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The power of innovation.

4Q20 Earnings Presentation

Reinsurance Group of America, Incorporated

February 8, 2021

Safe Harbor

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 including, among others, statements relating to projections of the future operations, strategies, earnings, revenues, income or loss, ratios, financial performance and growth potential of the Company. Forward-looking statements often contain words and phrases such as “intend,” “expect,” “project,” “estimate,” “predict,” “anticipate,” “should,” “believe” and other similar expressions. Forward-looking statements are based on management’s current expectations and beliefs concerning future developments and their potential effects on the Company. Forward-looking statements are not a guarantee of future performance and are subject to risks and uncertainties, some of which cannot be predicted or quantified. Future events and actual results, performance, and achievements could differ materially from those set forth in, contemplated by or underlying the forward-looking statements.

The effects of the COVID-19 pandemic and the response thereto on economic conditions, the financial markets and insurance risks, and the resulting effects on the Company’s financial results, liquidity, capital resources, financial metrics, investment portfolio and stock price, could cause actual results and events to differ materially from those expressed or implied by forward-looking statements. Further, the estimates, projections, illustrative scenarios or frameworks used to plan for potential effects of the pandemic are dependent on numerous underlying assumptions and estimates that may not materialize. Additionally, numerous other important factors (whether related to, resulting from or exacerbated by the COVID-19 pandemic or otherwise) could also cause results and events to differ materially from those expressed or implied by forward-looking statements, including, without limitation: (1) adverse changes in mortality, morbidity, lapsation or claims experience, (2) inadequate risk analysis and underwriting, (3) adverse capital and credit market conditions and their impact on the Company’s liquidity, access to capital and cost of capital, (4) changes in the Company’s financial strength and credit ratings and the effect of such changes on the Company’s future results of operations and financial condition, (5) the availability and cost of collateral necessary for regulatory reserves and capital, (6) requirements to post collateral or make payments due to declines in market value of assets subject to the Company’s collateral arrangements, (7) action by regulators who have authority over the Company’s reinsurance operations in the jurisdictions in which it operates, (8) the effect of the Company parent’s status as an insurance holding company and regulatory restrictions on its ability to pay principal of and interest on its debt obligations, (9) general economic conditions or a prolonged economic downturn affecting the demand for insurance and reinsurance in the Company’s current and planned markets, (10) the impairment of other financial institutions and its effect on the Company’s business, (11) fluctuations in U.S. or foreign currency exchange rates, interest rates, or securities and real estate markets, (12) market or economic conditions that adversely affect the value of the Company’s investment securities or result in the impairment of all or a portion of the value of certain of the Company’s investment securities, that in turn could affect regulatory capital, (13) market or economic conditions that adversely affect the Company’s ability to make timely sales of investment securities, (14) risks inherent in the Company’s risk management and investment strategy, including changes in investment portfolio yields due to interest rate or credit quality changes, (15) the fact that the determination of allowances and impairments taken on the Company’s investments is highly subjective, (16) the stability of and actions by governments and economies in the markets in which the Company operates, including ongoing uncertainties regarding the amount of U.S. sovereign debt and the credit ratings thereof, (17) the Company’s dependence on third parties, including those insurance companies and reinsurers to which the Company cedes some reinsurance, third-party investment managers and others, (18) financial performance of the Company’s clients, (19) the threat of natural disasters, catastrophes, terrorist attacks, epidemics or pandemics anywhere in the world where the Company or its clients do business, (20) competitive factors and competitors’ responses to the Company’s initiatives, (21) development and introduction of new products and distribution opportunities, (22) execution of the Company’s entry into new markets, (23) integration of acquired blocks of business and entities, (24) interruption or failure of the Company’s telecommunication, information technology or other operational systems, or the Company’s failure to maintain adequate security to protect the confidentiality or privacy of personal or sensitive data and intellectual property stored on such systems, (25) adverse litigation or arbitration results, (26) the adequacy of reserves, resources and accurate information relating to settlements, awards and terminated and discontinued lines of business, (27) changes in laws, regulations, and accounting standards applicable to the Company or its business, (28) the effects of the Tax Cuts and Jobs Act of 2017 may be different than expected and (29) other risks and uncertainties described in this document and in the Company’s other filings with the Securities and Exchange Commission (“SEC”).

Forward-looking statements should be evaluated together with the many risks and uncertainties that affect the Company’s business, including those mentioned in this document and described in the periodic reports the Company files with the SEC. These forward-looking statements speak only as of the date on which they are made. The Company does not undertake any obligation to update these forward-looking statements, even though the Company’s situation may change in the future. For a discussion of these risks and uncertainties that could cause actual results to differ materially from those contained in the forward-looking statements, you are advised to see Item 1A – “Risk Factors” in the Company’s Annual Report on Form 10-K for the year ended December 31, 2019, as may be supplemented by Item 1A – “Risk Factors” in the Company’s subsequent Quarterly Reports on Form 10-Q.

Use of Non-GAAP Financial Measures

RGA uses a non-GAAP financial measure called adjusted operating income as a basis for analyzing financial results. This measