate assumption may vary dynamically based on the relationship of the guarantee and associated account value. A stronger or weaker dynamic lapse rate assumption would have caused the fair value of the embedded derivative to decrease or increase, respectively. The utilization rate assumption includes how many contractholders will take withdrawals, when they will take them and how much of their benefit they will take. The use of a higher or lower assumption of the number of contractholders taking withdrawals would have caused the fair value of the embedded derivative to decrease or increase, respectively. Assuming contractholders take withdrawals earlier or later would have caused the fair value of the embedded derivative to decrease or increase, respectively. Assuming contractholders take more or less of their benefit would have caused the fair value of the embedded derivative to decrease or increase, respectively.

Assets and Liabilities Measured at Fair Value on a Nonrecurring Basis

No significant assets and liabilities were measured at fair value on a nonrecurring basis for the three months ended March 31, 2020 and 2019.

Fair Value Option

We elected fair value accounting for:

- Certain commercial mortgage loans of a consolidated VIE for which it was not practicable for us to determine the carrying value. The consolidated VIE was unwound in the third quarter of 2019.
- Certain real estate ventures that are subject to the equity method of accounting because the nature of the investments is to add value to the properties and generate income from the operations of the properties. Other equity method real estate investments are not fair valued because the investments mainly generate income from the operations of the underlying properties.

The following tables present information regarding the assets and liabilities for which the fair value option was elected.

	Marcl	ı 31, 2020	Decer	nber 31, 2019
		(in m	illions)	
Real estate ventures (1) Fair value	•	22.7	\$	22.8
(A) Provide the state of the st	Ψ	22.7	Ψ	22.0

⁽¹⁾ Reported with other investments in the consolidated statements of financial position.

	 For the three months ended I	March 31,
	2020	2019
	 (in millions)	
Commercial mortgage loans of consolidated VIEs Interest income (1)	\$ — \$	0.1
Real estate ventures Change in fair value pre-tax gain (loss) (2)	(0.1)	2.2

⁽¹⁾ Reported in net investment income on the consolidated statements of operations and recorded based on the effective interest rates as determined at the closing of the loan.

Financial Instruments Not Reported at Fair Value

The carrying value and estimated fair value of financial instruments not recorded at fair value on a recurring basis but required to be disclosed at fair value were as follows:

					March 31, 2020					
					Fair value hierarchy level					
	_Car		Fair value		Level 1		Level 2		Level 3	
					(in millions)					
Assets (liabilities)										
Mortgage loans	\$	16,645.9	\$ 16,708.9	\$	_	\$	_	\$	16,708.9	
Policy loans		797.0	1,055.7				_		1,055.7	
Other investments		288.7	286.0				189.4		96.6	
Cash and cash equivalents		1,023.6	1,023.6		1,014.0		9.6		_	
Investment contracts		(34,316.4)	(33,618.0)		_		(3,701.0)		(29,917.0)	
Short-term debt		(105.6)	(105.6)		_		(105.6)		_	
Long-term debt		(3,670.1)	(3,821.9)				(3,781.6)		(40.3)	
Separate account liabilities		(124,659.4)	(123,695.0)				_		(123,695.0)	
Bank deposits (1)		(461.9)	(469.7)		_		(469.7)		_	
Cash collateral payable		(473.0)	(473.0)		(473.0)		_		_	

⁽²⁾ Reported in net investment income on the consolidated statements of operations.

	December 31, 2019										
						l	air va	lue hierarchy lev	el		
	Car	rying amount		Fair value		Level 1		Level 2		Level 3	
						(in millions)					
Assets (liabilities)											
Mortgage loans	\$	16,486.9	\$	17,214.7	\$	_	\$		\$	17,214.7	
Policy loans		798.0		1,030.8				_		1,030.8	
Other investments		278.8		273.1		_		180.3		92.8	
Cash and cash equivalents		1,216.9		1,216.9		1,193.3		23.6		_	
Investment contracts		(33,922.2)		(34,001.3)		_		(4,304.5)		(29,696.8)	
Short-term debt		(93.4)		(93.4)				(93.4)		_	
Long-term debt		(3,734.1)		(4,122.9)				(4,015.3)		(107.6)	
Separate account liabilities		(151,132.4)		(149,955.6)				_		(149,955.6)	
Bank deposits (1)		(469.6)		(468.3)				(468.3)		_	
Cash collateral payable		(156.8)		(156.8)		(156.8)		_		_	

⁽¹⁾ Excludes deposit liabilities without defined or contractual maturities.

11. Segment Information

We provide financial products and services through the following segments: Retirement and Income Solutions, Principal Global Investors, Principal International and U.S. Insurance Solutions. In addition, we have a Corporate segment. The segments are managed and reported separately because they provide different products and services, have different strategies or have different markets and distribution channels.

The Retirement and Income Solutions segment provides retirement and related financial products and services primarily to businesses, their employees and other individuals. The segment is organized into Retirement and Income Solutions – Fee, which includes full service accumulation, trust services, individual variable annuities and revenues and expenses associated with the purchase of the Institutional Retirement & Trust business of Wells Fargo Bank N.A. (the "Acquired Business"); and Retirement and Income Solutions – Spread, which includes individual fixed annuities, investment only, pension risk transfer and banking services.

The Principal Global Investors segment provides asset management services to our asset accumulation business, our insurance operations, the Corporate segment and third party clients. This segment also includes our mutual fund business.

The Principal International segment has operations in Latin America (Brazil, Chile and Mexico) and Asia (China, Hong Kong Special Administrative Region, India and Southeast Asia). We focus on locations with large middle classes, favorable demographics and growing long-term savings, ideally with voluntary or mandatory pension markets. We entered these locations through acquisitions, start-up operations and joint ventures.

The U.S. Insurance Solutions segment focuses on solutions for individuals and small-to-medium sized businesses and their employees. The segment is organized into Specialty Benefits insurance, which provides group dental and vision insurance, individual and group disability insurance, critical illness, accident, group life insurance and non-medical fee-for-service claims administration; and Individual Life insurance, which provides universal life, variable universal life, indexed universal life and traditional life insurance.

Our Corporate segment manages the assets representing capital that has not been allocated to any other segment. Financial results of the Corporate segment primarily reflect our financing activities (including financing costs), income on capital not allocated to other segments, inter-segment eliminations, income tax risks and certain income, expenses and other adjustments not allocated to the segments based on the nature of such items. Results of Principal Securities, Inc. ("PSI"), our retail broker-dealer and registered investment advisor ("RIA"); RobustWealth, Inc. ("RobustWealth"), our financial technology company; and our exited group medical and long-term care insurance businesses are reported in this segment.

Management uses segment pre-tax operating earnings in evaluating performance, which is consistent with the financial results provided to and discussed with securities analysts. We determine segment pre-tax operating earnings by adjusting U.S. GAAP income before income taxes for pre-tax net realized capital gains (losses), as adjusted, pre-tax other adjustments that management believes are not indicative of overall operating trends and certain adjustments related to equity method investments and noncontrolling interest. While these items may be significant components in understanding and assessing the consolidated financial performance, management believes the presentation of pre-tax operating earnings enhances the understanding of our results of operations by highlighting pre-tax earnings attributable to the normal, ongoing operations of the business.

The pre-tax net realized capital gains (losses), as adjusted, excluded from pre-tax operating earnings reflects consolidated U.S. GAAP pre-tax net realized capital gains (losses) excluding the following items that are included in pre-tax operating earnings:

- Periodic settlements and accruals on derivative instruments not designated as hedging instruments,
- Certain market value adjustments of derivatives and embedded derivatives and
- Certain market value adjustments of derivative instruments used to economically hedge embedded derivatives.

Pre-tax net realized capital gains (losses), as adjusted, are further adjusted for:

- Amortization of hedge accounting book value adjustments for certain discontinued hedges,
- Certain hedge accounting market value revenue adjustments,
- Certain market value adjustments to fee revenues,
- Pre-tax net realized capital gains (losses) adjustments related to equity method investments,
- Pre-tax net realized capital gains (losses) adjustments related to sponsored investment funds,
- Recognition of deferred front-end fee revenues for sales charges on retirement and life insurance products and services,
- Related changes in the amortization pattern of DAC and related actuarial balances,
- Certain hedge accounting market value expense adjustments and
- Net realized capital gains (losses) distributed.

Segment operating revenues reflect consolidated U.S. GAAP total revenues excluding:

- Net realized capital gains (losses), except periodic settlements and accruals on derivatives not designated as hedging
 instruments and certain market value adjustments of derivative instruments used to economically hedge embedded derivatives,
 and their impact on:
 - Amortization of hedge accounting book value adjustments for certain discontinued hedges,
 - Certain hedge accounting market value revenue adjustments,
 - Certain market value adjustments to fee revenues,
 - Pre-tax net realized capital gains (losses) adjustments related to equity method investments,
 - Pre-tax net realized capital gains (losses) adjustments related to sponsored investment funds and
 - Recognition of deferred front-end fee revenues for sales charges on retirement and life insurance products and services.
- Pre-tax other adjustments and income taxes of equity method investments and
- Pre-tax other adjustments management believes are not indicative of overall operating trends.

The accounting policies of the segments are consistent with the accounting policies for the consolidated financial statements, with the exception of: (1) pension and other postretirement employee benefits ("OPEB") cost allocations, (2) certain expenses deemed to benefit the entire organization and (3) income tax allocations. For purposes of determining pre-tax operating earnings, the segments are allocated the service component of pension and other postretirement benefit costs. The Corporate segment reflects the non-service components of pension and other postretirement benefit costs as assumptions are established and funding decisions are managed from a company-wide perspective. Additionally, the Corporate segment reflects expenses that benefit the entire organization for which the segments are not able to influence the spend. This includes expenses such as public company costs, executive management costs, acquisition and disposition costs, among others. The Corporate segment functions to absorb the risk inherent in interpreting and applying tax law. For purposes of determining non-GAAP operating earnings, the segments are allocated tax adjustments consistent with the positions we took on tax returns. The Corporate segment results reflect any differences between the tax returns and the estimated resolution of any disputes.

The following tables summarize select financial information by segment, including operating revenues for our products and services, and reconcile segment totals to those reported in the consolidated financial statements:

March 31, 2020

December 31, 2019

	 (1	n millions)	Decemb	cr 01, 2 010
Assets:	`	/		
Retirement and Income Solutions	\$ 174,996.	\$		192,698.1
Principal Global Investors	2,173.			2,363.3
Principal International	39,445.			48,857.6
U.S. Insurance Solutions	27,928.			28,669.6
Corporate	2,359.8			3,499.2
Total consolidated assets	\$ 246,903.	_		276,087.8
		_		
	F	or the three Mar	months	ended
	202	.0		2019
Oneverting regionalist by comments		(in m	illions)	
Operating revenues by segment: Retirement and Income Solutions:				
Retirement and Income Solutions – Fee	\$	543.1	\$	430.8
Retirement and Income Solutions – Fee	Þ	2,062.6	Ф	1,461.1
Total Retirement and Income Solutions (1)			-	1,891.9
Principal Global Investors (2)		2,605.7 390.8		339.0
Principal International		300.5		380.5
U.S. Insurance Solutions:		300.3		300.3
Specialty Benefits insurance		639.0		601.8
Individual Life insurance		484.3		466.3
Total U.S. Insurance Solutions		1,123.3	-	1,068.1
		9.3		1,000.1
Corporate Total segment operating revenues		4,429.6		
		-		3,680.7
Net realized capital gains, net of related revenue adjustments Adjustments related to equity method investments		132.3 (10.6)		83.7 (20.5)
	<u>+</u>		<u></u>	
Total revenues per consolidated statements of operations	\$	4,551.3	\$	3,743.9
Pre-tax operating earnings (losses) by segment:				
Retirement and Income Solutions	\$	205.1	\$	240.6
Principal Global Investors	Ψ	111.7	Ψ	100.7
Principal International		30.8		111.1
U.S. Insurance Solutions		129.5		110.7
Corporate		(91.1)		(84.4)
Total segment pre-tax operating earnings	-	386.0		478.7
Pre-tax net realized capital gains (losses), as adjusted (3)		(67.1)		65.6
Adjustments related to equity method investments and noncontrolling interest		9.3		(18.3)
Income before income taxes per consolidated statements of operations	\$	328.2	\$	526.0
meome before meome taxes per consortance statements or operations	Ψ	3=0.=	*	320.0

⁽¹⁾ Reflects inter-segment revenues of \$84.0 million and \$85.7 million for the three months ended March 31, 2020 and 2019, respectively.

⁽²⁾ Reflects inter-segment revenues of \$72.7 million and \$61.5 million for the three months ended March 31, 2020 and 2019, respectively.

(3) Pre-tax net realized capital gains (losses), as adjusted, is derived as follows:

	For the three Mare		nded
	 2020		2019
	(in m	llions)	
Net realized capital gains:			
Net realized capital gains	\$ 131.4	\$	84.5
Derivative and hedging-related revenue adjustments	(13.6)		(11.5)
Adjustments related to equity method investments	(5.1)		(0.4)
Adjustments related to sponsored investment funds	3.9		8.0
Recognition of front-end fee revenue	 15.7		3.1
Net realized capital gains, net of related revenue adjustments	 132.3		83.7
Amortization of deferred acquisition costs and other actuarial balances	(219.4)		(16.4)
Capital (gains) losses distributed	43.4		(8.7)
Market value adjustments of embedded derivatives	 (23.4)		7.0
Pre-tax net realized capital gains (losses), as adjusted (a)	\$ (67.1)	\$	65.6

⁽a) As adjusted before noncontrolling interest capital gains (losses).

12. Revenues from Contracts with Customers

The following tables summarize disaggregation of revenues from contracts with customers, including select financial information by segment, and reconcile totals to those reported in the consolidated financial statements. Revenues from contracts with customers are included in fees and other revenues on the consolidated statements of operations.

	For the three months ended March 31,			
		2020		2019
	(in millions)			
Revenue from contracts with customers by segment:				
Retirement and Income Solutions:				
Retirement and Income Solutions – Fee	\$	156.4	\$	58.4
Retirement and Income Solutions – Spread		2.1		2.9
Total Retirement and Income Solutions		158.5		61.3
Principal Global Investors		382.9		332.3
Principal International		109.5		114.9
U.S. Insurance Solutions:				
Specialty Benefits insurance		3.8		3.7
Individual Life insurance		12.8		12.0
Total U.S. Insurance Solutions		16.6		15.7
Corporate		32.9		37.0
Total segment revenue from contracts with customers		700.4		561.2
Adjustments for fees and other revenues not within the scope of revenue recognition guidance (1)		429.2		409.2
Pre-tax other adjustments (2)		15.7		3.1
Total fees and other revenues per consolidated statements of operations	\$	1,145.3	\$	973.5

⁽¹⁾ Fees and other revenues not within the scope of the revenue recognition guidance primarily represent revenue on contracts accounted for under the financial instruments or insurance contracts standards.

⁽²⁾ Pre-tax other adjustments relate to the recognition of deferred front-end fee revenues for sales charges on retirement and life insurance products and certain market value adjustments to fee revenues.

Retirement and Income Solutions - Fee

Retirement and Income Solutions – Fee offers service and trust agreements for defined contribution retirement plans, including 401(k) plans, 403(b) plans, and employee stock ownership plans. The investment components of these service agreements are in the form of mutual fund offerings. In addition, plan sponsor retirement plan trust and custody services are also available through an affiliated trust company. With the Acquired Business, services and trust agreements are also offered to non-retirement customers including insurance companies, endowments and other financial institutions.

Fees and other revenues are earned for administrative activities performed for the defined contribution retirement plans including recordkeeping and reporting as well as trust and custody, asset management and investment services. Fees and other revenues are earned for administrative activities performed for non-retirement plan customers including trust and custody services, defined benefit administration and investment management activities. The majority of these activities are performed daily over time. Fee-for-service transactions are also provided upon client request. These services are considered distinct or grouped into a bundle until a distinct performance obligation is identified. Some performance obligations are considered a series of distinct services, which are substantially the same and have the same pattern of transfer to the customer.

Fees and other revenues can be based on a fixed contractual rate for these services or can be variable based upon contractual rates applied to the market value of the client's investment portfolio each day. If the consideration for this series of performance obligations is based on daily market value, it is considered variable each day as the services are performed over time. The consideration becomes unconstrained and thus recognized as revenue for each day's series of distinct services once the market value of the clients' investment portfolios is determined at market close or carried over at the end of the day for days when the market is closed. Additionally, fixed fees and other revenues are recognized point-in-time as fee-for-service transactions upon completion.

The types of revenues from contracts with customers were as follows:

	March 31,			
		2020		2019
		(in m	illions)	
Administrative service fee revenue (1)	\$	156.2	\$	58.2
Other fee revenue		0.2		0.2
Total revenues from contracts with customers		156.4		58.4
Fees and other revenues not within the scope of revenue recognition guidance		280.5		271.8
Total fees and other revenues		436.9		330.2
Premiums and other considerations		1.8		1.1
Net investment income		104.4		99.5
Total operating revenues	\$	543.1	\$	430.8

For the three months ended

Retirement and Income Solutions - Spread

Retirement and Income Solutions – Spread offers individual retirement accounts ("IRAs") through Principal Bank, which are primarily funded by retirement savings rolled over from qualified retirement plans. The IRAs are held in savings accounts, money market accounts and certificates of deposit. Revenues are earned through fees as the performance of establishing and maintaining IRA accounts is completed. Fee-for-service transactions are also provided upon client request. The establishment fees and annual maintenance fees are accrued into earnings over a period of time using the average account life. Upfront and recurring bank fees are related to performance obligations that have the same pattern of transfer to the customer and are recognized in income over time with control transferred to the customers utilizing the output method. These fees are based on a fixed contractual rate. Fixed fees and other revenues are also recognized point-in-time as fee-for-service transactions upon completion.

⁽¹⁾ Includes fee revenue for the Acquired Business in 2020.

The types of revenues from contracts with customers were as follows:

	March 31,					
	2020			2019		
	(in millions)					
Deposit account fee revenue	\$	2.1	\$	2.9		
Total revenues from contracts with customers		2.1		2.9		
Fees and other revenues not within the scope of revenue recognition guidance		3.1		4.9		
Total fees and other revenues		5.2		7.8		
Premiums and other considerations		1,521.1		957.5		
Net investment income		536.3		495.8		
Total operating revenues	\$	2,062.6	\$	1,461.1		

For the three months ended

For the three months ended

Principal Global Investors

Fees and other revenues earned for asset management, investment advisory and distribution services provided to institutional and retail clients are based largely upon contractual rates applied to the specified amounts of the clients' portfolios. Each service is a distinct performance obligation, or a series of distinct services that are a single performance obligation in that the services are substantially the same and have the same pattern of transfer to the customer. Fees and other revenues received for performance obligations such as asset management and other services are typically recognized over time utilizing the output method as the service is performed. Performance fees and transaction fees on certain accounts are recognized in income when the probability of significant reversal will not occur upon resolution of the uncertainty, which could be based on a variety of factors such as market performance or other internal metrics. Asset management fees are accrued each month based on the fee terms within the applicable agreement and are generally billed quarterly when values used for the calculation are available. Management fees and performance fees are variable consideration as they are subject to fluctuation based on assets under management ("AUM") and other constraints. These fees are not recognized until unconstrained at the end of each reporting period.

The types of revenues from contracts with customers were as follows:

March 31,			
	2020		2019
	(in millions)		
\$	321.0	\$	292.8
	61.9		39.5
	382.9		332.3
	5.5		4.3
<u></u>	388.4		336.6
	2.4		2.4
\$	390.8	\$	339.0
	\$	\$ 321.0 61.9 382.9 5.5 388.4 2.4	\$ 321.0 \$ 61.9 \$ 5.5 \$ 388.4 \$ 2.4

Principal International

Fees and other revenues are earned for asset management and distribution services provided to retail and institutional clients in addition to trustee and/or administrative services performed for retirement savings plans. Each service is considered a distinct performance obligation; however, if the services are not distinct on their own, we combine them into a distinct bundle or we have a series of distinct services that are substantially the same and have the same pattern of transfer to the customer. Fees and other revenues are typically based upon contractual rates applied to the market value of the clients' investment portfolios and are considered variable consideration. The transaction price generally includes the amount determined at the end of the reporting period, whereby fees are deducted from the clients' investment portfolios and are recognized as revenue when no longer constrained and satisfied as the services are performed over time utilizing the output method. In addition, payments to customers can take the form of an incentive given by us to entice the customer to purchase its goods or services. Incentives offered to customers are recognized as part of the transaction price as a reduction of revenue either over the period the customer remains in order to receive the incentive or monthly throughout the life of the contract.

Incentive-based fees are recognized in income when the probability of significant reversal will not occur upon the resolution of the uncertainty, which is based on market performance.

Fees for managing customers' mandatory retirement savings accounts in Chile are collected with each monthly deposit made by our customers. If a customer stops contributing before retirement age, we collect no fees but services are still provided. We recognize revenue from these contracts as services are performed over the life of the contract and review annually.

For the three months ended

The types of revenues from contracts with customers were as follows:

	For the three months ended March 31,			
		2020	cii oi,	2019
		(in millions)		
Management fee revenue	\$	108.5	\$	114.3
Other fee revenue		1.0		0.6
Total revenues from contracts with customers		109.5		114.9
Fees and other revenues not within the scope of revenue recognition guidance		1.3		1.7
Total fees and other revenues		110.8		116.6
Premiums and other considerations		85.0		117.5
Net investment income		104.7		146.4
Total operating revenues	\$	300.5	\$	380.5
Revenues from contracts with customers by region:				
Latin America	\$	81.5	\$	88.1
Asia		28.0		27.0
Principal International corporate / regional offices		0.2		0.2
Eliminations		(0.2)		(0.4)
Total revenues from contracts with customers	\$	109.5	\$	114.9

U.S. Insurance Solutions

Fees and other revenues are earned for administrative services performed including recordkeeping and reporting services for fee-for-service products, nonqualified benefit plans, separate accounts and dental networks. Services within contracts are not distinct on their own; however, we combine the services into a distinct bundle and account for the bundle as a single performance obligation, which is satisfied over time utilizing the output method as services are rendered. The transaction price corresponds with the performance completed to date, for which the value is recognized as revenue during the period. Variability of consideration is resolved at the end of each period and payments are due when billed.

Commission income is earned through sponsored brokerage services. Performance obligations are satisfied at a point in time, upon delivery of a placed case, and the transaction price calculated per the compensation schedule is recognized as revenue.

Fau the three menths ended

The types of revenues from contracts with customers were as follows:

Specialty Benefits insurance: Administrative service fees Total revenues from contracts with customers Fees and other revenues not within the scope of revenue recognition guidance Total fees and other revenues 8.7	For the three months ended March 31,			
Specialty Benefits insurance: Administrative service fees Total revenues from contracts with customers Fees and other revenues not within the scope of revenue recognition guidance Total fees and other revenues 8.7	2019			
Administrative service fees \$ 3.8 \$ Total revenues from contracts with customers 3.8 Fees and other revenues not within the scope of revenue recognition guidance 4.9 Total fees and other revenues \$ 3.7	ons)			
Total revenues from contracts with customers Fees and other revenues not within the scope of revenue recognition guidance Total fees and other revenues 8.7				
Fees and other revenues not within the scope of revenue recognition guidance Total fees and other revenues 8.7	3.7			
Total fees and other revenues 8.7	3.7			
	4.9			
D 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8.6			
Premiums and other considerations 588.4	555.9			
Net investment income 41.9	37.3			
Total operating revenues \$ 639.0 \$	601.8			
Individual Life insurance:				
Administrative service fees \$ 5.7 \$	5.9			
Commission income 7.1	6.1			
Total revenues from contracts with customers 12.8	12.0			
Fees and other revenues not within the scope of revenue recognition guidance 210.0	192.2			
Total fees and other revenues 222.8	204.2			
Premiums and other considerations 94.7	92.9			
Net investment income 166.8	169.2			
Total operating revenues \$ 484.3 \$	\$ 466.3			

Corporate

Fees and other revenues are earned on the performance of selling and servicing of securities and related products offered through PSI, an introducing broker-dealer registered with the FINRA.

PSI enters into selling and distribution agreements with the obligation to sell or distribute the securities products, such as mutual funds, annuities and products sold through RIAs, to individual clients in return for a front-end sales charges, 12b-1 service fees, annuity fees and asset-based fees. Front-end sales charges, 12b-1 fees and annuity fees are related to a single sale and are earned at the time of sale. PSI also enters into agreements with individual customers to provide securities trade execution and custody through a brokerage services platform in return for ticket charge and other service fee revenue. These services are bundled as one single distinct service referred to as brokerage services. This revenue is related to distinct transactions and is earned at a point in time.

PSI also enters into agreements with individual customers to provide trade execution, clearing services, custody services and investment research services through our proprietary offered fee-based products. These services are bundled as one single distinct service referred to as advisory services. In addition, for outside RIA business PSI performs sales and distribution services only. The revenues are earned over time as the service is performed utilizing the output method.

A majority of our revenue is based upon contractual rates applied to the market value of the clients' portfolios and considered variable consideration.

The Corporate segment also includes inter-segment eliminations of fees and other revenues. The types of revenues from contracts with customers were as follows:

	For the three months ended March 31,			
	2020		2019	
		(in millions)		
Commission income	\$	80.4	\$	75.8
Other fee revenue		11.1		8.8
Eliminations		(58.6)		(47.6)
Total revenues from contracts with customers		32.9		37.0
Fees and other revenues not within the scope of revenue recognition guidance		(76.1)		(70.6)
Total fees and other revenues		(43.2)		(33.6)
Net investment income		52.5		34.8
Total operating revenues	\$	9.3	\$	1.2

Contract Costs

Sales compensation and other incremental costs of obtaining a contract are capitalized and amortized over the period of contract benefit if the costs are expected to be recovered. The contract cost asset, which is included in other assets on the consolidated statements of financial position, was \$146.1 million and \$157.0 million as of March 31, 2020 and December 31, 2019, respectively.

We apply the practical expedient for certain costs where we recognize the incremental costs of obtaining these contracts as an expense when incurred if the amortization period of the assets is one year or less. These costs, along with costs that are not deferrable, are included in operating expenses on the consolidated statements of operations.

Deferred contract costs consist primarily of commissions and variable compensation. We amortize capitalized contract costs on a straight-line basis over the expected contract life, reflecting lapses as they are incurred. Deferred contract costs are subject to impairment testing on an annual basis, or when a triggering event occurs that could warrant an impairment. To the extent future revenues less future maintenance expenses are not adequate to cover the asset balance, an impairment is recognized. For the three months ended March 31, 2020 and 2019, \$6.6 million and \$5.6 million, respectively, of amortization expense was recorded in operating expenses on the consolidated statements of operations and no impairment loss was recognized in relation to the costs capitalized.

13. Stock-Based Compensation Plans

As of March 31, 2020, we had the 2014 Stock Incentive Plan, the Employee Stock Purchase Plan, the 2014 Directors Stock Plan, the Amended and Restated 2010 Stock Incentive Plan, the 2005 Directors Stock Plan, the Stock Incentive Plan and the Directors Stock Plan ("Stock-Based Compensation Plans"). As of May 20, 2014, no new grants will be made under the Amended and Restated 2010 Stock Incentive Plan or the 2005 Directors Stock Plan. No grants have been made under the Stock Incentive Plan or the Directors Stock Plan since at least 2005. Under the terms of the 2014 Stock Incentive Plan, grants may be nonqualified stock options, incentive stock options qualifying under Section 422 of the Internal Revenue Code, restricted stock, restricted stock units, stock appreciation rights, performance shares, performance units or other stock-based awards. The 2014 Directors Stock Plan provides for the grant of nonqualified stock options, restricted stock, restricted stock units or other stock-based awards to our nonemployee directors. To date, we have not granted any incentive stock options, restricted stock or performance units under any plans.

As of March 31, 2020, the maximum number of new shares of common stock available for grant under the 2014 Stock Incentive Plan and the 2014 Directors Stock Plan was 4.0 million.

For awards with graded vesting, we use an accelerated expense attribution method. The compensation cost that was charged against net income for stock-based awards granted under the Stock-Based Compensation Plans was as follows:

	 For the three months ended March 31						
	 2020		2019				
	 (in m	illions)					
Compensation cost	\$ 23.5	\$	24.3				
Related income tax benefit	4.9		4.8				
Capitalized as part of an asset	0.4		0.6				

Nonqualified Stock Options

Nonqualified stock options were granted to certain employees under the 2014 Stock Incentive Plan. Total options granted were 1.4 million for the three months ended March 31, 2020. The fair value of stock options is estimated using the Black-Scholes option pricing model. The following is a summary of the assumptions used in this model for the stock options granted during the period:

	ree months ended ch 31, 2020
Expected volatility	25.7 %
Expected term (in years)	7.0
Risk-free interest rate	1.3 %
Expected dividend yield	4.33 %
Weighted average estimated fair value per common share	\$ 9.64

As of March 31, 2020, we had \$11.6 million of total unrecognized compensation cost related to nonvested stock options. The cost is expected to be recognized over a weighted-average service period of approximately 1.4 years.

Performance Share Awards

Performance share awards were granted to certain employees under the 2014 Stock Incentive Plan. Total performance share awards granted were 0.3 million for the three months ended March 31, 2020. The performance share awards granted represent initial target awards and do not reflect potential increases or decreases resulting from the final performance results to be determined at the end of the performance period. The actual number of common shares to be awarded at the end of each performance period will range between 0% and 150% of the initial target awards. The fair value of performance share awards is determined based on the closing stock price of our common shares on the grant date. The weighted-average grant date fair value of these performance share awards granted was \$51.73 per common share.

As of March 31, 2020, we had \$10.8 million of total unrecognized compensation cost related to nonvested performance share awards granted. The cost is expected to be recognized over a weighted-average service period of approximately 1.5 years.

Restricted Stock Units

Restricted stock units were issued to certain employees pursuant to the 2014 Stock Incentive Plan and non-employee directors pursuant to the 2014 Directors Stock Plan. Total restricted stock units granted were 1.0 million for the three months ended March 31, 2020. The fair value of restricted stock units is determined based on the closing stock price of our common shares on the grant date. The weighted-average grant date fair value of these restricted stock units granted was \$51.73 per common share.

As of March 31, 2020, we had \$79.0 million of total unrecognized compensation cost related to nonvested restricted stock unit awards granted. The cost is expected to be recognized over a weighted-average period of approximately 2.1 years.

Employee Stock Purchase Plan

Under the Employee Stock Purchase Plan, employees purchased 0.5 million shares for the three months ended March 31, 2020. The weighted average fair value of the discount on the stock purchased was \$4.70 per share.

As of March 31, 2020, a total of 0.9 million of new shares were available to be made issuable by us for this plan.

14. Earnings Per Common Share

The computations of the basic and diluted per share amounts were as follows:

	For the three months ended March 31,							
	2020	2019						
		, except per share data)						
Net income	\$ 285	5.0 \$ 452.1						
Subtract:								
Net income (loss) attributable to noncontrolling interest	(3	22.2						
Total	\$ 288	\$ 429.9						
Weighted-average shares outstanding:								
Basic	275	278.7						
Dilutive effects:								
Stock options	(0.7						
Restricted stock units	1	.6 1.5						
Performance share awards		<u> </u>						
Diluted	277	280.9						
Net income per common share:								
Basic	\$ 1.	05 \$ 1.54						
Diluted	\$ 1.	94 \$ 1.53						

The calculation of diluted earnings per share for the three months ended March 31, 2020 and 2019, excludes the incremental effect related to certain outstanding stock-based compensation grants due to their anti-dilutive effect.

15. Condensed Consolidating Financial Information

Principal Life has established special purpose entities to issue secured medium-term notes. Under the program, the payment obligations of principal and interest on the notes are secured by funding agreements issued by Principal Life. Principal Life's payment obligations on the funding agreements are fully and unconditionally guaranteed by PFG. All of the outstanding stock of Principal Life is indirectly owned by PFG and PFG is the only guaranter of the payment obligations of the funding agreements.

The following tables set forth condensed consolidating financial information of (i) PFG, (ii) Principal Life, (iii) Principal Financial Services ("PFS") and all other direct and indirect subsidiaries of PFG on a combined basis and (iv) the eliminations necessary to arrive at the information for PFG on a consolidated basis as of March 31, 2020 and December 31, 2019, and for the three months ended March 31, 2020 and 2019.

In presenting the condensed consolidating financial statements, the equity method of accounting has been applied to (i) PFG's interest in all direct subsidiaries of PFG, (ii) Principal Life's interest in all direct subsidiaries of Principal Life and (iii) PFS's interest in Principal Life even though all such subsidiaries meet the requirements to be consolidated under U.S. GAAP. Earnings of subsidiaries are, therefore, reflected in the parent's investment and earnings. All intercompany balances and transactions, including elimination of the parent's investment in subsidiaries, between PFG, Pri doincipal Life and PFS and all other subsidiaries have been eliminated, as shown in the column "Eliminations." These condensed consolidating financial statements should be read in conjunction with the consolidated financial statements. The financial information may not necessarily be indicative of results of operations, cash flows or financial position had the subsidiaries operated as independent entities.

PFG sponsors nonqualified benefit plans for select employees and agents and is responsible for the obligations of these plans. Nonqualified plan assets are held in Rabbi trusts for the benefit of all nonqualified plan participants. The Rabbi trusts are separate legal entities and are not a part of PFG on a stand-alone basis. The plan assets are available to satisfy the claims of general creditors only in the event of bankruptcy and are, therefore, consolidated in our statements of financial position.

Condensed Consolidating Statements of Financial Position March 31, 2020

Pixed maturities, available-for-sale \$290.5 \$61,408.8 \$7,367.5 \$68,707.8 \$96,7		F Gr	rincipal 'inancial roup, Inc. irent only	rincipal Life Insurance Company only	Ser oth	ncipal Financial rvices, Inc. and er subsidiaries combined (1)	1	Eliminations		Principal Financial Group, Inc. consolidated
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Deferred income taxes — 86.2 1,885.0 (\$20.9) 1,450.3 Separate account liabilities — 105,530.3 31,305.7 — 136,836.0 Other liabilities 645.9 10,937.5 7,558.9 (11,758.9) 7,383.4 Total liabilities 4,284.5 192,774.7 51,399.5 (14,767.1) 233,691.6 Redeemable noncontrolling interest — — — 239.7 — 239.7 Stockholders' equity — — — — (2.5) — 4.8 Additional paid-in capital 10,216.5 6,324.1 10,030.0 (16,354.1) 10,216.5 Retained earnings 11,198.8 2,372.2 6,307.6 (8,679.8) 11,198.8 Accumulated other comprehensive income (loss) (599.2) 1,336.9 (691.3) (645.6) (599.2) Total stockholders' equity attributable to PFG 12,907.5 10,035.7 15,646.3 (25,682.0) 12,907.5 Noncontrolling interest — — — 65.1				_						
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Other liabilities 645.9 10,937.5 7,558.9 (11,758.9) 7,383.4 Total liabilities 4,284.5 192,774.7 51,399.5 (14,767.1) 233,691.6 Redeemable noncontrolling interest — — 239.7 — 239.7 Stockholders' equity Common stock 4.8 2.5 — (2.5) 4.8 Additional paid-in capital 10,216.5 6,324.1 10,030.0 (16,354.1) 10,216.5 Retained earnings 11,198.8 2,372.2 6,307.6 (8,679.8) 11,198.8 Accumulated other comprehensive income (loss) (599.2) 1,336.9 (691.3) (645.6) (599.2) Total stockholders' equity attributable to PFG 12,907.5 10,035.7 15,646.3 (25,682.0) 12,907.5 Noncontrolling interest — — 65.1 — 65.1 Total stockholders' equity 12,907.5 10,035.7 15,711.4 (25,682.0) 12,972.6			_					(520.9)		
Total liabilities 4,284.5 192,774.7 51,399.5 (14,767.1) 233,691.6 Redeemable noncontrolling interest — — — 239.7 Stockholders' equity Common stock 4.8 2.5 — (2.5) 4.8 Additional paid-in capital 10,216.5 6,324.1 10,030.0 (16,354.1) 10,216.5 Retained earnings 11,198.8 2,372.2 6,307.6 (8,679.8) 11,198.8 Accumulated other comprehensive income (loss) (599.2) 1,336.9 (691.3) (645.6) (599.2) Treasury stock, at cost (7,913.4) — — — — (7,913.4) Total stockholders' equity attributable to PFG 12,907.5 10,035.7 15,646.3 (25,682.0) 12,907.5 Noncontrolling interest — — 65.1 — — 65.1 Total stockholders' equity 12,907.5 10,035.7 15,711.4 (25,682.0) 12,972.6			645.0					(11 758 0)		
Redeemable noncontrolling interest — — 239.7 — 239.7 Stockholders' equity — — (2.5) 4.8 Common stock 4.8 2.5 — (2.5) 4.8 Additional paid-in capital 10,216.5 6,324.1 10,030.0 (16,354.1) 10,216.5 Retained earnings 11,198.8 2,372.2 6,307.6 (8,679.8) 11,198.8 Accumulated other comprehensive income (loss) (599.2) 1,336.9 (691.3) (645.6) (599.2) Treasury stock, at cost (7,913.4) — — — — (7,913.4) Total stockholders' equity attributable to PFG 12,907.5 10,035.7 15,646.3 (25,682.0) 12,907.5 Noncontrolling interest — — 65.1 — 65.1 Total stockholders' equity 12,907.5 10,035.7 15,711.4 (25,682.0) 12,972.6									_	
Stockholders' equity Common stock 4.8 2.5 — (2.5) 4.8 Additional paid-in capital 10,216.5 6,324.1 10,030.0 (16,354.1) 10,216.5 Retained earnings 11,198.8 2,372.2 6,307.6 (8,679.8) 11,198.8 Accumulated other comprehensive income (loss) (599.2) 1,336.9 (691.3) (645.6) (599.2) Treasury stock, at cost (7,913.4) — — — — (7,913.4) Total stockholders' equity attributable to PFG 12,907.5 10,035.7 15,646.3 (25,682.0) 12,907.5 Noncontrolling interest — — 65.1 — 65.1 Total stockholders' equity 12,907.5 10,035.7 15,711.4 (25,682.0) 12,972.6	Total Habilities		4,204.3	132,774.7		31,355.3		(14,/0/.1)		233,031.0
Common stock 4.8 2.5 — (2.5) 4.8 Additional paid-in capital 10,216.5 6,324.1 10,030.0 (16,354.1) 10,216.5 Retained earnings 11,198.8 2,372.2 6,307.6 (8,679.8) 11,198.8 Accumulated other comprehensive income (loss) (599.2) 1,336.9 (691.3) (65.6) (599.2) Treasury stock, at cost (7,913.4) — — — — (7,913.4) Total stockholders' equity attributable to PFG 12,907.5 10,035.7 15,646.3 (25,682.0) 12,907.5 Noncontrolling interest — — 65.1 — 65.1 Total stockholders' equity 12,907.5 10,035.7 15,711.4 (25,682.0) 12,972.6	Redeemable noncontrolling interest		_	_		239.7		_		239.7
Common stock 4.8 2.5 — (2.5) 4.8 Additional paid-in capital 10,216.5 6,324.1 10,030.0 (16,354.1) 10,216.5 Retained earnings 11,198.8 2,372.2 6,307.6 (8,679.8) 11,198.8 Accumulated other comprehensive income (loss) (599.2) 1,336.9 (691.3) (645.6) (599.2) Treasury stock, at cost (7,913.4) — — — — (7,913.4) Total stockholders' equity attributable to PFG 12,907.5 10,035.7 15,646.3 (25,682.0) 12,907.5 Noncontrolling interest — — 65.1 — 65.1 Total stockholders' equity 12,907.5 10,035.7 15,711.4 (25,682.0) 12,972.6	Stockholders' equity									
Additional paid-in capital 10,216.5 6,324.1 10,030.0 (16,354.1) 10,216.5 Retained earnings 11,198.8 2,372.2 6,307.6 (8,679.8) 11,198.8 Accumulated other comprehensive income (loss) (599.2) 1,336.9 (691.3) (645.6) (599.2) Treasury stock, at cost (7,912.4) — — — (7,913.4) Total stockholders' equity attributable to PFG 12,907.5 10,035.7 15,646.3 (25,682.0) 12,907.5 Noncontrolling interest — — — 65.1 — 65.1 Total stockholders' equity 12,907.5 10,035.7 15,711.4 (25,682.0) 12,972.6			48	2.5		_		(2.5)		48
Retained earnings 11,198.8 2,372.2 6,307.6 (8,679.8) 11,198.8 Accumulated other comprehensive income (loss) (599.2) 1,336.9 (691.3) (645.6) (599.2) Treasury stock, at cost (7,913.4) — — — — (7,913.4) (7,913.4) — — — — (7,913.4) (7,913.4) — — — — — (7,913.4) (25,682.0) 12,907.5 10,035.7 15,646.3 (25,682.0) 12,907.5 10,035.7 15,711.4 (25,682.0) 12,972.6 12,972.6						10.030.0				
Accumulated other comprehensive income (loss) (599.2) 1,336.9 (691.3) (645.6) (599.2) Treasury stock, at cost (7,913.4) — — — — (7,913.4) Total stockholders' equity attributable to PFG 12,907.5 10,035.7 15,646.3 (25,682.0) 12,907.5 Noncontrolling interest — 65.1 — 65.1 Total stockholders' equity 12,907.5 10,035.7 15,711.4 (25,682.0) 12,972.6										
Treasury stock, at cost (7,913.4) — — — (7,913.4) Total stockholders' equity attributable to PFG 12,907.5 10,035.7 15,646.3 (25,682.0) 12,907.5 Noncontrolling interest — — 65.1 — 65.1 Total stockholders' equity 12,907.5 10,035.7 15,711.4 (25,682.0) 12,972.6										
Noncontrolling interest — — 65.1 — 65.1 Total stockholders' equity 12,907.5 10,035.7 15,711.4 (25,682.0) 12,972.6				´ —		`		`		
Noncontrolling interest — — 65.1 — 65.1 Total stockholders' equity 12,907.5 10,035.7 15,711.4 (25,682.0) 12,972.6		·		10,035.7		15,646.3		(25,682.0)	-	
	Noncontrolling interest			<u> </u>			_		_	
Total liabilities and stockholders' equity \$ 17,192.0 \$ 202,810.4 \$ 67,350.6 \$ (40,449.1) \$ 246,903.9	Total stockholders' equity		12,907.5	10,035.7		15,711.4		(25,682.0)		12,972.6
	Total liabilities and stockholders' equity	\$	17,192.0	\$ 202,810.4	\$	67,350.6	\$	(40,449.1)	\$	246,903.9

⁽¹⁾ PFG sponsors nonqualified benefit plans. Nonqualified benefit plan assets and liabilities held in Rabbi trusts were \$720.1 million and \$579.8 million, respectively.

Condensed Consolidating Statements of Financial Position December 31, 2019

		Principal Financial Group, Inc. parent only	I	Principal Life Insurance Company only	S	rincipal Financial ervices, Inc. and ther subsidiaries combined (1)		Eliminations		Principal Financial Group, Inc. consolidated
Assets						(in millions)				
Fixed maturities, available-for-sale	\$	265.8	\$	62,363.1	\$	7,833.1	\$	(355.8)	\$	70,106.2
Fixed maturities, trading		268.2		237.5		170.2		`		675.9
Equity securities		_		69.9		1,809.5		_		1,879.4
Mortgage loans		_		15,388.5		1,793.5		(695.1)		16,486.9
Real estate		_		3.3		1,711.5		_		1,714.8
Policy loans				742.2		55.8				798.0
Investment in unconsolidated entities		17,539.6		5,036.2		6,429.5		(28,175.1)		830.2
Other investments		10.4		3,682.5		2,859.6		(2,692.5)		3,860.0
Cash and cash equivalents Accrued investment income		394.9		1,178.1 608.5		1,767.7		(824.8)		2,515.9 686.6
Premiums due and other receivables		1.6		2,082.3		81.4 4,525.8		(4.9) (4,867.8)		1,740.3
Deferred acquisition costs		_		3,509.7		4,323.6		(4,007.0)		3,521.3
Property and equipment				733.9		233.8				967.7
Goodwill		_		54.3		1,639.5		_		1.693.8
Other intangibles				17.7		1,769.0		_		1,786.7
Separate account assets		_		125,801.7		39,666.3		_		165,468.0
Other assets		383.2		1,118.6		5,358.4		(5,504.1)		1,356.1
Total assets	\$	18,863.7	\$	222,628.0	\$	77,716.2	\$	(43,120.1)	\$	276,087.8
Liabilities	=	-/	=	, , , , , , , , , ,	=	,	÷	(- / /	=	
Contractholder funds	\$		\$	38,334.6	\$	3,388.0	\$	(355.1)	\$	41,367.5
Future policy benefits and claims	Ψ		Ψ	35,476.6	Ψ	6,740.7	Ψ	(1,379.1)	Ψ	40.838.2
Other policyholder funds		_		790.3		171.9		(2.8)		959.4
Short-term debt				_		93.4		_		93.4
Long-term debt		3,625.5		_		763.1		(654.5)		3,734.1
Income taxes currently payable		_		_		81.7		(65.5)		16.2
Deferred income taxes		_		325.8		1,965.9		(495.1)		1,796.6
Separate account liabilities		_		125,801.7		39,666.3		_		165,468.0
Other liabilities		620.2		10,533.5		7,111.2		(11,401.2)		6,863.7
Total liabilities		4,245.7		211,262.5		59,982.2		(14,353.3)		261,137.1
Redeemable noncontrolling interest		_		_		264.9		_		264.9
Stockholders' equity										
Common stock		4.8		2.5		_		(2.5)		4.8
Additional paid-in capital		10,182.6		6,331.5		10,038.7		(16,370.2)		10,182.6
Retained earnings		11,074.3		2,410.8		6,414.3		(8,825.1)		11,074.3
Accumulated other comprehensive income		1,037.9		2,620.7		948.3		(3,569.0)		1,037.9
Treasury stock, at cost		(7,681.6)	_				_		_	(7,681.6)
Total stockholders' equity attributable to PFG		14,618.0	_	11,365.5	_	17,401.3		(28,766.8)		14,618.0
Noncontrolling interest			_			67.8	_		_	67.8
Total stockholders' equity		14,618.0		11,365.5		17,469.1		(28,766.8)		14,685.8
Total liabilities and stockholders' equity	\$	18,863.7	\$	222,628.0	\$	77,716.2	\$	(43,120.1)	\$	276,087.8

⁽¹⁾ PFG sponsors nonqualified benefit plans. Nonqualified benefit plan assets and liabilities held in Rabbi trusts were \$731.9 million and \$593.7 million, respectively.

Condensed Consolidating Statements of Operations For the three months ended March 31, 2020

	F Gi	rincipal inancial roup, Inc. rent only	F	Principal Life Insurance Company only	Se	incipal Financial ervices, Inc. and ther subsidiaries combined (in millions)		Eliminations		Principal Financial Group, Inc. consolidated
Revenues						(
Premiums and other considerations	\$	_	\$	2,145.3	\$	145.7	\$	_	\$	2,291.0
Fees and other revenues				584.0		661.3		(100.0)		1,145.3
Net investment income		3.4		723.1		622.8		(365.7)		983.6
Net realized capital gains (losses)		5.2		628.9		(501.4)		(1.3)	_	131.4
Total revenues		8.6		4,081.3		928.4		(467.0)		4,551.3
Expenses										
Benefits, claims and settlement expenses		_		2,633.2		228.3		(2.8)		2,858.7
Dividends to policyholders				28.9						28.9
Operating expenses		48.5		802.8		578.2	_	(94.0)	_	1,335.5
Total expenses		48.5		3,464.9		806.5	_	(96.8)		4,223.1
Income (less) before income toyes		(20.0)		616.4		121.9		(370.2)		328.2
Income (loss) before income taxes Income taxes (benefits)		(39.9) (10.1)		104.8		(51.3)		(0.2)		43.2
Equity in the net income (loss) of subsidiaries		318.7		(142.0)		139.5		(316.2)		43.2
Net income	-	288.9		369.6		312.7		(686.2)	_	285.0
Net loss attributable to noncontrolling interest		200.9		309.0		(3.9)		(000.2)		(3.9)
Net income attributable to PFG	¢	288.9	\$	369.6	¢	316.6	¢	(686.2)	¢	288.9
Net income attributable to PFG		200.9	Ф	303.0	Ф	310.0	Ф	(000.2)	Φ	200.5
Net income	\$	288.9	\$	369.6	\$	312.7	\$	(686.2)	\$	285.0
Other comprehensive loss	4	(1,543.4)	~	(1,284.6)	~	(1,611.7)	*	2,793.4	~	(1,646.3)
Comprehensive loss	\$	(1,254.5)	\$	(915.0)	\$	(1,299.0)	\$	2,107.2	\$	(1,361.3)
Comprehensive 1000	Ψ	(1,204.0)	Ψ	(010.0)	Ψ	(1,255.0)	Ψ	2,107.12	Ψ	(1)501.5)

Condensed Consolidating Statements of Operations For the three months March 31, 2019

	Principal Financial Group, Inc. parent only	P	Principal Life Insurance Company only	S	rincipal Financial Services, Inc. and ther subsidiaries combined		Eliminations		Principal Financial Group, Inc. consolidated
Revenues					(in millions)				
Premiums and other considerations	s —	\$	1.542.4	\$	182.5	\$		\$	1.724.9
Fees and other revenues	Ψ	Ψ	544.6	Ψ	520.6	Ψ	(91.7)	Ψ	973.5
Net investment income	5.0		702.5		546.0		(292.5)		961.0
Net realized capital gains (losses), excluding impairment losses	5.0		702.5		540.0		(232.3)		301.0
on available-for-sale securities	5.3		403.5		(317.5)		_		91.3
Net other-than-temporary impairment losses recoveries on	5.5		.00.0		(017.10)				51.5
available-for-sale securities	_		(9.5)		(0.1)		_		(9.6)
Other-than-temporary impairment losses on fixed maturities,			()		()				()
available-for-sale reclassified to other comprehensive income			2.8		_		_		2.8
Net impairment losses on available-for-sale securities	_		(6.7)		(0.1)		_		(6.8)
Net realized capital gains (losses)	5.3		396.8		(317.6)		_		84.5
Total revenues	10.3		3,186.3		931.5		(384.2)		3,743.9
Expenses			· ·				, ,		*
Benefits, claims and settlement expenses	_		1,944.4		253.6		(2.9)		2,195.1
Dividends to policyholders			30.1		_		_		30.1
Operating expenses	56.1		585.6		438.1		(87.1)		992.7
Total expenses	56.1		2,560.1	_	691.7	_	(90.0)		3,217.9
	(45.0)		626.2		220.0		(20.4.2)		F2C 0
Income (loss) before income taxes	(45.8)		626.2 95.2		239.8		(294.2)		526.0
Income taxes (benefits) Equity in the net income (loss) of subsidiaries	(11.3) 464.4		(235.7)		(9.8) 233.1		(0.2) (461.8)		73.9
Net income	429.9		295.3	_	482.7	_	(755.8)		452.1
Net income attributable to noncontrolling interest	429.9				19.8		(755.6)		22.2
Net income attributable to PFG	\$ 429.9	\$	295.3	\$	462.9	¢	(758.2)	\$	429.9
Net income attributable to PFG	\$ 429.9	Ф	293.3	Ф	402.3	φ	(730.2)	φ	423.3
Net income	\$ 429.9	\$	295.3	\$	482.7	\$	(755.8)	\$	452.1
Other comprehensive income	1,141.3	-	1,053.9		1,174.2	-	(2,222.7)	-	1,146.7
Comprehensive income	\$ 1,571.2	\$	1,349.2	\$	1,656.9	\$	(2,978.5)	\$	1,598.8
Comprehensive meome		_	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<u>~</u>		=	(2,0 : 0,0)	<u> </u>	,,,,,,,,,,

Condensed Consolidating Statements of Cash Flows For the three months March 31, 2020

	Principal Financial Group, Inc. parent only		Principal Life Insurance Company only		Service other s cor	al Financial s, Inc. and ubsidiaries abined millions)	El	iminations	G	Principal Financial Group, Inc. Onsolidated
Operating activities					(ın ı	niiiions)				
Net cash provided by operating activities	\$	20.9	\$	1,711.5	\$	913.9	\$	(1,057.2)	\$	1,589.1
Investing activities	Ψ	20.3	Ψ	1,711.5	Ψ	313.3	φ	(1,037.2)	φ	1,505.1
Fixed maturities available-for-sale and equity securities with										
intent to hold:										
Purchases		(63.2)		(2,449.3)		(681.3)		3.7		(3,190.1)
Sales		(05.2)		218.1		364.3				582.4
Maturities		43.2		1,753.5		187.4				1,984.1
Mortgage loans acquired or originated				(590.2)		(239.6)		2.5		(827.3)
Mortgage loans sold or repaid				440.7		142.2		(1.3)		581.6
Real estate acquired		_		_		(39.6)				(39.6)
Net purchases of property and equipment		_		(14.0)		(4.0)		_		(18.0)
Dividends and returns of capital received from unconsolidated				(/		()				()
entities		433.9		0.6		413.9		(848.4)		
Net change in other investments		_		(273.5)		(726.5)		1,014.2		14.2
Net cash provided by (used in) investing activities		413.9		(914.1)		(583.2)		170.7		(912.7)
Financing activities				(- ·)		()				(- ')
Issuance of common stock		9.0		_		_				9.0
Acquisition of treasury stock		(231.8)		_		_				(231.8)
Payments for financing element derivatives		` —		(7.1)		_		_		(7.1)
Purchase of subsidiary shares from noncontrolling interest		_		`—´		(0.9)		_		(0.9)
Dividends to common stockholders		(153.6)		_		`—		_		(153.6)
Principal repayments of long-term debt		` —		_		(65.8)		1.3		(64.5)
Net proceeds from short-term borrowings		_		_		24.6		_		24.6
Dividends and capital paid to parent		_		(413.9)		(434.5)		848.4		_
Investment contract deposits		_		2,596.2		129.5		_		2,725.7
Investment contract withdrawals		_		(2,242.5)		(13.1)		_		(2,255.6)
Net increase in banking operation deposits		_		_		244.5		_		244.5
Other				0.1						0.1
Net cash provided by (used in) financing activities		(376.4)		(67.2)		(115.7)		849.7		290.4
Net increase in cash and cash equivalents		58.4		730.2		215.0		(36.8)		966.8
Cash and cash equivalents at beginning of period		394.9		1,178.1		1,767.7		(824.8)		2,515.9
Cash and cash equivalents at end of period	\$	453.3	\$	1,908.3	\$	1,982.7	\$	(861.6)	\$	3,482.7

Condensed Consolidating Statements of Cash Flows For the three months ended March 31, 2019

	Fi Gr	rincipal inancial oup, Inc. rent only		rincipal Life Insurance Company only	Ser oth	cipal Financial vices, Inc. and er subsidiaries combined	E	liminations	G	Principal Financial Group, Inc. Onsolidated
Operating activities						(in millions)				
Net cash provided by operating activities	\$	27.5	\$	1,376.1	\$	634.4	\$	(861.6)	\$	1,176.4
Investing activities	Ψ	27.0	Ψ	1,570.1	Ψ	054.4	Ψ	(001.0)	Ψ	1,170.4
Fixed maturities available-for-sale and equity securities with										
intent to hold:										
Purchases		(150.2)		(2,329.5)		(408.1)		1.1		(2,886.7)
Sales				104.9		237.7		<u> </u>		342.6
Maturities		153.1		1,277.7		118.1				1,548.9
Mortgage loans acquired or originated				(581.2)		(46.1)		2.2		(625.1)
Mortgage loans sold or repaid		_		323.3		64.9		(5.8)		382.4
Real estate acquired		_		_		(10.5)		`—´		(10.5)
Net purchases of property and equipment				(12.1)		(17.3)		_		(29.4)
Dividends and returns of capital received from unconsolidated										
entities		208.9		0.6		193.9		(403.4)		_
Net change in other investments		(6.0)		(374.6)		(800.7)		968.0		(213.3)
Net cash provided by (used in) investing activities		205.8		(1,590.9)		(668.1)		562.1		(1,491.1)
Financing activities										
Issuance of common stock		5.8		_		_		_		5.8
Acquisition of treasury stock		(153.6)		_		_		_		(153.6)
Payments for financing element derivatives				(6.5)		_		_		(6.5)
Dividends to common stockholders		(150.2)		_				_		(150.2)
Issuance of long-term debt				_		6.7				6.7
Principal repayments of long-term debt				_		(6.1)		5.8		(0.3)
Net proceeds from short-term borrowings						0.1				0.1
Dividends and capital paid to parent		_		(193.9)		(209.5)		403.4		4.070.0
Investment contract deposits		_		1,755.2		117.0		_		1,872.2
Investment contract withdrawals		_		(1,938.9)		(8.5)		_		(1,947.4)
Net decrease in banking operation deposits		_				(35.4)		_		(35.4)
Other		(200.0)		5.7		(0.2)		400.0		5.5
Net cash used in financing activities		(298.0)		(378.4)		(135.9)		409.2		(403.1)
Net decrease in cash and cash equivalents		(64.7)		(593.2)		(169.6)		109.7		(717.8)
Cash and cash equivalents at beginning of period		334.9	_	1,323.9	_	2,014.8	_	(696.1)	_	2,977.5
Cash and cash equivalents at end of period	\$	270.2	\$	730.7	\$	1,845.2	\$	(586.4)	\$	2,259.7

Under our current shelf registration that was filed with the SEC and became effective May 3, 2017, we have the ability to issue, in unlimited amounts, unsecured senior debt securities or subordinated debt securities, junior subordinated debt, preferred stock, common stock, warrants, depositary shares, purchase contracts and purchase units of PFG. Our wholly owned subsidiary, PFS, may guarantee, fully and unconditionally or otherwise, our obligations with respect to any non-convertible securities, other than common stock, described in the shelf registration.

The following tables set forth condensed consolidating financial information of (i) PFG, (ii) PFS, (iii) Principal Life and all other direct and indirect subsidiaries of PFG on a combined basis and (iv) the eliminations necessary to arrive at the information for PFG on a consolidated basis as of March 31, 2020 and December 31, 2019, and for the three months ended March 31, 2020 and 2019.

In presenting the condensed consolidating financial statements, the equity method of accounting has been applied to (i) PFG's interest in all direct subsidiaries of PFG and (ii) PFS's interest in Principal Life and all other subsidiaries, where applicable, even though all such subsidiaries meet the requirements to be consolidated under U.S. GAAP. Earnings of subsidiaries are, therefore, reflected in the parent's investment and earnings. All intercompany balances and transactions, including elimination of the parent's investment in subsidiaries, between PFG, PFS and Principal Life and all other subsidiaries have been eliminated, as shown in the column "Eliminations." These condensed consolidating financial statements should be read in conjunction with the consolidated financial statements. The financial information may not necessarily be indicative of results of operations, cash flows or financial position had the subsidiaries operated as independent entities.

PFG sponsors nonqualified benefit plans for select employees and agents and is responsible for the obligations of these plans. Nonqualified plan assets are held in Rabbi trusts for the benefit of all nonqualified plan participants. The Rabbi trusts are separate legal entities and are not a part of PFG on a stand-alone basis. The plan assets are available to satisfy the claims of general creditors only in the event of bankruptcy and are, therefore, consolidated in our statements of financial position.

Condensed Consolidating Statements of Financial Position March 31, 2020

	I G	Principal Financial roup, Inc. arent only	S	Principal Financial Services, Inc. only	In	Principal Life surance Company and other subsidiaries combined (1) (in millions)		Eliminations		Principal Financial Group, Inc. consolidated
Assets Fixed maturities, available-for-sale	\$	290.5	\$		\$	68,417.3	\$		\$	68,707.8
Fixed maturities, available-101-sale	Ψ	258.5	Φ	_	Ψ	337.5	φ	_	Φ	596.0
Equity securities				32.7		1,631.4		_		1,664.1
Mortgage loans		_		_		16,645.9		_		16,645.9
Real estate		_		_		1,657.5		_		1,657.5
Policy loans		_		_		797.0		_		797.0
Investment in unconsolidated entities		15,786.7		14,883.5		541.8		(30,483.4)		728.6
Other investments		10.4		198.2		3,769.8				3,978.4
Cash and cash equivalents Accrued investment income		453.3 1.5		663.6 0.1		3,408.8 720.1		(1,043.0)		3,482.7 721.7
Premiums due and other receivables		1.5		110.4		1,894.6		(314.0)		1,691.0
Deferred acquisition costs		_		110.4		3,679.8		(314.0)		3,679.8
Property and equipment		_		_		973.8		_		973.8
Goodwill		_		618.5		997.9		_		1.616.4
Other intangibles		_		524.6		1,192.0		_		1,716.6
Separate account assets		_		_		136,836.0		_		136,836.0
Other assets		391.1		47.1		1,547.2	_	(574.8)	_	1,410.6
Total assets	\$	17,192.0	\$	17,078.7	\$	245,048.4	\$	(32,415.2)	\$	246,903.9
Liabilities Contractholder funds	\$	_	\$	_	\$	42,126.6	\$	_	\$	42,126.6
Future policy benefits and claims		_		_		41,244.0		_		41,244.0
Other policyholder funds		_		_		860.9		_		860.9
Short-term debt						105.6				105.6
Long-term debt		3,626.0		313.9		44.1		(313.9)		3,670.1
Income taxes currently payable Deferred income taxes		12.6		19.5		38.0 1,951.8		(35.9)		14.7 1.450.3
Separate account liabilities		_		19.5		136,836.0		(521.0)		136,836.0
Other liabilities		645.9		1,098.9		6,510.4		(871.8)		7,383.4
Total liabilities		4,284.5	_	1,432.3	_	229,717.4	_	(1,742.6)	_	233,691.6
Total liabilities		4,204.5		1,432.3		223,717.4		(1,742.0)		233,031.0
Redeemable noncontrolling interest		_		_		239.7		_		239.7
Stockholders' equity										
Common stock		4.8		_		11.0		(11.0)		4.8
Additional paid-in capital		10,216.5		9,668.8		12,243.7		(21,912.5)		10,216.5
Retained earnings		11,198.8		6,149.5		2,788.2		(8,937.7)		11,198.8
Accumulated other comprehensive loss		(599.2)		(171.9)		(14.7)		186.6		(599.2)
Treasury stock, at cost		(7,913.4)		45.040 :		(2.0)	_	2.0	_	(7,913.4)
Total stockholders' equity attributable to PFG Noncontrolling interest		12,907.5		15,646.4		15,026.2		(30,672.6)		12,907.5
Total stockholders' equity		12,907.5		15,646.4	_	65.1 15,091.3	_	(30,672.6)	_	65.1 12.972.6
1 3	¢	17,192.0	¢	17,078.7	¢	245,048.4	¢		\$	246,903.9
Total liabilities and stockholders' equity	\$	1/,192.0	Ф	1/,0/8./	Ф	245,048.4	Ф	(32,415.2)	Ф	240,903.9

⁽¹⁾ PFG sponsors nonqualified benefit plans. Nonqualified benefit plan assets and liabilities held in Rabbi trusts were \$720.1 million and \$579.8 million, respectively.

Condensed Consolidating Statements of Financial Position December 31, 2019

	C	Principal Financial Group, Inc. Jarent only		Principal Financial ervices, Inc. only	In	Principal Life surance Company and other subsidiaries combined (1) (in millions)	E	Eliminations		Principal Financial Group, Inc. consolidated
Assets	•	205.0	Φ.		•	60.040.4	Φ.			E0 406 0
Fixed maturities, available-for-sale	\$	265.8	\$	_	\$	69,840.4	\$	_	\$	70,106.2
Fixed maturities, trading		268.2				407.7		_		675.9
Equity securities		_		41.4		1,838.0		_		1,879.4
Mortgage loans		_		_		16,486.9		_		16,486.9
Real estate		_		_		1,714.8 798.0		_		1,714.8 798.0
Policy loans Investment in unconsolidated entities		17.539.6		16,664.1		798.0 649.4		(24.022.0)		798.0 830.2
								(34,022.9)		
Other investments		10.4		251.9		3,597.7		(1.122.6)		3,860.0
Cash and cash equivalents Accrued investment income		394.9 1.6		598.4 0.4		2,656.2 684.6		(1,133.6)		2,515.9 686.6
Premiums due and other receivables				100.0		1.961.1		(320.8)		1,740.3
Deferred acquisition costs		_				3,521.3		(320.8)		3.521.3
Property and equipment		_		_		3,521.3 967.7		_		3,521.3 967.7
Goodwill		_		618.5		1.075.3		_		1.693.8
Other intangibles		_		531.7		1,255.0		_		1,786.7
Separate account assets				331.7		165,468.0		_		165,468.0
Other assets		383.2		35.2		1,509.5		(571.8)		1,356.1
	¢	18,863.7	¢	18,841.6	\$	274,431.6	\$	(36,049.1)	\$	276,087.8
Total assets	Ф	10,003./	\$	10,041.0	Ф	2/4,431.0	Ф	(30,049.1)	Ф	2/0,00/.0
Liabilities					_		_		_	
Contractholder funds	\$	_	\$	_	\$	41,367.5	\$	_	\$	41,367.5
Future policy benefits and claims		_		_		40,838.2		_		40,838.2
Other policyholder funds		_		_		959.4		_		959.4
Short-term debt		D 605 5				93.4		(222.0)		93.4
Long-term debt		3,625.5		320.7		108.7		(320.8)		3,734.1
Income taxes currently payable		_				66.4		(50.2)		16.2
Deferred income taxes				5.9		2,285.8		(495.1)		1,796.6
Separate account liabilities Other liabilities		C20.2				165,468.0		(074.0)		165,468.0
		620.2		1,113.6	_	6,104.7		(974.8)	_	6,863.7
Total liabilities		4,245.7		1,440.2		257,292.1		(1,840.9)		261,137.1
Redeemable noncontrolling interest		_		_		264.9		_		264.9
Stockholders' equity										
Common stock		4.8		_		11.0		(11.0)		4.8
Additional paid-in capital		10,182.6		9,658.3		12,157.9		(21,816.2)		10,182.6
Retained earnings		11,074.3		6,263.5		2,985.1		(9,248.6)		11,074.3
Accumulated other comprehensive income		1,037.9		1,479.6		1,654.8		(3,134.4)		1,037.9
Treasury stock, at cost		(7,681.6)				(2.0)		2.0	_	(7,681.6)
Total stockholders' equity attributable to PFG		14,618.0		17,401.4		16,806.8		(34,208.2)		14,618.0
Noncontrolling interest	_			<u> </u>		67.8			_	67.8
Total stockholders' equity		14,618.0		17,401.4		16,874.6		(34,208.2)		14,685.8
Total liabilities and stockholders' equity	\$	18,863.7	\$	18,841.6	\$	274,431.6	\$	(36,049.1)	\$	276,087.8
1 3					_		_			

⁽¹⁾ PFG sponsors nonqualified benefit plans. Nonqualified benefit plan assets and liabilities held in Rabbi trusts were \$731.9 million and \$593.7 million, respectively.

Condensed Consolidating Statements of Operations For the three months ended March 31, 2020

	Principal Financial Group, Inc. parent only		Principal Financial Services, Inc. only		Principal Life Insurance Company and other subsidiaries combined (1) (in millions)			Eliminations	Principal Financial Group, Inc. consolidated		
Revenues	_		_		_		_		_		
Premiums and other considerations	\$	_	\$		\$	2,291.0	\$		\$	2,291.0	
Fees and other revenues		_		95.9		1,052.0		(2.6)		1,145.3	
Net investment income (loss)		3.4 5.2		(1.1) 5.3		978.8 120.9		2.5		983.6 131.4	
Net realized capital gains Total revenues		8.6	_	100.1	_	4,442.7	_	(0.1)	_		
Expenses		0.6		100.1		4,442.7		(0.1)		4,551.3	
Benefits, claims and settlement expenses						2,858.7		_		2,858.7	
Dividends to policyholders		_		_		28.9		_		28.9	
Operating expenses		48.5		133.6		1,155.6		(2.2)		1,335.5	
Total expenses		48.5		133.6		4,043.2		(2.2)		4,223.1	
Income (loss) before income taxes		(39.9)		(33.5)		399.5		2.1		328.2	
Income taxes (benefits)		(10.1)		(15.2)		68.5		2.1		43.2	
Equity in the net income of subsidiaries		318.7		334.9		00.5		(653.6)		43.2	
Net income		288.9	_	316.6	_	331.0		(651.5)	_	285.0	
Net loss attributable to noncontrolling interest				_		(3.9)		(051.5)		(3.9)	
Net income attributable to PFG	\$	288.9	\$	316.6	\$	334.9	\$	(651.5)	\$	288.9	
NI-6:	¢	200.0	¢	216.6	¢	221.0	<u></u>	((51.5)	¢	205.0	
Net income	\$	288.9	\$	316.6	\$	331.0	\$	(651.5)	\$	285.0	
Other comprehensive loss	¢	(1,543.4)	¢	(1,557.8)	¢	(1,678.7)	¢	3,133.6	¢	(1,646.3)	
Comprehensive loss	3	(1,254.5)	Ф	(1,241.2)	D	(1,347.7)	Þ	2,482.1	Þ	(1,361.3)	

Condensed Consolidating Statements of Operations For the three months ended March 31, 2019

	Fi Gr	rincipal nancial oup, Inc. rent only]	Principal Financial ervices, Inc. only	In	Principal Life surance Company and other subsidiaries combined (1) (in millions)	1	Eliminations		Principal Financial Group, Inc. consolidated
Revenues Premiums and other considerations	\$		\$		\$	1.724.9	\$		\$	1.724.9
Fees and other revenues	Ψ	_	Ψ	0.1	Ψ	976.4	Ψ	(3.0)	Ψ	973.5
Net investment income (loss)		5.0		(2.3)		956.5		1.8		961.0
Net realized capital gains, excluding impairment losses on										
available-for-sale securities Net other-than-temporary impairment losses on available-for-		5.3		6.6		79.4		_		91.3
sale securities						(9.6)		_		(9.6)
Other-than-temporary impairment losses on fixed maturities,						(3.0)				(5.0)
available-for-sale reclassified to other comprehensive income						2.8				2.8
Net impairment losses on available-for-sale securities						(6.8)				(6.8)
Net realized capital gains		5.3		6.6		72.6				84.5
Total revenues		10.3		4.4		3,730.4		(1.2)		3,743.9
Expenses Benefits, claims and settlement expenses						2,195.1		_		2,195.1
Dividends to policyholders		_		_		30.1		_		30.1
Operating expenses		56.1		22.8		916.5		(2.7)		992.7
Total expenses		56.1		22.8		3,141.7		(2.7)		3,217.9
Income (loss) before income taxes		(45.8)		(18.4)		588.7		1.5		526.0
Income taxes (benefits)		(11.3)		1.2		84.0		(0.46.0)		73.9
Equity in the net income of subsidiaries Net income		464.4 429.9		482.5 462.9	_	504.7		(946.9) (945.4)		452.1
Net income Net income attributable to noncontrolling interest		429.9		462.9		22.2		(945.4)		452.1 22.2
Net income attributable to PFG	\$	429.9	\$	462.9	\$	482.5	\$	(945.4)	\$	429.9
					_		_			
Net income	\$	429.9	\$	462.9	\$	504.7	\$	(945.4)	\$	452.1
Other comprehensive income		1,141.3	_	1,126.9	_	1,128.7		(2,250.2)	_	1,146.7
Comprehensive income	\$	1,571.2	\$	1,589.8	\$	1,633.4	\$	(3,195.6)	\$	1,598.8

Condensed Consolidating Statements of Cash Flows For the three months ended March 31, 2020

	Fin Gro	ncipal ancial ıp, Inc. nt only	S	Principal Financial Services, Inc. only	Principal Life Insurance Company and other subsidiaries combined (1) (in millions)		Insurance Company and other subsidiaries combined (1)		y Eliminations		C	Principal Financial Group, Inc. onsolidated
Operating activities						(in militions)						
Net cash provided by operating activities	\$	20.9	\$	40.1	\$	1,461.2	\$	66.9	\$	1,589.1		
Investing activities												
Fixed maturities available-for-sale and equity securities with												
intent to hold:												
Purchases		(63.2)		_		(3,126.9)		_		(3,190.1)		
Sales		_		_		582.4		_		582.4		
Maturities		43.2		_		1,940.9		_		1,984.1		
Mortgage loans acquired or originated		_		_		(827.3)		_		(827.3)		
Mortgage loans sold or repaid		_		_		581.6		_		581.6		
Real estate acquired		_		(0.0)		(39.6)		_		(39.6)		
Net purchases of property and equipment				(0.6)		(17.4)		_		(18.0)		
Dividends and returns of capital received from unconsolidated entities		433.9		453.7				(887.6)				
Net change in other investments		433.9		12.7		(15.4)		16.9		14.2		
Net cash provided by (used in) investing activities		413.9	_	465.8	_	(921.7)		(870.7)		(912.7)		
Financing activities		413.3		405.0		(321.7)		(070.7)		(312.7)		
Issuance of common stock		9.0				_		_		9.0		
Acquisition of treasury stock		(231.8)		_		_		_		(231.8)		
Payments for financing element derivatives		(231.0)		_		(7.1)		_		(7.1)		
Purchase of subsidiary shares from noncontrolling interest		_		_		(0.9)		_		(0.9)		
Dividends to common stockholders		(153.6)		_		_		_		(153.6)		
Issuance of long-term debt		_		2.3		_		(2.3)		_		
Principal repayments of long-term debt		_		(9.1)		(64.5)		9.1		(64.5)		
Net proceeds from short-term borrowings		_		`—´		24.6		_		24.6		
Dividends and capital paid to parent				(433.9)		(453.7)		887.6		_		
Investment contract deposits				_		2,725.7		_		2,725.7		
Investment contract withdrawals		_		_		(2,255.6)		_		(2,255.6)		
Net increase in banking operation deposits		_		_		244.5		_		244.5		
Other			_			0.1				0.1		
Net cash provided by (used in) financing activities		(376.4)		(440.7)		213.1		894.4		290.4		
Net increase in cash and cash equivalents		58.4		65.2		752.6		90.6		966.8		
Cash and cash equivalents at beginning of period		394.9		598.4		2,656.2		(1,133.6)		2,515.9		
Cash and cash equivalents at end of period	\$	453.3	\$	663.6	\$	3,408.8	\$	(1,043.0)	\$	3,482.7		

Condensed Consolidating Statements of Cash Flows For the three months March 31, 2019

	Fin Gro	ncipal ancial ıp, Inc. nt only	Principal Financial Services, Inc. only		Principal Life Insurance Company and other subsidiaries combined (1)		Insurance Company and other subsidiaries combined (1)		Insurance Company and other subsidiaries combined (1)		mpany r les (1) Eliminations			Principal Financial Group, Inc. consolidated
						(in millions)								
Operating activities Net cash provided by (used in) operating activities	\$	27.5	\$	(22.1)	\$	1,033.5	\$	137.5	\$	1,176.4				
Investing activities	Ф	27.5	Ф	(22.1)	Ф	1,055.5	Ф	137.3	Ф	1,1/0.4				
Fixed maturities available-for-sale and equity securities with intent to hold:														
Purchases		(150.2)		(0.2)		(2,736.3)				(2,886.7)				
Sales		(150.2)		0.2		342.4				342.6				
Maturities		153.1				1.395.8		_		1,548.9				
Mortgage loans acquired or originated		_		_		(625.1)		_		(625.1)				
Mortgage loans sold or repaid		_		_		382.4				382.4				
Real estate acquired		_		_		(10.5)		_		(10.5)				
Net purchases of property and equipment		_		(0.5)		(28.9)		_		(29.4)				
Dividends and returns of capital received from unconsolidated														
entities		208.9		89.0		_		(297.9)		_				
Net change in other investments		(6.0)		(73.6)		(171.4)		37.7		(213.3)				
Net cash provided by (used in) investing activities		205.8		14.9		(1,451.6)		(260.2)		(1,491.1)				
Financing activities														
Issuance of common stock		5.8		_		_		_		5.8				
Acquisition of treasury stock		(153.6)		_				_		(153.6)				
Payments for financing element derivatives				_		(6.5)		_		(6.5)				
Dividends to common stockholders		(150.2)		_		_				(150.2)				
Issuance of long-term debt		_		2.6		6.7		(2.6)		6.7				
Principal repayments of long-term debt		_		(9.4)		(0.3)		9.4		(0.3)				
Net proceeds from short-term borrowings		_		(200.0)		0.1		207.0		0.1				
Dividends and capital paid to parent		_		(208.9)		(89.0)		297.9		1.872.2				
Investment contract deposits Investment contract withdrawals		_		_		1,872.2		_						
		_		_		(1,947.4)		_		(1,947.4)				
Net decrease in banking operation deposits Other		_		_		(35.4) 5.5		_		(35.4) 5.5				
Net cash used in financing activities		(298.0)	_	(215.7)	_	(194.1)		304.7	_	(403.1)				
			_		_			182.0	_					
Net decrease in cash and cash equivalents		(64.7)		(222.9)		(612.2)				(717.8)				
Cash and cash equivalents at beginning of period	¢	334.9	ď	649.0	¢.	3,096.8	¢	(1,103.2)	¢	2,977.5 2,259.7				
Cash and cash equivalents at end of period	Þ	270.2	Ф	426.1	Ф	2,484.6	Ф	(921.2)	\$	2,259./				

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

The following analysis discusses our financial condition as of March 31, 2020, compared with December 31, 2019, and our consolidated results of operations for the three months ended March 31, 2020 and 2019, prepared in conformity with U.S. GAAP. The discussion and analysis includes, where appropriate, factors that may affect our future financial performance. The discussion should be read in conjunction with our Form 10-K, for the year ended December 31, 2019, filed with the SEC and the unaudited condensed consolidated financial statements and the related notes to the financial statements and the other financial information included elsewhere in this Form 10-Q.

Forward-Looking Information

Our narrative analysis below contains forward-looking statements intended to enhance the reader's ability to assess our future financial performance. Forward-looking statements include, but are not limited to, statements that represent our beliefs concerning future operations, strategies, financial results or other developments, and contain words and phrases such as "anticipate," "believe," "plan," "estimate," "expect," "intend" and similar expressions. Forward-looking statements are made based upon management's current expectations and beliefs concerning future developments and their potential effects on us. Such forward-looking statements are not guarantees of future performance.

Actual results may differ materially from those included in the forward-looking statements as a result of risks and uncertainties including, but not limited to, the following: (1) adverse capital and credit market conditions may significantly affect our ability to meet liquidity needs, as well as our access to capital and cost of capital; (2) conditions in the global capital markets and the economy generally may materially and adversely affect our business and results of operations; (3) volatility or declines in the equity, bond or real estate markets could reduce our AUM and may result in investors withdrawing from the markets or decreasing their rates of investment, all of which could reduce our revenues and net income; (4) changes in interest rates or credit spreads or a sustained low interest rate environment may adversely affect our results of operations, financial condition and liquidity, and our net income can vary from period to period; (5) the elimination of the London Inter-Bank Offered Rate ("LIBOR") may affect the value of certain derivatives and floating rate securities we hold or have issued and the profitability of certain real estate lending activity or businesses; (6) our investment portfolio is subject to several risks that may diminish the value of our invested assets and the investment returns credited to customers, which could reduce our sales, revenues, AUM and net income; (7) our valuation of investments and the determinations of the amount of allowances and impairments taken on our investments may include methodologies, estimations and assumptions which are subject to differing interpretations and, if changed, could materially adversely affect our results of operations or financial condition; (8) any impairments of or valuation allowances against our deferred tax assets could adversely affect our results of operations and financial condition; (9) we may face losses on our insurance and annuity products if our actual experience differs significantly from our pricing and reserving assumptions; (10) the pattern of amortizing our DAC asset and other actuarial balances on our universal life-type insurance contracts, participating life insurance policies and certain investment contracts may change, impacting both the level of our DAC asset and other actuarial balances and the timing of our net income; (11) changes in laws or regulations may reduce our profitability or impact how we do business; (12) we may not be able to protect our intellectual property and may be subject to infringement claims; (13) our ability to pay stockholder dividends and meet our obligations may be constrained by the limitations on dividends Iowa insurance laws impose on Principal Life; (14) changes in accounting standards may adversely affect our reported results of operations and financial condition; (15) litigation and regulatory investigations may affect our financial strength or reduce our profitability; (16) from time to time we may become subject to tax audits, tax litigation or similar proceedings, and as a result we may owe additional taxes, interest and penalties in amounts that may be material; (17) applicable laws and our certificate of incorporation and by-laws may discourage takeovers and business combinations that some stockholders might consider in their best interests; (18) competition, including from companies that may have greater financial resources, broader arrays of products, higher ratings and stronger financial performance, may impair our ability to retain existing customers, attract new customers and maintain our profitability; (19) technological and societal changes may disrupt our business model and impair our ability to retain existing customers, attract new customers and maintain our profitability; (20) damage to our reputation may adversely affect our revenues and profitability; (21) a downgrade in our financial strength or credit ratings may increase policy surrenders and withdrawals, reduce new sales, terminate relationships with distributors, impact existing liabilities and increase our cost of capital, any of which could adversely affect our profitability and financial condition; (22) client terminations or withdrawals or changes in investor preferences may lead to a reduction in revenues for our asset management and accumulation businesses; (23) guarantees within certain of our products that protect policyholders may decrease our net income or increase the volatility of our results of operations or financial position under U.S. GAAP if our hedging or risk management strategies prove ineffective or insufficient; (24) if we are unable to attract and retain qualified employees and sales representatives and develop new distribution sources, our results of operations, financial condition and sales of our products may be adversely impacted; (25) an interruption in telecommunication, information technology, or other systems, or a failure to maintain the confidentiality, integrity, or availability of data residing on such systems, could disrupt our business, damage our reputation and adversely impact our profitability; (26) our international businesses face political, legal, operational and other risks that could reduce our profitability in those businesses; (27) we face risks arising from our participation in joint ventures; (28) we may need to fund deficiencies in our Closed Block assets; (29) a pandemic, terrorist attack, military action or other catastrophic event could adversely affect our operations, net income or financial condition; (30) our reinsurers could default on their obligations or increase their rates, which could adversely impact our net income and financial condition; (31) we face risks related to our acquisition of Wells Fargo Bank, N.A.'s IRT business; (32) we face risks arising from future acquisitions of businesses; (33) loss of key vendor relationships or failure of a vendor to protect information of our customers or employees could adversely affect our business or result in losses; (34) our enterprise risk management framework may not be fully effective in identifying or mitigating all of the risks to which we are exposed and (35) our financial results may be adversely impacted by global climate changes. In addition, the ongoing COVID-19 pandemic and the resulting financial market impacts could adversely affect our business, results of operations, financial condition and liquidity.

Overview

We provide financial products and services through the following reportable segments:

Retirement and Income Solutions is organized into Retirement and Income Solutions – Fee, which includes full service
accumulation, trust services, individual variable annuities and revenues and expenses associated with the Acquired Business;
and Retirement and Income Solutions – Spread, which includes individual fixed annuities, investment only, pension risk
transfer and banking services. We offer a comprehensive portfolio of products and services for retirement savings and
retirement income:

- To businesses of all sizes, we offer products and services for defined contribution plans, including 401(k) and
 403(b) plans, defined benefit pension plans, nonqualified executive benefit plans, employee stock ownership plan
 services and pension closeout services. For more basic retirement services, we offer SIMPLE IRAs and payroll
 deduction plans;
- To large institutional clients, we also offer investment only products, including investment only guaranteed investment contracts ("GICs"); and
- To employees of businesses and other individuals, we offer the ability to accumulate savings for retirement and other purposes through mutual funds, individual annuities and bank products, along with retirement income options.
- Principal Global Investors, which includes our mutual fund business, manages assets for sophisticated investors around the
 world, using a multi-boutique strategy that provides diverse investment capabilities including equity, fixed income, real estate
 and other alternative investments. We also have experience in asset allocation, stable value management and other structured
 investment strategies. We focus on providing services to our other segments in addition to our retail mutual fund and third party
 institutional clients.
- Principal International, which offers pension accumulation products and services, mutual funds, asset management, income annuities and life insurance accumulation products through operations in Latin America (Brazil, Chile and Mexico) and Asia (China, Hong Kong Special Administrative Region, India and Southeast Asia).
- U.S. Insurance Solutions is organized into Specialty Benefits insurance, which provides group dental and vision insurance, individual and group disability insurance, critical illness, accident, group life insurance and non-medical fee-for-service claims administration; and Individual Life insurance, which provides universal life, variable universal life, indexed universal life and traditional life insurance. We focus on solutions for individuals and small-to-medium sized businesses and their employees.
- Corporate, which manages the assets representing capital that has not been allocated to any other segment. Financial results of
 the Corporate segment primarily reflect our financing activities (including financing costs), income on capital not allocated to
 other segments, inter-segment eliminations, income tax risks and certain income, expenses and other adjustments not allocated
 to the segments based on the nature of such items. Results of PSI, our retail broker-dealer and RIA; RobustWealth, our financial
 technology company; and our exited group medical and long-term care insurance businesses are reported in this segment.

Economic Factors and Trends

The significant declines in the equity markets in 2020 led to decreases in account values in our Retirement and Income Solutions segment and AUM managed by our Principal Global Investors segment. Since account values and AUM are the base by which these businesses generate revenues, the declines in account values and AUM may put pressure on our revenues in future quarters.

In our Principal International segment, local currency AUM is a key indicator of earnings growth. Local currency AUM declined for the Principal International segment due to global market volatility. The financial results for the Principal International segment were also negatively impacted by foreign currency fluctuations and the unfavorable relative market performance on our required regulatory investments.

In our U.S. Insurance Solutions segment, premium and fee growth is a key indicator of earnings growth. Rising unemployment as a result of state mandated temporary business closures may impact new sales in our businesses and reduce in-group growth in our Specialty Benefits insurance business. Much of this impact may be offset by lower dental and vision claims as a result of those temporary business closures.

See Part II, Item 1A, "Risk Factors," for information on risks associated with the COVID-19 pandemic and the resulting financial market impacts.

Transactions Affecting Comparability of Results of Operations

Acquisitions

Wells Fargo Institutional Retirement & Trust Business. On July 1, 2019, we closed on our agreement with Wells Fargo Bank, N.A. to acquire its Institutional Retirement & Trust business, which includes defined contribution, defined benefit, executive deferred compensation, employee stock ownership plans, institutional trust and custody, and institutional asset advisory businesses. The results of this acquisition are reflected in the Retirement and Income Solutions segment. The purchase price consisted of (i) \$1.2 billion cash paid at closing and (ii) an additional earn-out payment of up to \$150.0 million based upon the retention of fee revenue of the Acquired Business through December 31, 2020. The transaction was funded with available cash and debt financing.

Other Factors Affecting Comparability of Results of Operations

Fluctuations in Foreign Currency to U.S. Dollar Exchange Rates

Fluctuations in foreign currency to U.S. dollar exchange rates for countries in which we have operations can affect reported financial results. In years when foreign currencies weaken against the U.S. dollar, translating foreign currencies into U.S. dollars results in fewer U.S. dollars to be reported. When foreign currencies strengthen, translating foreign currencies into U.S. dollars results in more U.S. dollars to be reported.

Foreign currency exchange rate fluctuations create variances in our financial statement line items. The most significant impact occurs within our Principal International segment where pre-tax operating earnings were negatively impacted \$14.6 million for the three months ended March 31, 2020, as a result of fluctuations in foreign currency to U.S. dollar exchange rates. This impact was calculated by comparing (a) the difference between current year results and prior year results to (b) the difference between current year results and prior year results translated using current year exchange rates for both periods. We use this approach to calculate the impact of exchange rates on all revenue and expense line items. For a discussion of our approaches to managing foreign currency exchange rate risk, see Item 3. "Quantitative and Qualitative Disclosures About Market Risk — Foreign Currency Risk."

Variable Investment Income

Variable investment income includes certain types of investment returns such as prepayment fees and income (loss) from certain elements of our other alternative asset classes, including results of value-add real estate sales activity. Due to its unpredictable nature, variable investment income may or may not be material to our financial results for a given reporting period and may create variances when comparing different reporting periods. For additional information, see "Investment Results."

Recent Accounting Changes

For recent accounting changes, see Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 1, Nature of Operations and Significant Accounting Policies" under the caption, "Recent Accounting Pronouncements."

Results of Operations

The following table presents summary consolidated financial information for the periods indicated:

	For the three months ended March 31,								
	2020			2019		Increase (decrease)			
Revenues:			((in millions)					
Premiums and other considerations	\$	2,291.0	\$	1,724.9	\$	566.1			
Fees and other revenues		1,145.3		973.5		171.8			
Net investment income		983.6		961.0		22.6			
Net realized capital gains		131.4		84.5		46.9			
Total revenues		4,551.3		3,743.9		807.4			
Expenses:									
Benefits, claims and settlement expenses		2,858.7		2,195.1		663.6			
Dividends to policyholders		28.9		30.1		(1.2)			
Operating expenses		1,335.5		992.7		342.8			
Total expenses		4,223.1		3,217.9		1,005.2			
Income before income taxes		328.2	-	526.0		(197.8)			
Income taxes		43.2		73.9		(30.7)			
Net income		285.0		452.1		(167.1)			
Net income (loss) attributable to noncontrolling interest		(3.9)		22.2		(26.1)			
Net income attributable to Principal Financial Group, Inc.	\$	288.9	\$	429.9	\$	(141.0)			

Three Months Ended March 31, 2020 Compared to Three Months Ended March 31, 2019

Net Income Attributable to Principal Financial Group, Inc.

Net income attributable to Principal Financial Group, Inc. decreased primarily due to an increase in DAC amortization stemming from unfavorable equity markets in 2020 compared to favorable in 2019.

Total Revenues

Premiums increased \$564.3 million for the Retirement and Income Solutions segment primarily due to higher sales of single premium group annuities with life contingencies. The single premium group annuity product, which is typically used to fund defined benefit plan terminations, can generate large premiums from very few customers and therefore premiums tend to vary from period to period.

Fees and other revenues increased \$104.1 million for the Retirement and Income Solutions segment primarily due to the Acquired Business. In addition, fees and other revenues increased for the Principal Global Investors segment primarily due to \$28.3 million higher management fee revenue as a result of increased average AUM and a \$17.4 million increase in performance fee revenue primarily in our real estate business.

Net investment income increased \$63.6 million due to higher average invested assets in our U.S. operations and \$35.8 million due to higher inflation-based investment returns on average invested assets and cash in our Latin America business. These increases were partially offset by a \$57.7 million decrease due to unfavorable relative market performance on our required regulatory investment and a \$16.4 million decrease due to foreign currency headwinds. For additional information, see "Investments — Investment Results — Net Investment Income."

Net realized capital gains (losses) can be volatile due to credit losses from invested assets, mark-to-market adjustments of certain invested assets and our decision to sell invested assets. Net realized capital gains increased primarily due to a \$290.1 million increase in gains on derivatives not designated as hedging instruments. This increase was partially offset by decreases of \$144.5 million from sponsored investment funds and \$84.7 million from equity securities that had losses in 2020 versus gains in 2019. Additionally, commercial mortgage loan losses increased \$12.9 million. For additional information, see "Investments — Investment Results — Net Realized Capital Gains (Losses)."

Total Expenses

Benefits, claims and settlement expenses increased \$637.8 million for the Retirement and Income Solutions segment primarily due to an increase in reserves, stemming from higher sales of single premium group annuities with life contingencies.

Operating expenses increased for the Retirement and Income Solutions segment primarily due to a \$173.0 million increase in DAC amortization stemming from unfavorable equity markets in 2020 compared to favorable in 2019 and a \$105.7 million increase related to the Acquired Business. Operating expenses increased for the U.S. Insurance Solutions segment due to a \$10.7 million increase resulting from growth in our Specialty Benefits insurance business and a \$33.9 million increase due to higher DAC amortization in our Individual Life insurance business stemming from lower interest rates and unfavorable equity markets in 2020 compared to favorable in 2019.

Income Taxes

The effective income tax rates were 13% and 14% for the three months ended March 31, 2020 and 2019, respectively. See Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 6, Income Taxes."

Results of Operations by Segment

For results of operations by segment see Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 11, Segment Information."

Retirement and Income Solutions Segment

Retirement and Income Solutions Segment Summary Financial Data

Net revenue is a key metric used to understand Retirement and Income Solutions earnings growth. Net revenue is defined as operating revenues less benefits, claims and settlement expenses less dividends to policyholders. Net revenue from Retirement and Income Solutions – Fee is primarily fee based and is impacted by changes in the equity markets. Net revenue from Retirement and Income Solutions – Spread is driven by the difference between investment income earned on the underlying general account assets and the interest rate credited to the contracts.

The following table presents the Retirement and Income Solutions net revenue for the periods indicated:

	For the three months ended March 31,							
					Increase (decrease)			
		(iı	n millions)					
Retirement and Income Solutions – Fee	\$ 486.1	\$	379.7	\$	106.4			
Retirement and Income Solutions – Spread	166.9		169.2		(2.3)			
Total Retirement and Income Solutions	\$ 653.0	\$	548.9	\$	104.1			

The following table presents certain summary financial data relating to the Retirement and Income Solutions segment for the periods indicated:

	For the three months ended March 31,									
	2020		2019 (in millions)			Increase (decrease)				
Operating revenues:			(
Premiums and other considerations	\$	1,522.9	\$	958.6	\$	564.3				
Fees and other revenues		442.1		338.0		104.1				
Net investment income		640.7		595.3		45.4				
Total operating revenues		2,605.7		1,891.9		713.8				
Expenses:										
Benefits, claims and settlement expenses, including dividends to										
policyholders		1,952.7		1,343.0		609.7				
Operating expenses		447.9		308.3		139.6				
Total expenses		2,400.6		1,651.3		749.3				
Pre-tax operating earnings	\$	205.1	\$	240.6	\$	(35.5)				

Three Months Ended March 31, 2020 Compared to Three Months Ended March 31, 2019

Pre-Tax Operating Earnings

Pre-tax operating earnings decreased in our Fee business primarily due to a \$39.3 million increase in DAC amortization due to unfavorable equity markets in 2020 compared to favorable in 2019.

Net Revenue

Net revenue increased in our Fee business primarily due to a \$96.1 million increase related to the Acquired Business.

Operating Expenses

Operating expenses increased in our Fee business due to a \$105.7 million increase related to the Acquired Business and a \$39.3 million increase in DAC amortization due to unfavorable equity markets in 2020 compared to favorable in 2019.

Principal Global Investors Segment

Principal Global Investors Segment Summary Financial Data

AUM is the base by which we generate management fee revenues. Market performance and net cash flow are the two main drivers of AUM growth. Market performance reflects equity, fixed income, real estate and other alternative investment performance. Net cash flow reflects client deposits and withdrawals. The fee levels on these client deposits and withdrawals are increasingly becoming the more important factor to revenue growth and will vary widely based on business and/or product mix.

The following table presents the AUM rollforward for assets managed by Principal Global Investors for the periods indicated:

	 For the three months ended March 31,								
	 2020		2019						
	(in bi	llions)							
AUM, beginning of period	\$ 458.6	\$	393.5						
Net cash flow	(0.3)		0.5						
Investment performance	(51.4)		28.2						
Other	(1.4)		0.9						
AUM, end of period	\$ 405.5	\$	423.1						

The following table presents certain summary financial data relating to the Principal Global Investors segment for the periods indicated:

	For the three months ended March 31,								
	2020		2019			Increase (decrease)			
			(ir	n millions)					
Operating revenues:									
Fees and other revenues	\$	388.4	\$	336.6	\$	51.8			
Net investment income		2.4		2.4		<u> </u>			
Total operating revenues	· ·	390.8	·	339.0		51.8			
Expenses:									
Total expenses		277.5		237.0		40.5			
Pre-tax operating earnings attributable to noncontrolling interest		1.6		1.3		0.3			
	-				-				
Pre-tax operating earnings	\$	111.7	\$	100.7	\$	11.0			

Three Months Ended March 31, 2020 Compared to Three Months Ended March 31, 2019

Pre-Tax Operating Earnings

Pre-tax operating earnings increased primarily due to \$28.3 million higher management fee revenue as a result of increased average AUM and a \$17.4 million increase in performance fee revenue primarily in our real estate business. This was partially offset in expense by an \$18.4 million increase in variable compensation expenses and an \$11.6 million increase in professional fees primarily related to a one-time favorable legal settlement in 2019.

Principal International Segment

Principal International Segment Summary Financial Data

AUM is generally a key indicator of earnings growth for the segment, as AUM is the base by which we can generate local currency profits. The Cuprum business in Chile differs in that the majority of fees are collected with each deposit by the mandatory retirement customers, based on a capped salary level, as opposed to asset levels. Net customer cash flow and market performance are the two main drivers of local currency AUM growth. Net customer cash flow reflects our ability to attract and retain client deposits. Market performance reflects the investment returns on our underlying AUM. Our financial results are also impacted by fluctuations of the foreign currency to U.S. dollar exchange rates for the countries in which we have business. AUM of our foreign subsidiaries is translated into U.S. dollar equivalents at the end of the reporting period using the spot foreign exchange rates. Revenue and expenses for our foreign subsidiaries are translated into U.S. dollar equivalents at the average foreign exchange rates for the reporting period.

The following table presents the Principal International segment AUM rollforward for the periods indicated:

For the three month	as ended March 31,		
 2020		2019	
(in bi	llions)		
\$ 169.7	\$	155.5	
0.3		0.8	
(8.9)		5.5	
(26.4)		1.0	
(0.2)		(1.4)	
\$ 134.5	\$	161.4	
\$	\$ 169.7 0.3 (8.9) (26.4) (0.2)	(in billions) \$ 169.7 \$ 0.3 (8.9) (26.4) (0.2)	

(1) Primarily reflects the January 2019 movement of Claritas, our investment management company in Brazil, from the Principal International segment to the Principal Global Investors segment.

Net revenue is a key metric used to understand the earnings growth for the Principal International segment. The following table presents the net revenue of the Principal International segment for the periods indicated.

		For th	e three m	onths ended Ma	arch 31,	
	'	2020		2019		Increase decrease)
			(iı	n millions)		
:	\$	134.1	\$	214.2	\$	(80.1)

The following table presents certain summary financial data relating to the Principal International segment for the periods indicated:

		For the	e three m	onths ended Ma	arch 31	,
		2020		2019		Increase (decrease)
0			(iı	n millions)		
Operating revenues:						
Premiums and other considerations	\$	85.0	\$	117.5	\$	(32.5)
Fees and other revenues		110.8		116.6		(5.8)
Net investment income		104.7		146.4		(41.7)
Total operating revenues	<u>-</u>	300.5		380.5		(80.0)
Expenses:						
Benefits, claims and settlement expenses		166.4		166.3		0.1
Operating expenses		103.4		102.0		1.4
Total expenses	<u> </u>	269.8	<u> </u>	268.3		1.5
Pre-tax operating earnings (losses) attributable to noncontrolling interest		(0.1)		1.1		(1.2)
Pre-tax operating earnings	\$	30.8	\$	111.1	\$	(80.3)

Three Months Ended March 31, 2020 Compared to Three Months Ended March 31, 2019

Pre-Tax Operating Earnings

Pre-tax operating earnings decreased in Latin America \$75.4 million primarily due to \$56.7 million unfavorable relative market performance on our required regulatory investments relative to the year earlier period and \$14.2 million of foreign currency headwinds.

Net Revenue

Net revenue decreased in Latin America \$75.9 million primarily due to \$57.7 million unfavorable relative market performance on our required regulatory investments relative to the year earlier period and \$21.6 million of foreign currency headwinds.

U.S. Insurance Solutions Segment

U.S. Insurance Solutions Segment Summary Financial Data

Premium and fees are a key metric for growth in the U.S. Insurance Solutions segment. We receive premiums on our specialty benefits insurance products as well as our traditional life insurance products. Fees are generated from our specialty benefits fee-for-service products as well as our universal life, variable universal life and indexed universal life insurance products. We use several reinsurance programs to help manage the mortality and morbidity risk. Premium and fees are reported net of reinsurance premiums.

In our Specialty Benefits insurance business, premium and fees growth is a result of retention, sales and in-group growth. In our Individual Life insurance business, premium and fees growth is driven by recurring premiums and sales with a focus on maintaining a balanced product portfolio.

The following table presents the U.S. Insurance Solutions segment premium and fees for the periods indicated:

		For the	three mo	1arch 31		
		2020		2019		ncrease ecrease)
	·			(in millions)		
Premium and fees:						
Specialty Benefits insurance	\$	597.1	\$	564.5	\$	32.6
Individual Life insurance		317.5		297.1		20.4

The following table presents certain summary financial data relating to the U.S. Insurance Solutions segment for the periods indicated:

	For the three months ended March 31,					
	2020		2019 (in millions)			ncrease ecrease)
Operating revenues:				,		
Premiums and other considerations	\$	683.1	\$	648.8	\$	34.3
Fees and other revenues		231.5		212.8		18.7
Net investment income		208.7		206.5		2.2
Total operating revenues		1,123.3		1,068.1		55.2
Expenses:						
Benefits, claims and settlement expenses		668.0		653.6		14.4
Dividends to policyholders		28.9		30.0		(1.1)
Operating expenses		296.9		273.8		23.1
Total expenses		993.8		957.4		36.4
Pre-tax operating earnings	\$	129.5	\$	110.7	\$	18.8

Three Months Ended March 31, 2020 Compared to Three Months Ended March 31, 2019

Pre-Tax Operating Earnings

Pre-tax operating earnings increased \$28.7 million in our Specialty Benefits insurance business primarily due to lower claims, largely due to COVID-19 related office closures for dental and vision service providers. Pre-tax operating earnings decreased \$9.9 million in our Individual Life insurance business primarily due to higher claims.

Revenues

Premiums and fees increased primarily due to growth in the business.

Total Expenses

Benefits, claims and settlement expenses decreased in our Specialty Benefits insurance business due to \$23.0 million in lower claims, largely due to COVID-19 related office closures for dental and vision service providers. Higher claims of \$20.6 million from growth in the business offset most of the decrease in claims. Benefits, claims and settlement expenses in our Individual Life insurance business increased \$16.8 million primarily due to higher claims.

Operating expenses increased \$10.9 million in our Specialty Benefits insurance business primarily due to growth in the business. Operating expenses increased \$12.2 million in our Individual Life insurance business largely due to higher DAC amortization stemming from unfavorable equity markets in 2020 compared to favorable in 2019.

Corporate Segment

Corporate Segment Summary Financial Data

The following table presents certain summary financial data relating to the Corporate segment for the periods indicated:

	For the three months ended March 31,					l ,
		2020		2019		Increase (decrease)
			(ir	millions)		
Operating revenues:						
Total operating revenues	\$	9.3	\$	1.2	\$	8.1
Expenses:						
Total expenses		82.0		85.8		(3.8)
Pre-tax operating earnings (losses) attributable to noncontrolling interest		18.4		(0.2)		18.6
Pre-tax operating losses	\$	(91.1)	\$	(84.4)	\$	(6.7)

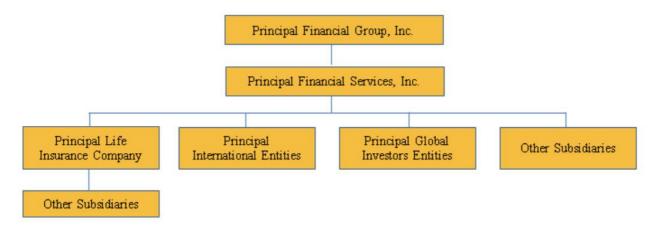
Three Months Ended March 31, 2020 Compared to Three Months Ended March 31, 2019

Pre-Tax Operating Losses

Pre-tax operating losses increased primarily due to a \$4.1 million increase in our retail broker-dealer operations primarily related to a change in expense allocation and a \$1.9 million increase in interest expenses on debt.

Liquidity and Capital Resources

Liquidity and capital resources represent the overall strength of a company and its ability to generate strong cash flows, borrow funds at a competitive rate and raise new capital to meet operating and growth needs. We are in a strong capital and liquidity position as we face the uncertain, volatile and potentially material adverse economic disruptions to our business brought on by the COVID-19 pandemic. We are monitoring our liquidity closely and feel confident in our ability to meet all long-term obligations to customers, policyholders and debt holders. Our sources of strength include our laddered long-term debt maturities with the next maturity not until 2022, access to revolving credit facility and contingent funding arrangements, a strong risk-based capital position and our available cash and liquid assets. The combination of these financial levers will enable us to manage through this period of economic volatility. Our legal entity structure has an impact on our ability to meet cash flow needs as an organization. Following is a simplified organizational structure.



Liquidity

Our liquidity requirements have been and will continue to be met by funds from consolidated operations as well as the issuance of commercial paper, common stock, debt or other capital securities and borrowings from credit facilities. We believe the cash flows from these sources are sufficient to satisfy the current liquidity requirements of our operations, including reasonably foreseeable contingencies.

We maintain a level of cash and securities which, combined with expected cash inflows from investments and operations, we believe to be adequate to meet anticipated short-term and long-term payment obligations. We will continue our prudent capital management practice of regularly exploring options available to us to maximize capital flexibility, including accessing the capital markets and careful attention to and management of expenses.

We perform rigorous liquidity stress testing to ensure our asset portfolio includes sufficient high quality liquid assets that could be utilized to bolster our liquidity position under increasingly stressed market conditions. These assets could be utilized as collateral for secured borrowing transactions with various third parties or by selling the securities in the open market if needed.

We also manage liquidity risk by limiting the sales of liabilities with features such as puts or other options that can be exercised at inopportune times. For example, as of March 31, 2020, approximately \$9.4 billion, or 99%, of our institutional guaranteed investment contracts and funding agreements cannot be redeemed by contractholders prior to maturity. Our individual annuity liabilities also contain surrender charges and other provisions limiting early surrenders.

The following table summarizes the withdrawal characteristics of our domestic general account investment contracts as of March 31, 2020.

	Contr	Percentage	
Not subject to discretionary withdrawal	\$	10,549.3	30.9 %
Subject to discretionary withdrawal with adjustments:			
Specified surrender charges		10,337.4	30.2
Market value adjustments		8,005.5	23.4
Subject to discretionary withdrawal without adjustments		5,306.6	15.5
Total domestic investment contracts	\$	34,198.8	100.0 %

Universal life insurance and certain traditional life insurance policies are also subject to discretionary withdrawals by policyholders. However, life insurance policies tend to be less susceptible to withdrawal than our investment contracts because policyholders may be subject to a new underwriting process in order to obtain a new life insurance policy. In addition, our life insurance liabilities include surrender charges to discourage early surrenders.

We had the following short-term credit facilities with various financial institutions as of March 31, 2020:

Obligor/Applicant	Financing structure	Maturity		Capacity		Amount tstanding (3)
				(in m	illions)	
PFG, Principal Financial Services, Inc., and Principal						
Life as co-borrowers (1)	Credit facility	November 2023	\$	600.0	\$	_
PFG, Principal Financial Services, Inc., Principal Life						
and Principal Financial Services V (UK) LTD as co-						
borrowers (1)	Credit facility	November 2023		200.0		0.1
Principal International Chile (2)	Unsecured lines					
1	of credit			122.5		105.5
Principal Life	Unsecured line of					
	credit	September 2020		60.0		_
Total			\$	982.5	\$	105.6

- (1) The credit facility is supported by eighteen banks.
- (2) The unsecured lines of credit can be used for repurchase agreements or other borrowings. Each line has a maturity of less than one year.
- (3) The amount outstanding is reported in short-term debt on the consolidated statements of financial position.

The revolving credit facilities are committed and available for general corporate purposes. These credit facilities also provide 100% back-stop support for our commercial paper program, of which we had no outstanding balances as of March 31, 2020 and December 31, 2019. Most of the banks supporting the credit facilities have other relationships with us. Due to the financial strength and the strong relationships we have with these providers, we are comfortable we have very low risk the financial institutions would be unable or unwilling to fund these facilities.

The Holding Companies: Principal Financial Group, Inc. and Principal Financial Services, Inc. The principal sources of funds available to our parent holding company, PFG, are dividends from subsidiaries as well as its ability to borrow funds at competitive rates and raise capital to meet operating and growth needs. These funds are used by PFG to meet its obligations, which include the payment of dividends on common stock, debt service and the repurchase of stock. The declaration and payment of common stock dividends is subject to the discretion of our Board of Directors and will depend on our overall financial condition, results of operations, capital levels, cash requirements, future prospects, receipt of dividends from Principal Life (as described below), risk management considerations and other factors deemed relevant by the Board. No significant restrictions limit the payment of dividends by PFG, except those generally applicable to corporations incorporated in Delaware.

Dividends from Principal Life, our primary subsidiary, are limited by Iowa law. Under Iowa law, Principal Life may pay dividends only from the earned surplus arising from its business and must receive the prior approval of the Commissioner of Insurance of the State of Iowa (the "Commissioner") to pay stockholder dividends or make any other distribution if such distribution would exceed certain statutory limitations. Iowa law gives the Commissioner discretion to disapprove requests for distributions in excess of these limitations. Extraordinary dividends include those made, together with dividends and other distributions, within the preceding twelve months that exceed the greater of (i) 10% of statutory policyholder surplus as of the previous year-end or (ii) the statutory net gain from operations from the previous calendar year, not to exceed earned surplus. Based on statutory results for the year ended December 31, 2019, the ordinary stockholder dividend limitation for Principal Life is approximately \$1,060.3 million in 2020. However, because the dividend test is based on dividends previously paid over rolling 12-month periods, if paid before a specified date during 2020, some or all of such dividends may be extraordinary and require regulatory approval.

Total stockholder dividends paid by Principal Life to its parent for the three months ended March 31, 2020, were \$400.0 million, all of which was extraordinary and approved by the Commissioner. As of March 31, 2020, we had \$1,741.3 million of cash and liquid assets held in our holding companies and other subsidiaries, which is available for corporate purposes. This includes assets in excess of targeted statutory capital ratios and immediate working capital needs.

Operations. Our primary consolidated cash flow sources are premiums from insurance products, pension and annuity deposits, asset management fee revenues, administrative services fee revenues, income from investments and proceeds from the sales or maturity of investments. Cash outflows consist primarily of payment of benefits to policyholders and beneficiaries, income and other taxes, current operating expenses, payment of dividends to policyholders, payments in connection with investments acquired, payments made to acquire subsidiaries, payments relating to policy and contract surrenders, withdrawals, policy loans, interest payments and repayment of short-term debt and long-term debt. Our investment strategies are generally intended to provide adequate funds to pay benefits without forced sales of investments. For a discussion of our investment objectives and strategies, see "Investments."

Cash Flows. Cash flow activity, as reported in our consolidated statements of cash flows, provides relevant information regarding our sources and uses of cash. The following discussion of our operating, investing and financing portions of the cash flows excludes cash flows attributable to the separate accounts.

Net cash provided by operating activities was \$1,589.1 million and \$1,176.4 million for the three months ended March 31, 2020 and 2019, respectively. Our insurance business typically generates positive cash flows from operating activities, as premiums collected from our insurance products and income received from our investments exceed acquisition costs, benefits paid, redemptions and operating expenses. These positive cash flows are then invested to support the obligations of our insurance and investment products and required capital supporting these products. Our cash flows from operating activities are affected by the timing of premiums, fees and investment income received and benefits and expenses paid. The increase in cash provided by operating activities in 2020 compared to 2019 was primarily the result of fluctuations in receivables and payables associated with the timing of settlements and the sale of a merchant build real estate property.

Net cash used in investing activities was \$912.7 million and \$1,491.1 million for the three months ended March 31, 2020 and 2019, respectively. The decrease in cash used in investing activities was primarily due to decreased net cash used in investing activities within our fixed maturities available-for-sale and equity securities with intent to hold portfolios and decreased net contributions to sponsored investment funds in the current year.

Net cash provided by financing activities was \$290.4 million for the three months ended March 31, 2020, compared to net cash used in financing activities of \$403.1 million for the three months ended March 31, 2019. The increase in cash provided by financing activities was the result of increased investment contract deposits, net of withdrawals, in 2020 as compared to 2019. Additionally, the increase was assisted by a net increase in banking operation deposits.

Shelf Registration. Under our current shelf registration, we have the ability to issue, in unlimited amounts, unsecured senior debt securities or subordinated debt securities, junior subordinated debt, preferred stock, common stock, warrants, depositary shares, purchase contracts and purchase units of PFG. Our wholly owned subsidiary, PFS, may guarantee, fully and unconditionally or otherwise, our obligations with respect to any non-convertible securities, other than common stock, described in the shelf registration.

Short-Term Debt. The components of short-term debt were as follows:

	Mar	ch 31, 2020	Decer	nber 31, 2019
	(in millions)			
Revolving line of credit	\$	0.1	\$	_
Other recourse short-term debt		105.5		93.4
Total short-term debt	\$	105.6	\$	93.4

The short-term credit facilities are used for general corporate purposes and borrowings outstanding can fluctuate as part of working capital management.

Long-Term Debt. On May 7, 2019, we issued \$500.0 million of senior notes. The notes bear interest at 3.7% and will mature in 2029. Interest on the notes is payable semi-annually on May 15 and November 15 each year, beginning on November 15, 2019. The proceeds from these notes, along with available cash, were used to fund the acquisition of the Acquired Business.

Contingent Funding Agreements for Senior Debt Issuance. In March 2018, we entered into two contingent funding agreements that give us the right at any time over a ten-year or thirty-year period to issue up to \$400.0 million or \$350.0 million, respectively, of senior notes.

Stockholders' Equity. The following table summarizes our dividends to stockholders and repurchase of common stock.

	For the three months ended March 31, 2020			the year ended cember 31, 2019	
	(in millions)				
Dividends to stockholders	\$	153.6	\$	606.0	
Repurchase of common stock		231.8		281.0	
Total cash returned to common stockholders	\$	385.4	\$	887.0	

For additional stockholders' equity information, see Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 9, Stockholders' Equity."

Capitalization

The following table summarizes our capital structure:

	March 31, 2020			ember 31, 2019
	(\$ in			
Debt:				
Short-term debt	\$	105.6	\$	93.4
Long-term debt		3,670.1		3,734.1
Total debt		3,775.7		3,827.5
Total stockholders' equity attributable to PFG		12,907.5		14,618.0
Total capitalization	\$	16,683.2	\$	18,445.5
Debt to equity		29 %	6	26 %
Debt to capitalization		23 %	6	21 %

Contractual Obligations and Contractual Commitments

As of March 31, 2020, no significant changes to contractual obligations and contractual commitments have occurred since December 31, 2019.

Off-Balance Sheet Arrangements

Variable Interest Entities. We have relationships with various types of special purpose entities and other entities where we have a variable interest as described in Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 2, Variable Interest Entities." We have made commitments to fund certain limited partnerships, some of which are classified as unconsolidated variable interest entities.

Guarantees and Indemnifications. As of March 31, 2020, no significant changes to guarantees and indemnifications have occurred since December 31, 2019. For guarantee and indemnification information, see Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 8, Contingencies, Guarantees and Indemnifications" under the caption, "Guarantees and Indemnifications."

Financial Strength and Credit Ratings

Our ratings are influenced by the relative ratings of our peers/competitors as well as many other factors including our operating and financial performance, capital levels, asset quality, liquidity, asset/liability management, overall portfolio mix, financial leverage (i.e., debt), risk exposures, operating leverage and other factors.

In recent months, each of A.M. Best, Fitch and Moody's has revised its outlook for the U.S. life insurance industry to 'negative' from 'stable'. The revisions were due to increased concerns over COVID-19 and the related financial impacts. S&P continues to maintain a 'stable' industry outlook.

In April 2020, S&P affirmed the financial strength rating of Principal Life and Principal National Life Insurance Company ("PNLIC") at 'A+'. S&P also affirmed the senior unsecured debt of PFG and Principal Financial Services, Inc. at 'A-'. The outlook on all ratings changed from 'stable' to 'negative'. The ratings outlook reflects weaker earnings potential and capital adequacy as a result of the global recession.

In February 2020, A.M. Best affirmed the financial strength ratings of Principal Life and PNLIC at 'A+'. The outlook remains 'stable' for all financial strength ratings. The affirmation reflects the strength of our balance sheets as well as our strong operating performance, favorable business profile and very strong enterprise risk management. Concurrently, A.M. Best upgraded the Long-Term Issuer credit ratings. The outlook for the Long-Term Issuer credit rating was revised to 'stable' from 'positive'. The ratings upgrade reflects the continued strengthening and evolution of our enterprise risk management capabilities.

In July 2019, Fitch affirmed the 'AA-' financial strength ratings of Principal Life and PNLIC. Fitch also affirmed PFG's senior unsecured debt at 'A-'. The outlook on all ratings remains 'stable'. The rating reflects very strong and stable operating profitability and a very strong business profile, reflecting strong market position and significant operating scale focusing on small and midsize businesses in the retirement market.

In April 2019, we announced the signing of a definitive agreement with Wells Fargo Bank, N.A. to acquire its IRT business. Following the acquisition announcement, Fitch and S&P affirmed our ratings and stable outlook. A.M. Best commented that ratings remain unchanged, while Moody's commented the acquisition is a credit positive. The transaction closed on July 1, 2019.

The following table summarizes our significant financial strength and debt ratings from the major independent rating organizations. The debt ratings shown are indicative ratings. Outstanding issuances are rated the same as indicative ratings unless otherwise noted. Actual ratings can differ from indicative ratings based on contractual terms. A rating is not a recommendation to buy, sell or hold securities. Such a rating may be subject to revision or withdrawal at any time by the assigning rating agency. Each rating should be evaluated independently of any other rating.

	A.M. Best	Fitch	S&P	Moody's
Principal Financial Group				
Senior Unsecured Debt (1)	a	A-	A-	Baa2
Junior Subordinated Debt (2)	a-		BBB+	Baa3
Long-Term Issuer Default Rating		A		
Principal Financial Services				
Senior Unsecured Debt	a		A-	Baa1
Long-Term Issuer Default Rating		A		
Principal Life Insurance Company				
Insurer Financial Strength	A+	AA-	A+	A1
Issuer Credit Rating	aa			
Commercial Paper	AMB-1+		A-1+	P-1
Enterprise Risk Management Rating			Strong	
Principal National Life Insurance Company				
Insurer Financial Strength	A+	AA-	A+	A1

- (1) Principal Financial Group's senior debt issuance has been rated "Baa1" by Moody's.
- (2) Principal Financial Group's junior subordinated debt issuance has been rated "BBB" by S&P and "Baa2" by Moody's.

Fair Value Measurement

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price). The fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value into three levels. The fair value hierarchy gives the highest priority (Level 1) to unadjusted quoted prices in active markets for identical assets or liabilities and gives the lowest priority (Level 3) to unobservable inputs. The level in the fair value hierarchy within which the fair value measurement in its entirety falls is determined based on the lowest level input that is significant to the fair value measurement in its entirety considering factors specific to the asset or liability. See Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 10, Fair Value Measurements" for further details, including a reconciliation of changes in Level 3 fair value measurements.

As of March 31, 2020, 37% of our net assets (liabilities) were Level 1, 59% were Level 2 and 4% were Level 3. Excluding separate account assets as of March 31, 2020, 3% of our net assets (liabilities) were Level 1, 97% were Level 2 and 0% were Level 3.

As of December 31, 2019, 41% of our net assets (liabilities) were Level 1, 55% were Level 2 and 4% were Level 3. Excluding separate account assets as of December 31, 2019, 3% of our net assets (liabilities) were Level 1, 97% were Level 2 and 0% were Level 3.

Changes in Level 3 Fair Value Measurements

Net assets (liabilities) measured at fair value on a recurring basis using significant unobservable inputs (Level 3) as of March 31, 2020, were \$8,792.9 million as compared to \$9,191.0 million as of December 31, 2019. The decrease was primarily related to investment and universal life contract embedded derivative losses largely due to market impacts and net sales in our separate account assets, partially offset by gains in our separate account assets.

Net assets (liabilities) measured at fair value on a recurring basis using significant unobservable inputs (Level 3) as of March 31, 2019, were \$8,835.4 million as compared to \$8,729.4 million as of December 31, 2018. The increase was primarily related to gains, partially offset by net sales in our separate account assets.

Investments

We had total consolidated assets as of March 31, 2020, of \$246,903.9 million, of which \$94,775.3 million were invested assets. The rest of our total consolidated assets are comprised primarily of separate account assets for which we do not bear investment risk; therefore, the discussion and financial information below does not include such assets.

Overall Composition of Invested Assets

Invested assets as of March 31, 2020, were predominantly high quality and broadly diversified across asset class, individual credit, industry and geographic location. Asset allocation is determined based on cash flow and the risk/return requirements of our products. As shown in the following table, the major categories of invested assets are fixed maturities and commercial mortgage loans.

	March 31, 2020			December 31	, 2019
	Car	rying amount	% of total	Carrying amount	% of total
			(\$ in mil	lions)	
Fixed maturities:					
Public	\$	45,426.6	48 %	\$ 46,432.9	48 %
Private		23,877.2	25	24,349.2	24
Equity securities		1,664.1	2	1,879.4	2
Mortgage loans:					
Commercial		15,104.9	16	14,992.7	16
Residential		1,541.0	1	1,494.2	2
Real estate held for sale		88.6	_	169.8	_
Real estate held for investment		1,568.9	2	1,545.0	2
Policy loans		797.0	1	798.0	1
Other investments		4,707.0	5	4,690.2	5
Total invested assets		94,775.3	100 %	96,351.4	100 %
Cash and cash equivalents		3,482.7		2,515.9	
Total invested assets and cash	\$	98,258.0		\$ 98,867.3	

Investment Results

Net Investment Income

The following table presents the yield and investment income, excluding net realized capital gains and losses, for our invested assets for the periods indicated. We calculate annualized yields using a simple average of asset classes at the beginning and end of the reporting period. The yields for available-for-sale fixed maturities are calculated using amortized cost. All other yields are calculated using carrying amounts.

	For the three months ended March 31,						
	2020		2019		Increase (decrease)		
	Yield	Amount	Yield	Amount	Yield	Amount	
			(\$ in milli	ons)			
Fixed maturities	4.1 % \$	685.5	4.2 % \$	635.0	(0.1)% \$	50.5	
Equity securities	(5.1)	(22.7)	9.8	45.6	(14.9)	(68.3)	
Mortgage loans - commercial	4.3	163.6	4.2	149.4	0.1	14.2	
Mortgage loans - residential	5.8	22.2	4.4	14.9	1.4	7.3	
Real estate	17.7	74.6	6.4	27.9	11.3	46.7	
Policy loans	5.3	10.6	5.5	11.0	(0.2)	(0.4)	
Cash and cash equivalents	1.3	10.1	2.5	16.2	(1.2)	(6.1)	
Other investments	5.9	69.4	7.9	89.6	(2.0)	(20.2)	
Total	4.3	1,013.3	4.5	989.6	(0.2)	23.7	
Investment expenses	(0.1)	(29.7)	(0.1)	(28.6)	_	(1.1)	
Net investment income	4.2 % \$	983.6	4.4 % \$	961.0	(0.2)% \$	22.6	

Three Months Ended March 31, 2020 Compared to Three Months Ended March 31, 2019

Net investment income from fixed maturities increased primarily due to higher average invested assets in our U.S. operations.

Net investment income from equity securities decreased primarily due to unfavorable relative market performance on our required regulatory investments in our Latin America business.

Net investment income from real estate increased primarily due to the sale of certain value-add real estate in the first quarter of 2020.

Net investment income from other investments decreased primarily due to lower variable investment income associated with other alternative investments and derivatives in fair value hedges. The derivative decrease partially offsets the increase in net investment income from fixed maturities for the associated hedged items.

Net Realized Capital Gains (Losses)

The following table presents the contributors to net realized capital gains (losses) for the periods indicated.

	For the three months ended March 31,					
		2020		2019 (in millions)		Increase (decrease)
Fixed maturities, available-for-sale – credit losses, including credit				()		
sales (1)	\$	(9.6)	\$	(6.8)	\$	(2.8)
Commercial mortgage loans – credit losses		(13.4)		(0.5)		(12.9)
Other– credit losses		(2.3)		0.8		(3.1)
Fixed maturities, available-for-sale and trading – noncredit		15.4		10.7		4.7
Derivatives and related hedge activities (2)		303.9		13.8		290.1
Other gains (losses)		(162.6)		66.5		(229.1)
Net realized capital gains	\$	131.4	\$	84.5	\$	46.9

- (1) Upon adoption of authoritative guidance effective January 1, 2020, credit losses include credit sales, adjustments to the credit loss valuation allowance, write-offs and recoveries on available-for-sale securities. Prior to 2020, credit losses included credit sales, net other-than-temporary impairment losses and recoveries on available-for-sale securities and other-than-temporary impairment losses on fixed maturities, available-for-sale reclassified from OCI.
- (2) Includes fixed maturities, trading net gains (losses) of \$(11.2) million and \$4.5 million for the three months ended March 31, 2020 and 2019, respectively, which are a component of the GMWB embedded derivative hedging program net realized capital gains (losses) reflected in this line.

Three Months Ended March 31, 2020 Compared to Three Months Ended March 31, 2019

Net realized losses on commercial mortgage loans – credit increased due to the outbreak of COVID-19 adversely impacting global economic activity and contributing to significant volatility in financial markets. As a result, certain current and forecasted environmental factors management believes to be relevant were adjusted, resulting in an increase in the valuation allowance for commercial mortgage loans.

Net realized gains on derivatives and related hedge activities increased due to gains in 2020 versus losses in 2019 on the GMWB embedded derivatives, including changes in the spread reflecting our own creditworthiness, and related hedging instruments and increased gains on interest rate swaps not designated as hedging instruments due to changes in interest rates. These changes were partially offset by losses in 2020 versus gains in 2019 on currency derivatives and the Hong Kong embedded derivative due to changes in exchange rates and interest rates, respectively.

Other investments had losses in 2020 versus gains in 2019 due primarily to decreases from sponsored investment funds and equity securities related primarily to mark-to-market changes.

U.S. Investment Operations

Of our invested assets, \$88,010.6 million were held by our U.S. operations as of March 31, 2020. Our U.S. invested assets are managed primarily by our Principal Global Investors segment. Our Investment Committee, appointed by our Board of Directors, is responsible for establishing investment policies and monitoring risk limits and tolerances. Our primary investment objective is to maximize after-tax returns consistent with acceptable risk parameters. We seek to protect customers' benefits by optimizing the risk/return relationship on an ongoing basis, through asset/liability matching, reducing credit risk, avoiding high levels of investments that may be redeemed by the issuer, maintaining sufficiently liquid investments and avoiding undue asset concentrations through diversification. We are exposed to two primary sources of investment risk:

- credit risk, relating to the uncertainty associated with the continued ability of an obligor to make timely payments of principal and interest and
- interest rate risk, relating to the market price and/or cash flow variability associated with changes in market yield curves.

Our ability to manage credit risk is essential to our business and our profitability. We devote considerable resources to the credit analysis of each new investment. We manage credit risk through industry, issuer and asset class diversification.

A dedicated committee, comprised of senior investment professional staff members, approves the credit rating for the fixed maturities we purchase. We have teams of security analysts, organized by industry and asset class, that analyze and monitor these investments. Investments held in the portfolio are monitored on a continuous basis with a formal review documented annually or more frequently if material events affect the issuer. The analysis includes both fundamental and technical factors. The fundamental analysis encompasses both quantitative and qualitative analysis of the issuer. The qualitative analysis includes an assessment of both accounting and management aggressiveness of the issuer. In addition, technical indicators such as stock price volatility and credit default swap levels are monitored. We regularly review our investments to determine whether we should re-rate them, employing the following criteria:

- material changes in the issuer's revenues, margins, capital structure or collateral values;
- significant management or organizational changes;
- significant changes regarding the issuer's industry;
- debt service coverage or cash flow ratios that fall below industry-specific thresholds;
- violation of financial covenants and
- other business factors that relate to the issuer.

We purchase credit default swaps to hedge certain credit exposures in our investment portfolio. We economically hedged credit exposure in our portfolio by purchasing credit default swaps with a notional amount of \$85.0 million and \$75.0 million as of March 31, 2020 and December 31, 2019, respectively. We sell credit default swaps to offer credit protection to investors when entering into synthetic replicating transactions. When selling credit protection, if there is an event of default by the referenced name, we are obligated to pay the counterparty the referenced amount of the contract and receive in return the referenced security. For further information on credit derivatives sold, see Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 4, Derivative Financial Instruments" under the caption, "Credit Derivatives Sold."

Our use of derivatives exposes us to counterparty risk, or the risk that the counterparty fails to perform the terms of the derivative contract. We actively manage this risk by:

- obtaining approval of all new counterparties by the Investment Committee;
- establishing exposure limits that take into account non-derivative exposure we have with the counterparty as well as derivative exposure:
- performing similar credit analysis prior to approval on each derivatives counterparty that we do when lending money on a long-term basis;
- diversifying our risk across numerous approved counterparties;
- implementing credit support annex (collateral) agreements ("CSAs") for over-the-counter derivative transactions or similar agreements with a majority of our counterparties to further limit counterparty exposures, which provide for netting of exposures;
- limiting exposure to A credit or better for over-the-counter derivative counterparties without CSAs;
- conducting stress-test analysis to determine the maximum exposure created during the life of a prospective transaction;
- daily monitoring of counterparty credit ratings, exposures and associated collateral levels and
- trading mandatorily cleared contracts through centralized clearinghouses.

We manage our exposure on a net basis, whereby we net positive and negative exposures for each counterparty with agreements in place. For further information on derivative exposure, see Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 3, Investments" under the caption, "Balance Sheet Offsetting."

A dedicated risk management team is responsible for centralized monitoring of the commercial mortgage loan portfolio. We apply a variety of strategies to minimize credit risk in our commercial mortgage loan portfolio. When considering new commercial mortgage loans, we review the cash flow fundamentals of the property, make a physical assessment of the underlying commercial real estate, conduct a comprehensive market analysis and compare against industry lending practices. We use a proprietary risk rating model to evaluate all new and substantially all existing loans within the portfolio. The proprietary risk model is designed to stress projected cash flows under simulated economic and market downturns. Our lending guidelines are typically 75% or less loan-to-value ratio and a debt service coverage ratio of at least 1.2 times. We analyze investments outside of these guidelines based on cash flow quality, tenancy and other factors. The following table presents loan-to-value and debt service coverage ratios for our brick and mortar commercial mortgage loans:

	Weighted average lo	an-to-value ratio	Debt service coverage ratio			
	March 31, 2020	December 31, 2019	March 31, 2020	December 31, 2019		
New mortgages	49 %	51 %	2.6 X	2.4 X		
Entire mortgage portfolio	46 %	45 %	2.6 X	2.6 X		

We also seek to manage call or prepayment risk arising from changes in interest rates. We assess and price for call or prepayment risks in all of our investments and monitor these risks in accordance with asset/liability management policies.

The amortized cost and weighted average yield, calculated using amortized cost, of non-structured fixed maturity securities that will be callable at the option of the issuer, excluding securities with a make-whole provision, were \$ 3,174.9 million and 3.7%, respectively, as of March 31, 2020, and \$3,135.5 million and 3.7%, respectively, as of December 31, 2019. In addition, the amortized cost and weighted average yield of RMBS, residential collateralized mortgage obligations, and asset-backed securities – home equity with material prepayment risk were \$7,414.4 million and 3.0%, respectively, as of March 31, 2020, and \$7,318.7 million and 3.1%, respectively, as of December 31, 2019.

Our investment decisions and objectives are a function of the underlying risks and product profiles of each primary business operation. In addition, we diversify our product portfolio offerings to include products that contain features that will protect us against fluctuations in interest rates. Those features include adjustable crediting rates, policy surrender charges and market value adjustments on liquidations. For further information on our management of interest rate risk, see Item 3. "Quantitative and Qualitative Disclosures About Market Risk – Interest Rate Risk."

Overall Composition of U.S. Invested Assets

As shown in the following table, the major categories of U.S. invested assets are fixed maturities and commercial mortgage loans. The following discussion analyzes the composition of U.S. invested assets, but excludes invested assets of the separate accounts.

	March 31, 2020			December 31, 2019		
	Carryi	ng amount	% of total	Carrying amount	% of total	
			(\$ in mil	llions)		
Fixed maturities:						
Public	\$	42,197.9	48 %	\$ 42,677.4	48 %	
Private		23,837.1	27	24,292.7	27	
Equity securities		449.1	_	480.7	1	
Mortgage loans:						
Commercial		14,829.6	17	14,693.2	17	
Residential		1,165.0	1	1,086.4	1	
Real estate held for sale		87.9	_	169.0	_	
Real estate held for investment		1,568.5	2	1,544.5	2	
Policy loans		778.9	1	777.7	1	
Other investments		3,096.6	4	2,841.7	3	
Total invested assets	-	88,010.6	100 %	88,563.3	100 %	
Cash and cash equivalents		3,267.0		2,312.1		
Total invested assets and cash	\$	91,277.6		\$ 90,875.4		

Fixed Maturities

Fixed maturities include bonds, ABS, redeemable preferred stock and certain non-redeemable preferred securities. Included in the privately placed category as of March 31, 2020 and December 31, 2019, were \$17.4 billion and \$17.7 billion, respectively, of securities subject to certain holding periods and resale restrictions pursuant to Rule 144A of the Securities Act of 1933.

Fixed maturities were diversified by category of issuer, as shown in the following table for the periods indicated.

	March 31, 2020			December 31, 2019			
	Carrying amount		Percent of total		Carrying amount	Percent of total	
		(\$ in millions)					
U.S. government and agencies	\$	1,705.9	3 %	\$	1,699.9	3 %	
States and political subdivisions		7,753.5	12		7,479.4	11	
Non-U.S. governments		828.1	1		855.5	1	
Corporate - public		21,375.2	32		21,845.9	33	
Corporate - private		15,250.2	23		15,539.7	23	
Residential mortgage-backed pass-through securities		3,464.7	5		3,259.1	5	
Commercial mortgage-backed securities		4,490.4	7		4,844.9	7	
Residential collateralized mortgage obligations		3,978.8	6		3,961.0	6	
Asset-backed securities		7,188.2	11		7,484.7	11	
Total fixed maturities	\$	66,035.0	100 %	\$	66,970.1	100 %	

We believe it is desirable to hold residential mortgage-backed pass-through securities due to their credit quality and liquidity as well as portfolio diversification characteristics. Our portfolio is comprised of Government National Mortgage Association, Federal National Mortgage Association and Federal Home Loan Mortgage Corporation pass-through securities. In addition, our residential collateralized mortgage obligation portfolio offers structural features that allow cash flows to be matched to our liabilities.

We purchase CMBS to diversify the overall credit risks of the fixed maturities portfolio and to provide attractive returns. The primary risks in holding CMBS are structural and credit risks. Structural risks include the security's priority in the issuer's capital structure, the adequacy of and ability to realize proceeds from the collateral and the potential for prepayments. Credit risks involve collateral and issuer/servicer risk where collateral and servicer performance may deteriorate. CMBS are predominantly comprised of large pool securitizations that are diverse by property type, borrower and geographic dispersion. The risks to any CMBS deal are determined by the credit quality of the underlying loans and how those loans perform over time. Another key risk is the vintage of the underlying loans and the state of the markets during a particular vintage.

Similar to CMBS, we purchase ABS for diversification and to provide attractive returns. The primary risks in holding ABS are also structural and credit risks, which are similar to those noted above for CMBS. Our ABS portfolio is diversified by type of asset, issuer, and vintage. We actively monitor holdings of ABS to recognize adverse changes in the risk profile of each security. Prepayments in the ABS portfolio are, in general, insensitive to changes in interest rates or are insulated from such changes by call protection features. In the event we are subject to prepayment risk, we monitor the factors that impact the level of prepayment and prepayment speed for those ABS. In addition, we hold a diverse class of securities, which limits our exposure to any one security.

The international exposure held in our U.S. operation's fixed maturities portfolio was 18% of total fixed maturities as of both March 31, 2020, and December 31, 2019. It is comprised of corporate and foreign government fixed maturities. The following table presents the carrying amount of our international exposure for our U.S. operation's fixed maturities portfolio for the periods indicated.

_	M	March 31, 2020		December 31, 2019	
		(in millions)			
European Union, excluding UK	\$	3,059.6	\$	3,185.7	
United Kingdom		2,357.5		2,535.1	
Australia/New Zealand		1,680.0		1,646.8	
Asia-Pacific		1,631.4		1,656.3	
Latin America		1,202.7		1,317.6	
Europe, non-European Union		840.1		865.5	
Middle East and Africa		666.2		687.9	
Other (1)		317.7		348.4	
Total	\$	11,755.2	\$	12,243.3	

(1) Includes exposure from two countries and various supranational organizations as of both March 31, 2020, and December 31, 2019.

International fixed maturities exposure is determined by the country of domicile of the parent entity of an individual asset. All international fixed maturities held by our U.S. operations are either denominated in U.S. dollars or have been swapped into U.S. dollar equivalents. Our international investments are analyzed internally by country and industry credit investment professionals. We control concentrations using issuer and country level exposure benchmarks, which are based on the credit quality of the issuer and the country. Our investment policy limits total international fixed maturities investments and we are within those internal limits. Exposure to Canada is not included in our international exposure. As of March 31, 2020 and December 31, 2019, our investments in Canada totaled \$1,953.3 million and \$2,111.9 million, respectively.

Fixed Maturities Credit Concentrations. One aspect of managing credit risk is through industry, issuer and asset class diversification. Our credit concentrations are managed to established limits. The following table presents our top ten exposures as of March 31, 2020.

Amortized cost

	_	Ailloi tizeu cost	
		(in millions)	
Berkshire Hathaway Inc.	\$	278.6	
Sempra Energy		219.5	
People's Republic of China (1)		217.9	
JPMorgan Chase & Co.		213.1	
Wells Fargo & Company		212.4	
Comcast Corporation		209.9	
Microsoft Corporation		209.7	
The Walt Disney Company		208.1	
Duke Energy Corporation		207.9	
American Airlines Group Inc.		192.4	
Total top ten exposures	\$	2,169.5	

(1) Primarily includes exposure to state-owned entities operating in the energy, electric and chemical sectors.

Fixed Maturities Valuation and Credit Quality. Valuation techniques for the fixed maturities portfolio vary by security type and the availability of market data. The use of different pricing techniques and their assumptions could produce different financial results. See Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 10, Fair Value Measurements" for further details regarding our pricing methodology. Once prices are determined, they are reviewed by pricing analysts for reasonableness based on asset class and observable market data. Investment analysts who are familiar with specific securities review prices for reasonableness through direct interaction with external sources, review of recent trade activity or use of internal models. All fixed maturities placed on the "watch list" are periodically analyzed by investment analysts. These analysts periodically meet with the Chief Investment Officer and the Portfolio Managers to determine reasonableness of the analysts' prices. The valuation of bonds for which a credit loss exists and there is no quoted price is typically based on relative value analysis and the present value of the future cash flows expected to be received. Although we believe these values reasonably reflect the fair value of those securities, the key assumptions about risk premiums, performance of underlying collateral (if any) and other market factors involve qualitative and unobservable inputs.

The Securities Valuation Office ("SVO") of the National Association of Insurance Commissioners ("NAIC") monitors the bond investments of insurers for regulatory capital and reporting purposes and, when required, assigns securities to one of six categories referred to as NAIC designations. Although NAIC designations are not produced to aid the investment decision making process, NAIC designations may serve as a reasonable proxy for Nationally Recognized Statistical Rating Organizations' ("NRSRO") credit ratings for certain bonds. For most corporate bonds, NAIC designations 1 and 2 include bonds generally considered investment grade by such rating organizations. Bonds are considered investment grade when rated "Baa3" or higher by Moody's, or "BBB-" or higher by S&P. NAIC designations 3 through 6 include bonds generally referred to as below investment grade. Bonds are considered below investment grade when rated "Ba1" or lower by Moody's, or "BB+" or lower by S&P.

However, for loan-backed and structured securities, as defined by the NAIC, the NAIC designation is not always a reasonable indication of an NRSRO rating as described below. For CMBS and non-agency RMBS, Blackrock Solutions undertakes the modeling of those NAIC designations. This may result in a final designation being higher or lower than the NRSRO credit rating.

The following table presents our total fixed maturities by NAIC designation as of the periods indicated as well as the percentage, based on fair value, that each designation comprises.

	ľ	March 31, 2020		December 31, 2019					
NAIC designation	Amortized cost	Carrying amount	Percent of carrying amount	Amortized cost	Carrying amount	Percent of carrying amount			
			(\$ in mil	lions)					
1	\$ 44,069.4	\$ 45,907.7	70 %	\$ 43,619.2	\$ 46,300.5	69 %			
2	17,520.0	17,668.0	27	16,658.4	18,079.2	27			
3	2,379.2	2,168.4	3	2,211.6	2,310.5	3			
4	277.7	249.8	_	230.0	227.6	1			
5	44.4	35.5	_	51.7	46.1	_			
6	6.2	5.6	_	6.3	6.2	_			
Total fixed maturities	\$ 64,296.9	\$ 66,035.0	100 %	\$ 62,777.2	\$ 66,970.1	100 %			

Fixed maturities included 35 securities with an amortized cost of \$408.4 million, gross gains of \$1.7 million, gross losses of \$24.4 million and a carrying amount of \$385.7 million as of March 31, 2020, that were still pending a review and assignment of a designation by the SVO. Due to the timing of when fixed maturities are purchased, legal documents are filed and the review by the SVO is completed, we will always have securities in our portfolio that are unrated over a reporting period. In these instances, an equivalent designation is assigned based on our fixed income analyst's assessment.

Commercial Mortgage-Backed Securities. As of March 31, 2020, based on amortized cost, 98% of our CMBS portfolio had an NAIC designation of 1.

The following table presents our exposure by credit quality based on NAIC designations for our CMBS portfolio as of the periods indicated.

		March	31, 202	.0	December 31, 2019					
	A	mortized		Carrying	F	Amortized	(Carrying		
NAIC designation		cost		amount		cost		amount		
				(in m	illions)					
1	\$	4,708.2	\$	4,429.5	\$	4,664.5	\$	4,769.9		
2		51.5		39.8		50.3		49.8		
3		14.3		12.1		16.6		16.8		
4		_						_		
5		10.2		7.7		9.2		7.0		
6		1.4		1.3		1.5		1.4		
Total (1)	\$	4,785.6	\$	4,490.4	\$	4,742.1	\$	4,844.9		

(1) The CMBS portfolio included agency CMBS with a \$278.8 million amortized cost and a \$286.4 million carrying amount as of March 31, 2020, and a \$302.1 million amortized cost and a \$303.1 million carrying amount as of December 31, 2019.

Fixed Maturities Watch List. We monitor any decline in the credit quality of fixed maturities through the designation of "problem securities," "potential problem securities" and "restructured securities". We define problem securities in our fixed maturity portfolio as securities: (i) with principal and/or interest payments in default or where default is perceived to be imminent in the near term, or (ii) issued by a company that went into bankruptcy subsequent to the acquisition of such securities. We define potential problem securities in our fixed maturity portfolio as securities included on an internal "watch list" for which management has concerns as to the ability of the issuer to comply with the present debt payment terms and which may result in the security becoming a problem or being restructured. The decision whether to classify a performing fixed maturity security as a potential problem involves significant subjective judgments by our management as to the likely future industry conditions and developments with respect to the issuer. We define restructured securities in our fixed maturity portfolio as securities where a concession has been granted to the borrower related to the borrower's financial difficulties that would not have otherwise been considered. We determine that restructures should occur in those instances where greater economic value will be realized under the new terms than through liquidation or other disposition and may involve a change in contractual cash flows. If the present value of the restructured cash flows is less than the current cost of the asset being restructured, a realized capital loss is recorded in net income and a new cost basis is established.

The following table presents the total carrying amount of our fixed maturities portfolio, as well as its problem, potential problem and restructured fixed maturities for the periods indicated.

	Ma	ırch 31, 2020	Dece	ember 31, 2019	
		(\$ in m	illions)		
Total fixed maturities (public and private)	\$	66,035.0	\$	66,970.1	
Problem fixed maturities (1)	\$	15.9	\$	14.6	
Potential problem fixed maturities		56.1		43.6	
Total problem, potential problem and restructured fixed maturities	\$	72.0	\$	58.2	
Total problem, potential problem and restructured fixed maturities as a percent of total fixed					
maturities		0.11 %	Ò	0.09 %	

(1) Upon adoption of authoritative guidance effective January 1, 2020, the problem fixed maturities carrying amount is net of the credit loss valuation allowance. Prior to 2020, the problem fixed maturities carrying amount was net of other-than-temporary impairment losses.

Fixed Maturities Credit Losses. Each reporting period, a group of individuals including the Chief Investment Officer, our Portfolio Managers, the assigned analysts and representatives from Investment Accounting review all securities to determine whether a credit loss exists. The analysis focuses on each issuer's ability to service its debts in a timely fashion. Formal documentation of the analysis and our decision is prepared and approved by management. For additional details regarding our process to identify and evaluate securities with credit losses, see Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 3, Investments" under the caption "Allowance for Credit Loss."

We would not consider a security with unrealized losses to have a decline in value due to credit when it is not our intent to sell the security, it is not more likely than not that we would be required to sell the security before recovery of the amortized cost, which may be maturity, and we expect to recover the amortized cost basis. However, we do sell securities under certain circumstances, such as when we have evidence of a change in the issuer's creditworthiness, when we anticipate poor relative future performance of securities, when a change in regulatory requirements modifies what constitutes a permissible investment or the maximum level of investments held or when there is an increase in capital requirements or a change in risk weights of debt securities. Sales generate both gains and losses.

A number of significant risks and uncertainties are inherent in the process of monitoring credit losses and determining the allowance for credit loss. These risks and uncertainties include: (1) the risk that our assessment of an issuer's ability to meet all of its contractual obligations will change based on changes in the credit characteristics of that issuer, (2) the risk that the economic outlook will be worse than expected or have more of an impact on the issuer than anticipated, (3) the risk that our investment professionals are making decisions based on fraudulent or misstated information in the financial statements provided by issuers and (4) the risk that new information obtained by us or changes in other facts and circumstances lead us to change our intent to not sell the security prior to recovery of its amortized cost. Any of these situations could result in a charge to net income in a future period.

The net realized loss relating to the change in the allowance for credit loss and credit related sales of fixed maturities was \$9.6 million for the three months ended March 31, 2020. The net realized loss relating to other-than-temporary credit impairments and credit related sales of fixed maturities was \$6.8 million for the three months ended March 31, 2019.

Fixed Maturities Available-for-Sale

The following tables present our fixed maturities available-for-sale by industry category, as of the periods indicated.

						arch 31, 2020			
	A	Amortized	u	Gross realized		Gross inrealized		Allowance for credit	Carrying
		cost		gains	-	losses (in millions)		loss	amount
Finance — Banking	\$	4,645.9	\$	161.1	\$	73.4	\$	_	\$ 4,733.6
Finance — Brokerage		517.3		22.2		8.9		_	530.6
Finance — Finance Companies		365.9		1.4		39.1		_	328.2
Finance — Financial Other		434.3		13.4		17.0		_	430.7
Finance — Insurance		2,756.2		283.0		48.7		_	2,990.5
Finance — Real estate investment trusts ("REITs")		1,725.1		35.6		51.0		_	1,709.7
Industrial — Basic Industry		1,320.2		60.7		44.7		_	1,336.2
Industrial — Capital Goods		2,188.4		103.2		45.7			2,245.9
Industrial — Communications		2,874.8		298.1		31.6			3,141.3
Industrial — Consumer Cyclical		1,737.0		68.5		90.4			1,715.1
Industrial — Consumer Non-Cyclical		4,302.9		352.2		50.8			4,604.3
Industrial — Energy		2,565.3		64.6		304.3		7.0	2,318.6
Industrial — Other		506.0		15.0		12.3			508.7
Industrial — Technology		2,039.3		152.4		22.0			2,169.7
Industrial — Transportation		2,003.4		74.4		65.0		_	2,012.8
Utility — Electric		3,484.7		238.0		56.9		_	3,665.8
Utility — Natural Gas		323.8		16.1		1.9		_	338.0
Utility — Other		292.7		7.8		3.1		_	297.4
Government guaranteed		1,335.5		110.5		40.8		_	1,405.2
Total corporate securities		35,418.7		2,078.2		1,007.6	_	7.0	36,482.3
Residential mortgage-backed pass-through securities		3,054.6		138.1		0.2		_	3,192.5
Commercial mortgage-backed securities		4,760.7		20.7		315.5		0.4	4,465.5
Residential collateralized mortgage obligations		3,844.7		157.3		27.3		_	3,974.7
Asset-backed securities — Home equity (1)		238.8		6.7		8.2		0.1	237.2
Asset-backed securities — All other		3,724.4		8.1		157.0		_	3,575.5
Collateralized debt obligations — Credit		16.8		_		4.9		_	11.9
Collateralized debt obligations — CMBS		_		0.6		_		_	0.6
Collateralized debt obligations — Loans		3,538.8		3.3		206.2		0.1	3,335.8
Total mortgage-backed and other asset-backed securities		19,178.8		334.8	_	719.3		0.6	 18,793.7
U.S. government and agencies		1,440.4		265.0		_		_	1,705.4
States and political subdivisions		7,063.4		709.4		24.0		_	7,748.8
Non-U.S. governments		716.6		110.6		1.4		_	825.8
Total fixed maturities, available-for-sale	\$	63,817.9	\$	3,498.0	\$	1,752.3	\$	7.6	\$ 65,556.0

⁽¹⁾ This exposure is all related to sub-prime mortgage loans.

	December 31, 2019						
		Amortized cost	u	Gross nrealized gains	un	Gross realized sses(1)	Carrying amount
				(in mi	llions)		
Finance — Banking	\$	4,486.9	\$	290.1	\$	11.7	\$ 4,765.3
Finance — Brokerage		560.9		44.5		0.1	605.3
Finance — Finance Companies		373.2		17.2			390.4
Finance — Financial Other		463.4		22.8		1.8	484.4
Finance — Insurance		2,663.5		358.1		2.1	3,019.5
Finance — REITs		1,626.9		115.6		0.4	1,742.1
Industrial — Basic Industry		1,264.4		110.2			1,374.6
Industrial — Capital Goods		2,142.1		152.0		0.6	2,293.5
Industrial — Communications		2,802.4		353.1		0.3	3,155.2
Industrial — Consumer Cyclical		1,542.0		103.0		2.5	1,642.5
Industrial — Consumer Non-Cyclical		4,089.7		406.8		0.6	4,495.9
Industrial — Energy		2,566.5		285.7		6.7	2,845.5
Industrial — Other		442.9		23.1		0.4	465.6
Industrial — Technology		2,018.7		153.3		2.1	2,169.9
Industrial — Transportation		1,972.1		142.4		0.4	2,114.1
Utility — Electric		3,174.5		307.3		2.2	3,479.6
Utility — Natural Gas		352.8		29.2			382.0
Utility — Other		268.7		16.2			284.9
Government guaranteed		1,357.6		165.0		0.9	1,521.7
Total corporate securities		34,169.2		3,095.6		32.8	37,232.0
Residential mortgage-backed pass-through securities		2,908.7		71.9		3.8	2,976.8
Commercial mortgage-backed securities		4,713.9		126.6		23.8	4,816.7
Residential collateralized mortgage obligations		3,885.8		79.0		8.6	3,956.2
Asset-backed securities — Home equity (2)		237.1		14.5		0.6	251.0
Asset-backed securities — All other		3,958.8		36.0		5.7	3,989.1
Collateralized debt obligations — Credit		16.8		_		4.7	12.1
Collateralized debt obligations — CMBS		_		0.9			0.9
Collateralized debt obligations — Loans		3,209.9		2.0		9.6	3,202.3
Total mortgage-backed and other asset-backed securities		18,931.0		330.9		56.8	 19,205.1
U.S. government and agencies		1,603.8		98.6		3.0	1,699.4
States and political subdivisions		6,842.8		643.6		11.6	7,474.8
Non-U.S. governments	_	724.6	_	128.4			853.0
Total fixed maturities, available-for-sale	\$	62,271.4	\$	4,297.1	\$	104.2	\$ 66,464.3

⁽¹⁾ Prior to the adoption of authoritative guidance effective January 1, 2020, the gross unrealized losses included other-than-temporary-impairment losses reported in AOCI.

Of the \$1,752.3 million in gross unrealized losses as of March 31, 2020, \$10.1 million in losses were attributed to securities scheduled to mature in one year or less, \$222.3 million attributed to securities scheduled to mature between one to five years, \$375.1 million attributed to securities scheduled to mature between five to ten years, \$425.5 million attributed to securities scheduled to mature after ten years and \$719.3 million related to mortgage-backed and other ABS that are not classified by maturity year. As of March 31, 2020, we were in a \$1,745.7 million net unrealized gain position as compared to a \$4,192.9 million net unrealized gain position as of December 31, 2019. The \$2,447.2 million decrease in net unrealized gains for the three months ended March 31, 2020, can be attributed to widening of credit spreads, partially offset by an approximate 75 basis points decrease in interest rates.

Fixed Maturities Available-For-Sale Unrealized Losses. We believe our long-term fixed maturities portfolio is well diversified among industry types and between publicly traded and privately placed securities. Each year, we direct the majority of our net cash inflows into investment grade fixed maturities. Our current policy is to limit the percentage of fixed maturities invested in below investment grade assets to 15%.

⁽²⁾ This exposure is all related to sub-prime mortgage loans.

We invest in privately placed fixed maturities to enhance the overall value of the portfolio, increase diversification and obtain higher yields than are possible with comparable quality public market securities. Generally, private placements provide broader access to management information, strengthened negotiated protective covenants, call protection features and, where applicable, a higher level of collateral. They are, however, generally not freely tradable because of restrictions imposed by U.S. federal and state securities laws and illiquid trading markets.

The following table presents our fixed maturities available-for-sale by investment grade and below investment grade as of the periods indicated.

		M	arch 31, 2020)	December 31, 2019							
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Allowance for credit Carrying loss amount	Amortized cost	Gross unrealized gains	Gross unrealized losses (1)	Carrying amount				
				(in million	s)							
Investment grade:												
Public	\$ 38,858.2	\$ 2,813.5	\$ 825.8	\$ — \$ 40,845.9	\$ 38,221.4	\$ 3,143.4	\$ 56.2	\$ 41,308.6				
Private	22,282.2	660.9	662.3	— 22,280.8	21,587.1	1,045.2	30.3	22,602.0				
Below investment grade:												
Public	1,084.7	8.9	126.9	7.1 959.6	912.9	47.8	6.6	954.1				
Private	1,592.8	14.7	137.3	0.5 1,469.7	1,550.0	60.7	11.1	1,599.6				
Total fixed maturities, available-for-sale	\$ 63,817.9	\$ 3,498.0	\$ 1,752.3	\$ 7.6 \$ 65,556.0	\$ 62,271.4	\$ 4,297.1	\$ 104.2	\$ 66,464.3				

(1) Prior to the adoption of authoritative guidance effective January 1, 2020, the gross unrealized losses included other-than-temporary-impairment losses reported in AOCI.

The following tables present the carrying amount and the gross unrealized losses on our fixed maturities available-for-sale for which an allowance for credit loss has not been recorded by grade and aging category as of March 31, 2020.

						March 31, 2020							
		Pul				Priv				To	tal		
		rrying nount	un	Gross realized losses		Carrying amount		Gross realized losses		arrying mount	u	Gross nrealized losses	
						(in mi	llions)					
Investment grade:													
Three months or less	\$ 1	1,187.4	\$	798.2	\$	11,230.3	\$	595.9	\$ 2	2,417.7	\$	1,394.1	
Greater than three to six months		14.6		1.0		159.5		8.4		174.1		9.4	
Greater than six to nine months		62.0		2.8		53.9		1.9		115.9		4.7	
Greater than nine to twelve months		17.7		0.4		_		_		17.7		0.4	
Greater than twelve to twenty-four months		47.3		11.2		677.4		34.9		724.7		46.1	
Greater than twenty-four to thirty-six months		67.0		4.8		158.7		10.0		225.7		14.8	
Greater than thirty-six months		89.3		7.4		64.7		11.2		154.0		18.6	
Total fixed maturities, available-for-sale	\$ 1	1,485.3	\$	825.8	\$	12,344.5	\$	662.3	\$ 2	3,829.8	\$	1,488.1	
						March	31, 2	020					
		Pu	blic			Pri	vate			To	tal		
		arrying mount	uı	Gross realized losses		Carrying amount	u	Gross realized losses		arrying mount	u	Gross realized losses	
						(in m	illion	5)					
Below investment grade:													
Three months or less	\$	646.8	\$	99.3	\$	1,009.6	\$	110.2	\$	1,656.4	\$	209.5	
Three months or less Greater than three to six months	\$	16.6	\$	3.1	\$	1,009.6 39.6	\$	110.2 9.8	\$	56.2	\$	12.9	
Three months or less	\$		\$		\$	39.6	\$		\$	•	\$		
Three months or less Greater than three to six months	\$	16.6	\$	3.1	\$		\$	9.8	\$	56.2	\$	12.9	
Three months or less Greater than three to six months Greater than six to nine months Greater than nine to twelve months Greater than twelve to twenty-four months	\$	16.6 0.2	\$	3.1 0.2	\$	39.6	\$	9.8	\$	56.2 0.2	\$	12.9 0.2	
Three months or less Greater than three to six months Greater than six to nine months Greater than nine to twelve months	\$	16.6 0.2 20.8 — 8.5	\$	3.1 0.2	\$	39.6 — 21.7	\$	9.8	\$	56.2 0.2 42.5	\$	12.9 0.2 19.9	
Three months or less Greater than three to six months Greater than six to nine months Greater than nine to twelve months Greater than twelve to twenty-four months	\$	16.6 0.2 20.8	\$	3.1 0.2 19.7	\$	39.6 — 21.7 54.1	\$	9.8 — 0.2 7.3	\$	56.2 0.2 42.5 54.1	\$	12.9 0.2 19.9 7.3	

					March	31, 20	020				
	_pr	Problem oblem and			 All oth maturity			To	Гotal		
	Carrying amount		, ,		Carrying amount	ur	Gross realized losses	Carrying amount	ur	Gross realized losses	
					(in m	illions	s)				
Estimated fair value had declined and remained below											
amortized cost by 20% or more:											
Three months or less	\$	15.0	\$	4.7	\$ 1,037.1	\$	481.1	\$ 1,052.1	\$	485.8	
Greater than three to six months		_		_	0.4		0.2	0.4		0.2	
Greater than nine to twelve months		_		_	_		0.1	_		0.1	
Greater than twelve months		0.1		0.4	12.0		5.0	12.1		5.4	
Total fixed maturities, available-for-sale	\$	15.1	\$	5.1	\$ 1,049.5	\$	486.4	\$ 1,064.6	\$	491.5	

The following tables present the carrying amount and the gross unrealized losses, including other-than-temporary impairment losses reported in AOCI, on investment grade fixed maturities available-for-sale by grade and aging category as of December 31, 2019.

	_					Decembe		2019					
	_	Pul	blic		_	Pri	vate			To	otal		
		Carrying amount		Gross realized losses		Carrying amount	un	Gross realized losses	-	Carrying amount	ur	Gross realized losses	
						(in m	illions)						
Investment Grade:													
Three months or less	\$	2,353.4	\$	22.7	\$	1,900.9	\$	6.7	\$	4,254.3	\$	29.4	
Greater than three to six months		539.6		8.5		297.9		2.7		837.5		11.2	
Greater than six to nine months		48.9		2.2		55.7		0.3		104.6		2.5	
Greater than nine to twelve months		12.9		0.2		3.1		_		16.0		0.2	
Greater than twelve to twenty-four months		191.0		7.5		1,372.1		7.4		1,563.1		14.9	
Greater than twenty-four to thirty-six months		201.6		2.2		400.9		5.3		602.5		7.5	
Greater than thirty-six months		574.2		12.9		190.7		7.9		764.9		20.8	
Total fixed maturities, available-for-sale	\$	3,921.6	\$	56.2	\$	4,221.3	\$	30.3	\$	8,142.9	\$	86.5	
						Decemb	er 31, 2	2019					
	_	Pu	ıblic		_	Pr	ivate		_	To	tal		
		Carrying		Gross realized		Carrying		Gross realized		Carrying		Gross realized	

						Decemb	er 31, 2	2019			
		Pu	ıblic			Pri	vate		To	otal	
	Carrying amount		unr	Gross ealized osses	Carrying amount		un:]	Gross realized osses	arrying mount	un	Gross realized losses
Below investment grade:						(in m	illions)				
Three months or less	\$	24.4	\$	0.2	\$	61.3	\$	0.6	\$ 85.7	\$	8.0
Greater than six to nine months		7.7		0.1		22.2		0.2	29.9		0.3
Greater than twelve to twenty-four months		14.6		1.1		72.2		2.2	86.8		3.3
Greater than twenty-four to thirty-six months		13.1		2.3		3.7		0.7	16.8		3.0
Greater than thirty-six months		10.6		2.9		27.4		7.4	38.0		10.3
Total fixed maturities, available-for-sale	\$	70.4	\$	6.6	\$	186.8	\$	11.1	\$ 257.2	\$	17.7

	Problem, potential All other fix problem and restructured maturity secun							d		Te	otal	
	Carrying amount		, ,		Carrying amount		losses		Carrying amount		Gross unrealize losses	
Estimated fair value had declined and remained below amortized cost by 20% or more:						(in m	illions)					
Three months or less	\$	_	\$	_	\$	2.5	\$	0.9	\$	2.5	\$	0.9
Greater than three to six months						5.1		2.7		5.1		2.7
Greater than six to nine months		0.4		0.1		0.1		_		0.5		0.1
Greater than nine to twelve months		3.4		2.0		0.2		0.1		3.6		2.1
Greater than twelve months		1.6		1.0		12.3		4.8		13.9		5.8
Total fixed maturities, available-for-sale	\$	5.4	\$	3.1	\$	20.2	\$	8.5	\$	25.6	\$	11.6

Mortgage Loans

Mortgage loans consist of commercial mortgage loans on real estate and residential mortgage loans. For further details about residential mortgage loans, see Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 3, Investments" under the caption, "Financing Receivables."

Commercial Mortgage Loans. We generally report commercial mortgage loans on real estate at cost adjusted for amortization of premiums and accrual of discounts, computed using the interest method and net of valuation allowances.

Commercial mortgage loans play an important role in our investment strategy by:

- providing strong risk-adjusted relative value in comparison to other investment alternatives;
- enhancing total returns and
- providing strategic portfolio diversification.

As a result, we have focused on constructing a high quality portfolio of mortgages. Our portfolio is generally comprised of mortgages originated with conservative loan-to-value ratios, high debt service coverages and general purpose property types with a strong credit tenancy.

Our commercial mortgage loan portfolio consists primarily of non-recourse, fixed rate mortgages on fully or near fully leased properties. The mortgage portfolio is comprised primarily of office properties, apartments, well anchored retail properties and general-purpose industrial properties.

Our commercial mortgage loan portfolio is diversified by geography and specific collateral property type. Commercial mortgage lending in the state of California accounted for 22% and 21% of our commercial mortgage loan portfolio before valuation allowance as of March 31, 2020 and December 31, 2019, respectively. We are, therefore, exposed to potential losses resulting from the risk of catastrophes, such as earthquakes, that may affect the region. Like other lenders, we generally do not require earthquake insurance for properties on which we make commercial mortgage loans. With respect to California properties, however, we obtain an engineering report specific to each property. The report assesses the building's design specifications, whether it has been upgraded to meet seismic building codes and the maximum loss that is likely to result from a variety of different seismic events. We also obtain a report that assesses, by building and geographic fault lines, the amount of loss our commercial mortgage loan portfolio might suffer under a variety of seismic events.

The typical borrower in our commercial loan portfolio is a single purpose entity or single asset entity. As of March 31, 2020 and December 31, 2019, the total number of commercial mortgage loans outstanding was 762 and 767, of which 47% and 46% were for loans with principal balances less than \$10.0 million, respectively. The average loan size of our commercial mortgage portfolio was \$19.5 million and \$19.2 million as of March 31, 2020 and December 31, 2019, respectively.

Commercial Mortgage Loan Credit Monitoring. For further details on monitoring and management of our commercial mortgage loan portfolio, see Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 3, Investments" under the caption, "Financing Receivables Credit Monitoring."

We categorize loans that are 60 days or more delinquent, loans in process of foreclosure and loans with borrowers or credit tenants in bankruptcy that are delinquent as "problem" loans. We categorize loans that are delinquent less than 60 days where the default is expected to be cured and loans with borrowers or credit tenants in bankruptcy that are current as "potential problem" loans. The decision whether to classify a loan delinquent less than 60 days as a potential problem involves significant subjective judgments by management as to the likely future economic conditions and developments with respect to the borrower. We categorize loans for which the original note rate has been reduced below market and loans for which the principal has been reduced as "restructured" loans. We also consider loans that are refinanced more than one year beyond the original maturity or call date at below market rates as restructured.

We did not have problem, potential problem and restructured commercial mortgage loans as of March 31, 2020 and December 31, 2019.

Commercial Mortgage Loan Valuation Allowance. We establish the commercial mortgage loan valuation allowance at levels considered adequate to absorb estimated expected credit losses within the portfolio. For further details on the commercial mortgage loan valuation allowance, see Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 3, Investments" under the caption, "Financing Receivables Valuation Allowance."

Real Estate

Real estate consists primarily of commercial equity real estate. As of March 31, 2020 and December 31, 2019, the carrying amount of our equity real estate investment was \$1,656.4 million and \$1,713.5 million, respectively. Our commercial equity real estate is held in the form of wholly owned real estate, real estate acquired upon foreclosure of commercial mortgage loans and majority owned interests in real estate joint ventures.

Equity real estate is categorized as either "real estate held for investment" or "real estate held for sale." Real estate held for investment totaled \$1,568.5 million and \$1,544.5 million as of March 31, 2020 and December 31, 2019, respectively. The carrying value of real estate held for investment is generally adjusted for impairments whenever events or changes in circumstances indicate the carrying amount of the asset may not be recoverable. Such impairment adjustments are recorded as net realized capital losses in our consolidated results of operations. Impairment adjustments recorded for the year ended December 31, 2019, were \$0.6 million. No such impairment adjustments were recorded for the three months ended March 31, 2020.

The carrying amount of real estate held for sale was \$87.9 million and \$169.0 million as of March 31, 2020 and December 31, 2019, respectively. Once we identify a real estate property to be sold and it is probable that it will be sold, we classify the property as held for sale. We establish a valuation allowance subject to periodic revisions, if necessary, to adjust the carrying value of the property to reflect the lower of its current carrying value or the fair value, less associated selling costs. The valuation allowance did not change for the three months ended March 31, 2020 or for the year ended December 31, 2019.

We use research, both internal and external, to recommend appropriate product and geographic allocations and changes to the equity real estate portfolio. We monitor product, geographic and industry diversification separately and together to determine the most appropriate mix.

Equity real estate is distributed across geographic regions of the country. As of March 31, 2020, our largest equity real estate portfolio concentration was in the Pacific (47%) region of the United States. By property type, our largest concentrations were in office (31%), apartments (29%), and industrial (26%) as of March 31, 2020.

Other Investments

Our other investments totaled \$3,096.6 million as of March 31, 2020, compared to \$2,841.7 million as of December 31, 2019. Other investments include interests in unconsolidated entities, which include real estate properties owned jointly with venture partners and operated by the partners; sponsored investment funds; the cash surrender value of company owned life insurance; derivative assets and other investments.

International Investment Operations

Of our invested assets, \$6,764.7 million were held by our Principal International segment as of March 31, 2020. The assets are primarily managed by the local Principal International affiliate. Due to the regulatory constraints in each location, each company maintains its own investment policies. As shown in the following table, the major category of international invested assets is fixed maturities. The following table excludes invested assets of the separate accounts.

	March 3	1, 2020	December	31, 2019
	Carrying amount	Percent of total	Carrying amount	Percent of total
	 	(\$ in million		
Fixed maturities:				
Public	\$ 3,228.7	48 % \$	3,755.5	48 %
Private	40.1	1	56.5	2
Equity securities	1,215.0	18	1,398.7	18
Mortgage loans:				
Commercial	275.3	4	299.5	4
Residential	376.0	6	407.8	5
Real estate held for sale	0.7	_	8.0	_
Real estate held for investment	0.4	_	0.5	_
Policy loans	18.1	_	20.3	
Other investments:				
Direct financing leases	645.4	9	782.9	10
Investment in unconsolidated operating entities	699.6	10	801.6	10
Derivative assets and other investments	265.4	4	264.0	3
Total invested assets	 6,764.7	100 %	7,788.1	100 %
Cash and cash equivalents	215.7		203.8	<u></u>
Total invested assets and cash	\$ 6,980.4	\$	7,991.9	

Regulations in certain locations require investment in the funds we manage. These required regulatory investments are classified as equity securities within our consolidated statements of financial position, with all mark-to-market changes reflected in net investment income. Our investment is primarily dictated by client activity and all investment performance is retained by us.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Market Risk Exposures and Risk Management

Market risk is the risk we will incur losses due to adverse fluctuations in market rates and prices. Our primary market risk exposures are to interest rates, equity markets and foreign currency exchange rates. The active management of market risk is an integral part of our operations. We manage our overall market risk exposure within established risk tolerance ranges using several approaches, including:

- rebalancing our existing asset or liability portfolios;
- controlling the risk structure of newly acquired assets and liabilities and
- using derivative instruments to modify the market risk characteristics of existing assets or liabilities or assets expected to be purchased.

Interest Rate Risk

Interest rate risk is the risk of economic losses due to adverse changes in interest rates. Interest rate risk arises primarily from our holdings in interest sensitive assets and liabilities. Changes in interest rates impact numerous aspects of our operations, including but not limited to:

- yield on our invested assets;
- rate of interest we credit to contractholder account balances;
- timing of cash flows on assets and liabilities containing embedded prepayment options;
- cost of hedging our GMWB rider;
- discount rate used in valuing our pension and OPEB obligations;
- estimated gross profits and the amortization of our DAC asset and related actuarial balances;
- statutory reserve and capital requirements;

- asset-based fees earned on the fixed income assets we manage;
- interest expense on our long-term borrowings;
- fair value of intangible assets in our reporting units and
- fair value of financial assets and liabilities held at fair value on our consolidated statements of financial position.

Lower interest rates generally result in lower profitability in the long-term. Conversely, higher interest rates generally result in higher profitability in the long-term. However, an increase in market interest rates may cause a decline in the value of financial assets held at fair value on our consolidated statements of financial position.

Impact of Changes in Long-Term Interest Rate Assumptions

We use long-term interest rate assumptions to calculate reserves, DAC, other actuarial balances and benefit plan obligations in accordance with U.S. GAAP. In setting these assumptions, we consider a variety of factors, including historical experience, emerging trends and future expectations. We evaluate our assumptions on at least an annual basis. Due to the long-term nature of our assumptions, we generally do not revise our assumptions in response to short-term fluctuations in market interest rates. However, we will consider revising our assumptions if a significant change occurs in the factors noted above.

A reduction in our long-term interest rate assumptions may result in increases in our reserves and/or unlocking of our DAC asset and other actuarial balances. For additional information, see Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies and Estimates — Deferred Acquisition Costs and Other Actuarial Balances" in our Annual Report on Form 10-K for the year ended December 31, 2019.

In addition, we have implemented reinsurance transactions utilizing affiliated reinsurers and highly rated third parties to finance a portion of the statutory reserves for our term life insurance policies and universal life insurance policies with secondary guarantees. We calculate an economic reserve, which represents an estimate of our liability associated with these contracts. The excess of the required statutory reserve over the economic reserve is secured by financing provided by highly rated third parties. The long-term interest rate assumption is a key input in the calculation of the economic reserve. A reduction in our long-term interest rate assumption would reduce the portion of the statutory reserve that can be financed through affiliated reinsurers, thus increasing the amount of invested assets we must maintain to support statutory reserves. For additional information, see Item 8. "Financial Statements and Supplementary Data, Notes to Consolidated Financial Statements, Note 15, Statutory Insurance Financial Information" in our Annual Report on Form 10-K for the year ended December 31, 2019.

Impact of Changes in Interest Rates

Changes in interest rates or a sustained low interest rate environment may result in the following impacts, which would impact our financial position and results of operations:

Impact of Falling Interest Rates or Sustained Low	
Interest Rates	Impact of Rising Interest Rates
Adverse Impacts:	Positive Impacts:
A reduction in investment income, which may be partially offset by a reduction in the interest we credit on contractholder account balances; however, our ability to lower crediting rates may be constrained by guaranteed minimum interest rates and competitive pressures	An increase in investment income, which may be partially or fully offset by an increase in the interest we credit on contractholder account balances
An increase in the cost of hedging our GMWB rider	A decrease in the cost of hedging our GMWB rider
An increase in reserves and/or a true-up or unlocking of our DAC asset and other actuarial balances	A true-up or unlocking of our DAC asset and other actuarial balances
A reduction in the discount rate used in valuing our pension and OPEB obligations, leading to an increase in our Projected Benefit Obligation, Net Periodic Pension Cost, Accumulated Postretirement Benefit Obligation and Net Periodic Benefit Cost An increase in statutory capital we are required to hold as well as the amount of assets we must maintain to support statutory reserves	An increase in the discount rate used in valuing our pension and OPEB obligations, leading to a decrease in our Projected Benefit Obligation, Net Periodic Pension Cost, Accumulated Postretirement Benefit Obligation and Net Periodic Benefit Cost A decrease in statutory capital we are required to hold as well as the amount of assets we must maintain to support statutory reserves
An increase in prepayments or redemptions on mortgages and bonds we own, which would force us to reinvest the proceeds at lower interest rates	A decrease in prepayments or redemptions on mortgages and bonds we own, which would reduce our opportunity to reinvest the proceeds at higher interest rates
Positive Impacts:	Adverse Impacts:
An increase in the value of the fixed income assets we manage, resulting in an increase in our fee revenue in the short-term A decrease in the interest expense on our long-term borrowings,	A decrease in the value of the fixed income assets we manage, resulting in a decrease in our fee revenue in the short-term An increase in the interest expense on our long-term borrowings, to
to the extent the borrowings have adjustable rates or we are able to refinance our obligations at lower interest rates	the extent the borrowings have adjustable rates or we refinance our obligations at higher interest rates
An increase in the fair value of certain financial assets held at fair value on our consolidated statements of financial position	A decrease in the fair value of certain financial assets held at fair value on our consolidated statements of financial position, as discussed below
	A reduction in the fair value of intangible assets in our reporting units, potentially leading to an impairment of goodwill or other intangible assets

We estimate our earnings sensitivity to U.S. interest rates by using two distinct assumptions: a hypothetical 100 basis point immediate, parallel decrease in the treasury yield curve and a hypothetical 50 basis point immediate decrease or increase in the Interest Rate on Excess Reserves ("IOER rate"). The hypothetical 100 basis point immediate, parallel decrease in the treasury yield would reduce segment pre-tax operating earnings by less than 1% over the next 12 months excluding the impact of any potential unlocking of our DAC asset and other actuarial balances. The hypothetical 50 basis point immediate decrease or increase in the IOER rate would reduce/increase segment pre-tax operating earnings respectively by less than 0.5% over the next 12 months. These estimates reflect the impact of routine management actions in response to changes in interest rates, such as reducing the interest rates we credit on contractholder account balances, but do not reflect the impact of other actions management may consider, such as curtailing sales of certain products.

The selection of a 100 basis point immediate, parallel decrease in treasury yields and a 50 basis point immediate decrease/increase in the IOER rate should not be construed as a prediction by us of future market events, but rather as an illustration of the impact of such an event. Our exposure will change as a result of ongoing portfolio transactions in response to new business, management's assessment of changing market conditions and changes in our mix of business.

If market rates increase rapidly, policy surrenders, withdrawals and requests for policy loans may increase as customers seek to achieve higher returns. This may result in unlocking of our DAC and other actuarial balances. We may be required to sell assets to raise the cash necessary to respond to such surrenders, withdrawals and loans, thereby realizing capital losses on the assets sold.

Guaranteed Minimum Interest Rate Exposure. The following table provides detail on the differences between the interest rates being credited to contractholders as of March 31, 2020, and the respective guaranteed minimum interest rates ("GMIRs"). Account values are broken down by GMIR level within the Retirement and Income Solutions and U.S. Insurance Solutions segments.

	Account values (1)											
		Excess of crediting rates over GMIR:										
	P	At GMIR		p to 0.50% ove GMIR		1% to 1.00% ove GMIR		% to 2.00% ove GMIR		1% or more ove GMIR		Total
						(\$ in	millior	ıs)				
Guaranteed minimum interest rate												
Retirement and Income Solutions												
Up to 1.00%	\$	294.6	\$	221.0	\$	873.2	\$	4,032.9	\$	2,940.4	\$	8,362.1
1.01% - 2.00%		166.7		1,069.1		5,841.2		445.0		_		7,522.0
2.01% - 3.00%		4,822.9		0.2		_		_		_		4,823.1
3.01% - 4.00%		193.2		_		_				_		193.2
Subtotal		5,477.4		1,290.3		6,714.4		4,477.9		2,940.4		20,900.4
U.S. Insurance Solutions												
Up to 1.00%		_		21.0		2.4		_		_		23.4
1.01% - 2.00%		340.5		_		314.8		413.4		174.7		1,243.4
2.01% - 3.00%		1,237.5		1,220.5		558.6		108.0		0.1		3,124.7
3.01% - 4.00%		1,723.2		38.9		20.1		27.7		3.4		1,813.3
4.01% - 5.00%		51.3		4.3		3.7		1.7		_		61.0
Subtotal		3,352.5	_	1,284.7		899.6		550.8		178.2	_	6,265.8
Total	\$	8,829.9	\$	2,575.0	\$	7,614.0	\$	5,028.7	\$	3,118.6	\$	27,166.2
Percentage of total		32.5	% —	9.5 %	₆	28.0	% <u> </u>	18.5 %	₆	11.5 %	/ ₆ =	100.0 %

(1) Includes only the account values, net of policy loans, for products with GMIRs and discretionary crediting rates.

In addition to the domestic account values shown in the table above, Principal International had \$627.9 million and \$407.3 million of account values with GMIRs in Hong Kong and Brazil, respectively, as of March 31, 2020. The Brazil amount includes account values from an equity method subsidiary, adjusted to reflect the proportion of the subsidiary's results reflected in our net income. Our liabilities in Principal International are generally denominated in the functional currency of the location of operation. The pattern of interest rate movements in our international operations will likely differ from the pattern of interest rate movements in the U.S.

Impact of Rising Interest Rates on the Fair Value of Financial Assets. An increase in market interest rates may cause a decline in the value of financial assets held at fair value on our consolidated statements of financial position. Although changes in the fair value of our financial assets due to changes in interest rates may impact the amount of equity reported in our consolidated statements of financial position, these changes will not cause an economic gain or loss unless we sell investments, terminate derivative positions, determine an investment is other than temporarily impaired, or determine a derivative instrument is no longer an effective hedge.

We estimate a hypothetical 100 basis point immediate, parallel increase in interest rates would reduce the net reported fair value of our financial assets and derivatives by \$4,645.1 million as of March 31, 2020, compared to \$4,791.2 million as of December 31, 2019. This estimate only reflects the change in fair value for financial assets and derivatives reported at fair value on our consolidated statements of financial position. Assets and liabilities not reported at fair value on our consolidated statements of financial position – including mortgage loans, liabilities relating to insurance contracts, investment contracts, debt and bank deposits – are excluded from this sensitivity analysis. We believe the excluded liability items would economically serve as a partial offset to the net interest rate risk of the financial instruments included in the sensitivity analysis. Separate account assets and liabilities are also excluded from this estimate, as any interest rate risk is borne by the holder of the separate account. For more information on fair value measurements, see Item 8. "Financial Statements and Supplementary Data, Notes to Consolidated Financial Statements, Note 14, Fair Value Measurements" in our Annual Report on Form 10-K for the year ended December 31, 2019.

Our selection of a 100 basis point immediate, parallel increase in interest rates is a hypothetical rate scenario we use to demonstrate potential risk. While a 100 basis point immediate, parallel increase does not represent our view of future market changes, it is a near term reasonably possible hypothetical change that illustrates the potential impact of such events. While this sensitivity analysis provides a representation of interest rate sensitivity, it is based on our portfolio exposures at a point in time and may not be representative of future market results. These exposures will change as a result of ongoing portfolio transactions in response to new business, management's assessment of changing market conditions and available investment opportunities.

Our net estimated potential loss in fair value as of March 31, 2020, decreased \$146.1 million from December 31, 2019, primarily due to a decrease in the balance and duration of fixed maturities, available-for-sale. The decrease in the balance of fixed maturities, available-for-sale was primarily driven by a widening of credit spreads that offset the impact of declining interest rates and net purchase activity. The decrease in the duration of fixed maturities, available-for-sale was primarily driven by a widening of credit spreads that offset the impact of a decline in interest rates.

Interest Rate Risk Management

We manage interest rate risk through the use of an integrated risk management framework. This helps us identify, assess, monitor, report and manage our risks within established limits and risk tolerances. Our internal risk committees monitor and discuss our risk profile and identify necessary actions to mitigate impacts from interest rate risk.

The product designs within our business units result in a variety of different interest rate risk profiles. Therefore, our business units use a variety of different approaches for managing their asset and liability interest rate risks.

- Retirement Business Stable Cash Flows For stable and predictable cash flow liabilities, such as pension risk transfer, full service
 accumulation, investment only, and newer fixed deferred annuities, we use investment strategy and hedges to tightly align the cash
 flow run off of these asset and liability cash flows. Immunization and embedded value analysis are also utilized in the management
 of interest rate risk.
- Retirement Business Dynamic Cash Flows Dynamic liability cash flows, such as older fixed deferred annuities, are sensitive to policyholder behavior and the current interest rate environment. The risk and return metrics from deterministic and stochastic interest rate scenarios are used to manage the interest rate risk for these liabilities.
- U.S. Insurance Stable Cash Flows Our insurance businesses in many instances contain long-term guarantees with stable and
 predictable liability cash flows and recurring premiums. We manage the interest rate risk through investment strategy, product
 crediting rates and analyzing duration and embedded value sensitivity.
- Principal International Our international businesses operate within local regulations and financial market conditions (e.g.,
 derivative markets, assets available) to achieve similar asset and liability cash flow management objectives. In locations with a
 limited availability of long-dated assets and derivative markets, the duration gap is managed to risk tolerances specific to each
 location.

We also limit our exposure to interest rate risk through our business mix and strategy. We have intentionally limited our exposure to specific products where investment margins are critical to the product's profitability, and we continue to emphasize the sale of products that generate revenues in the form of fees for service or premiums for insurance coverage and expose us to minimal interest rate risk.

Prepayment risk is controlled by limiting our exposure to investments that are prepayable without penalty prior to maturity at the option of the issuer. We also require additional yield on these investments to compensate for the risk the issuer will exercise such option. Prepayment risk is also controlled by limiting the sales of liabilities with features such as puts or other options that can be exercised at inopportune times. We manage the interest rate risk associated with our long-term borrowings by monitoring the interest rate environment and evaluating refinancing opportunities as maturity dates approach.

The plan fiduciaries use a Dynamic Asset Allocation strategy for our qualified defined benefit pension plan, which strategically allocates an increasing portion of the assets of the pension plan to fixed income securities as the funding status improves. The intended purpose of using the Dynamic Asset Allocation strategy is that the expected change in the value of the plan assets and the change in pension benefit obligation due to market movements are more likely to have more correlation versus a static allocation of assets between categories. For more information see Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies and Estimates — Benefit Plans" and Item 8. "Financial Statements and Supplementary Data, Notes to Consolidated Financial Statements, Note 11, Employee and Agent Benefits" in our Annual Report on Form 10-K for the year ended December 31, 2019.

Use of Derivatives to Manage Interest Rate Risk. We use various derivative financial instruments to manage our exposure to fluctuations in interest rates, including interest rate swaps, interest rate options, swaptions and futures. We use interest rate swaps and futures contracts to hedge changes in interest rates subsequent to the issuance of an insurance liability, such as a guaranteed investment contract, but prior to the purchase of a supporting asset, or during periods of holding assets in anticipation of near term liability sales. We use interest rate swaps primarily to more closely match the interest rate characteristics of assets and liabilities. They can be used to change the sensitivity to the interest rate of specific assets and liabilities as well as an entire portfolio. We use interest rate options to manage prepayment risks in our assets and minimum guaranteed interest rates and lapse risks in our liabilities. We purchase swaptions to hedge interest rate exposure for certain assets and liabilities.

Foreign Currency Risk

Foreign currency risk is the risk we will incur economic losses due to adverse fluctuations in foreign currency exchange rates. This risk arises from foreign currency-denominated funding agreements issued to nonqualified institutional investors in the international market, foreign currency-denominated fixed maturity and equity securities, and our international operations, including expected cash flows and potential acquisition and divestiture activity.

We estimate as of March 31, 2020, a 10% immediate unfavorable change in each of the foreign currency exchange rates to which we are exposed would result in no material change to the net fair value of our foreign currency-denominated instruments identified above because we effectively hedge foreign currency-denominated instruments to minimize exchange rate impacts, which is consistent with our estimate as of December 31, 2019. However, fluctuations in foreign currency exchange rates do affect the translation of segment pre-tax operating earnings and equity of our international operations into our consolidated financial statements.

For our Principal International segment, we estimate a 10% immediate unfavorable change in each of the foreign currency exchange rates to which we were exposed would have resulted in a \$267.7 million, or 10%, reduction in the total equity excluding noncontrolling interests of our international operations as of March 31, 2020, as compared to an estimated \$311.4 million, or 10%, reduction as of December 31, 2019. We estimate a 10% unfavorable change in the average foreign currency exchange rates to which we were exposed through our international operations would have resulted in a \$9.5 million, or 12%, reduction in segment pre-tax operating earnings of our international operations for the three months ended March 31, 2020, as compared to an estimated \$12.9 million, or 12%, reduction for the three months ended March 31, 2019.

The selection of a 10% immediate unfavorable change in all currency exchange rates should not be construed as a prediction by us of future market events, but rather as an illustration of the potential impact of such an event. These exposures will change as a result of a change in the size and mix of our foreign operations.

Use of Derivatives to Manage Foreign Currency Risk. The foreign currency risk on funding agreements and fixed maturities in our U.S. operations is mitigated by using currency swaps that swap the foreign currency interest and principal payments to our functional currency. The notional amount of our currency swap agreements associated with foreign-denominated liabilities was \$128.3 million as of both March 31, 2020 and December 31, 2019. The notional amount of our currency swap agreements associated with foreign-denominated fixed maturities was \$621.7 million and \$655.7 million as of March 31, 2020 and December 31, 2019, respectively. The notional amount of our currency forwards hedging foreign-denominated equity securities was \$58.9 million and \$57.2 million as of March 31, 2020 and December 31, 2019, respectively.

With regard to our international operations, in order to enhance the diversification of our investment portfolios we may invest in bonds denominated in a currency that is different than the currency of our liabilities. We use foreign exchange derivatives to economically hedge the currency mismatch. Our Principal International operations had currency swaps with a notional amount of \$255.1 million and \$243.2 million as of March 31, 2020 and December 31, 2019, respectively. Our Principal International operations also utilized currency forwards with a notional amount of \$925.7 million and \$935.5 million as of March 31, 2020 and December 31, 2019, respectively.

We use currency forwards to hedge certain net equity investments in our foreign operations, including certain sponsored investment funds. We held currency forwards with a notional amount of \$273.0 million and \$269.9 million as March 31, 2020 and December 31, 2019, respectively. We also utilized currency options with a notional amount of \$95.2 million and \$53.8 million as of March 31, 2020 and December 31, 2019, respectively.

Equity Risk

Equity risk is the risk we will incur economic losses due to adverse fluctuations in equity markets. As of March 31, 2020 and December 31, 2019, the fair value of our equity securities was \$1,664.1 million and \$1,879.4 million, respectively. We estimate a 10% decline in the prices of the equity securities would result in a decline in fair value of our equity securities of \$166.4 million as of March 31, 2020, as compared to a decline in fair value of our equity securities of \$187.9 million as of December 31, 2019.

We are also exposed to the risk that asset-based fees decrease as a result of declines in assets under management due to changes in investment prices and the risk that asset management fees calculated by reference to performance could be lower. The risk of decreased asset-based and asset management fees could also impact our estimates of total gross profits used as a basis for amortizing DAC and other actuarial balances. For further discussion, see Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies and Estimates — Deferred Acquisition Costs and Other Actuarial Balances" in our Annual Report on Form 10-K for the year ended December 31, 2019.

We also have equity risk associated with (1) fixed deferred annuity and universal life contracts that credit interest to customers based on changes in an external equity index; (2) variable annuity contracts that have a GMWB rider that allows the customer to make withdrawals of a specified annual amount, either for a fixed number of years or for the lifetime of the customer, even if the account value is reduced to zero; (3) variable annuity contracts that have a guaranteed minimum death benefit ("GMDB") that allows the death benefit to be paid, even if the account value has fallen below the GMDB amount and (4) investment contracts in which the return is subject to minimum contractual guarantees. We are also subject to equity risk based upon the assets that support our employee benefit plans. For further discussion of equity risk associated with these plans, see Item 7. "Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies and Estimates — Benefit Plans" in our Annual Report on Form 10-K for the year ended December 31, 2019.

We estimate an immediate 10% decline in the S&P 500 index, followed by a 2% per quarter increase would reduce our annual segment pre-tax operating earnings by approximately 5% to 7% over the next 12 months. This estimate excludes the impact of any potential unlocking of our DAC asset and other actuarial balances. The selection of a 10% unfavorable change in the S&P 500 index should not be construed as a prediction by us of future market events, but rather as an illustration of the potential impact of such an event. Our exposure will change as a result of changes in our mix of business.

Separate and distinct from our equity risk associated with a decline in the S&P index, we also have equity risk associated with certain alternative investments. These investments are comprised of several asset categories (including hedge funds, private equity, infrastructure and direct lending) that provide an attractive asset match to our long-dated liabilities and create diversification benefits to our fixed income investments. The risk profile of these investments is actively monitored by our Investment Committee and our corporate risk management function. Changes in the value of these investments will impact earnings. We estimate an immediate 10% decline in the value of those assets, followed by a 2% per quarter increase would reduce our annual segment pre-tax operating earnings by less than 7%. This estimate excludes the impact of any potential unlocking of our DAC asset and other actuarial balances. The selection of a 10% unfavorable change in the value of those assets should not be construed as a prediction of future market events or correlation with changes in the S&P index, but rather as an illustration of the potential impact of such a decline in value of those assets. Furthermore, we have intentionally selected a decline in the value of alternative investments separate from a decline in the S&P 500 index because a decline in the S&P 500 index does not necessarily correlate to a comparable decline in the value of our alternative assets.

Use of Derivatives to Manage Equity Risk. We economically hedge the fixed deferred annuity and universal life products, where the interest credited is linked to an external equity index, by purchasing options that match the product's profile or selling options to offset existing exposures. We economically hedged the GMWB exposure, which includes interest rate risk and equity risk, using futures, options and interest rate swaps with notional amounts of \$1,179.0 million, \$1,119.6 million, and \$5,373.1 million, respectively, as of March 31, 2020, and notional amounts of \$292.0 million, \$1,079.6 million, and \$5,003.1 million, respectively, as of December 31, 2019. The fair value of both the GMWB embedded derivative and associated hedging instruments are sensitive to financial market conditions and the variance related to the change in fair value of these items for a given period is largely dependent on market conditions at the end of the period.

Item 4. Controls and Procedures

Disclosure Controls and Procedures

In order to ensure that the information that we must disclose in our filings with the SEC is recorded, processed, summarized and reported on a timely basis, we have adopted disclosure controls and procedures. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by us in the reports that we file with or submit to the SEC is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Our Chief Executive Officer, Daniel J. Houston, and our Chief Financial Officer, Deanna D. Strable-Soethout, have reviewed and evaluated our disclosure controls and procedures as of March 31, 2020, except as noted below, and have concluded our disclosure controls and procedures are effective.

Our assessment of the effectiveness of disclosure controls and procedures excludes the operations and related assets of the Acquired Business, which closed on July 1, 2019. For additional information regarding the acquisition, see Part I, Item 2. "Management's Discussion and Analysis of Financial Condition and Results of Operations — Transactions Affecting Comparability" under the caption "Wells Fargo Institutional Retirement Trust Business." We are in process of evaluating internal control over financial reporting for the Acquired Business and, accordingly, have excluded its controls from our evaluation of disclosure controls and procedures. For the three months ended March 31, 2020, the Acquired Business's revenues related to operations represented 2% of our consolidated total revenues. As of March 31, 2020, the Acquired Business's assets related to operations represented less than 1% of our consolidated total assets.

Changes in Internal Control Over Financial Reporting

Other than the acquisition of the Acquired Business discussed above, we had no change in our internal control over financial reporting during our last fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II — OTHER INFORMATION

Item 1. Legal Proceedings

Disclosure concerning legal proceedings can be found in Part I, Item 1. "Financial Statements, Notes to Unaudited Condensed Consolidated Financial Statements, Note 8, Contingencies, Guarantees and Indemnifications" under the caption, "Litigation and Regulatory Contingencies," which is incorporated here by this reference.

Item 1A. Risk Factors

In addition to the other information set forth in this report, consideration should be given to the factors discussed in Part I, Item 1A. "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2019. If any of those factors were to occur, they could materially adversely affect our business, financial condition or future results, and could cause actual results to differ materially from those expressed in forward-looking statements in this report. While we have not had material changes with respect to the risk factors discussed in our Annual Report on Form 10-K for the year ended December 31, 2019, we are adding the risk factor set out below.

The ongoing COVID-19 pandemic and the resulting financial market impacts could adversely affect our business, results of operations, financial condition and liquidity.

In March 2020, the World Health Organization declared the outbreak of COVID-19 as a pandemic. COVID-19 continues to spread in the United States and throughout the world. Federal, state and local governments have taken various actions to limit the spread of the disease, including quarantines, travel restrictions, limitations on gatherings, closures of businesses and other social distancing measures. The COVID-19 pandemic and the efforts to contain the outbreak have led to significant economic disruption, including declines in interest rates and equity prices, extreme volatility in financial markets, fluctuations in foreign currency exchange rates, reduced economic activity and a sharp increase in unemployment claims.

The COVID-19 pandemic may have material adverse impacts on our business, results of operations and financial condition. Specific impacts may include, but are not limited to, increased claims in our life and disability insurance business, operational disruptions, health risks to our employees, an increase in defaults on our fixed maturity and mortgage loan portfolios and a reduction in the value and liquidity of our invested assets. In addition, rising unemployment as a result of state mandated temporary business closures may lead to lower sales in our businesses, reduced in-group growth in our Specialty Benefits insurance business and a decline in employee deposits into retirement plans. Ongoing economic disruptions may lead to further declines and volatility in interest rates or equity prices, either of which could adversely affect our results of operations and financial condition. For more information, see Item 1A. "Risk Factors – Volatility or declines in the equity, bond or real estate markets could reduce our AUM and may result in investors withdrawing from the markets or decreasing their rates of investment, all of which could reduce our revenues and net income" and "—Changes in interest rates or credit spreads or a sustained low interest rate environment may adversely affect our results of operations, financial condition and liquidity, and our net income can vary from period to period" in our Annual Report on Form 10-K for the year ended December 31, 2019.

Our foreign subsidiaries have historically intended to operate in a manner that will not cause them to be subject to additional income taxation due to having their central management and control exercised outside of their country of incorporation. However, our directors and personnel reside in various jurisdictions and often must travel to carry out their duties in accordance with such intended tax positions. Travel restrictions imposed as a result of the COVID-19 pandemic have limited, and may continue to limit, such travel. While we have implemented contingency plans to mitigate the impact of such travel restrictions, no assurances can be provided that we will not become subject to greater tax liabilities than anticipated due to restrictions on the ability of our directors and personnel to carry out their activities for the intended jurisdictions.

In addition, an increase in claims, surrenders, withdrawals or other cash demands may adversely impact our liquidity position. Volatility, uncertainty or disruptions in the capital or credit markets may further diminish our ability to meet liquidity needs. For more information, see Item 1A. "Risk Factors – Adverse capital and credit market conditions may significantly affect our ability to meet liquidity needs, as well as our access to capital and cost of capital" in our Annual Report on Form 10-K for the year ended December 31, 2019.

The extent of the impact of the COVID-19 pandemic will depend on numerous factors, all of which are highly uncertain and cannot be predicted. These factors include the length and severity of the outbreak, the responses of governments and private sector businesses, and the impacts on our customers, employees and vendors. In light of COVID-19 and its potential impacts, investors should carefully consider all the risks set forth in Item 1A. "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2019.

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

Issuer Purchases of Equity Securities

The following table presents the amount of our common share purchase activity for the periods indicated.

			Total number of shares purchased	tl	alue of shares nat may yet be
	Total number of shares	Average price paid	as part of publicly announced	purchased under the programs (in	
Period	purchased (1)	 per share	programs		millions) (2)
January 1, 2020 — January 31, 2020	2,078,273	\$ 55.26	2,075,857	\$	53.4
February 1, 2020 — February 29, 2020	1,013,055	\$ 55.20	965,166	\$	_
March 1, 2020 — March 31, 2020	1,349,175	\$ 45.19	1,107,799	\$	850.3
Total	4,440,503		4,148,822		

Maximum dollar

- (1) Includes the number of shares of common stock utilized to execute certain stock incentive awards and shares purchased as part of publicly announced programs.
- (2) In November 2018, our Board of Directors authorized a share repurchase program of up to \$500.0 million of our outstanding common stock, which was completed in February 2020. In February 2020, our Board of Directors authorized a share repurchase program of up to \$900.0 million of our outstanding common stock, which has no expiration.

Item 6. Exhibits

		Incorporated by r	
Exhibit Number	Description	Form	File Date
31.1	Certification of Daniel J. Houston		
31.2	Certification of Deanna D. Strable-Soethout		
32.1	Certification Pursuant to Section 1350 of Chapter 63 of Title 18 of the United States Code –		
	<u>Daniel J. Houston</u>		
32.2	<u>Certification Pursuant to Section 1350 of Chapter 63 of Title 18 of the United States Code –</u>		
	Deanna D. Strable-Soethout		
101	The following materials from Principal Financial Group, Inc.'s Quarterly Report on Form 10-Q		
	for the period ended March 31, 2020 formatted in iXBRL (Inline eXtensible Business Reporting		
	Language): (i) the Consolidated Statements of Financial Position, (ii) the Consolidated		
	Statements of Operations, (iii) the Consolidated Statements of Comprehensive Income, (iv) the		
	Consolidated Statements of Stockholders' Equity, (v) the Consolidated Statements of Cash		
	Flows and (vi) the Notes to Unaudited Consolidated Financial Statements.		
104	The cover page from Principal Financial Group, Inc.'s Quarterly Report on Form 10-Q for the		
	period ended March 31, 2020 formatted in iXBRL and contained in Exhibit 101.		
	127		

SIGNATURE

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.

PRINCIPAL FINANCIAL GROUP, INC.

Dated: April 29, 2020

By /s/ Deanna D. Strable-Soethout

Deanna D. Strable-Soethout

Executive Vice President and Chief Financial Officer

Duly Authorized Officer, Principal Financial Officer, and Principal Accounting Officer

CERTIFICATIONS

I, Daniel J. Houston, certify that:

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

Date: April 29, 2020

/s/ Daniel J. Houston

Daniel J. Houston

Chairman, President and Chief Executive Officer

CERTIFICATIONS

- I, Deanna D. Strable-Soethout, certify that:
- 1. I have reviewed this quarterly report on Form 10-Q of Principal Financial Group, Inc.;
- 2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
- 3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
- 4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
- 5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: April 29, 2020

/s/ Deanna D. Strable-Soethout
Deanna D. Strable-Soethout
Executive Vice President and Chief Financial Officer

Certification Pursuant to Section 1350 of Chapter 63 of Title 18 of the United States Code

I, Daniel J. Houston, Chairman, President and Chief Executive Officer of Principal Financial Group, Inc., certify that (i) the Form 10-Q for the period ended March 31, 2020, fully complies with the requirements of Section 13(a) of the Securities Exchange Act of 1934 and (ii) the information contained in the Form 10-Q for the period ended March 31, 2020, fairly presents, in all material respects, the financial condition and results of operations of Principal Financial Group, Inc.

/s/ Daniel J. Houston

Daniel J. Houston Chairman, President and Chief Executive Officer Date: April 29, 2020

Certification Pursuant to Section 1350 of Chapter 63 of Title 18 of the United States Code

I, Deanna D. Strable-Soethout, Executive Vice President and Chief Financial Officer of Principal Financial Group, Inc., certify that (i) the Form 10-Q for the period ended March 31, 2020, fully complies with the requirements of Section 13(a) of the Securities Exchange Act of 1934 and (ii) the information contained in the Form 10-Q for the period ended March 31, 2020, fairly presents, in all material respects, the financial condition and results of operations of Principal Financial Group, Inc.

/s/ Deanna D. Strable-Soethout

Deanna D. Strable-Soethout Executive Vice President and Chief Financial Officer Date: April 29, 2020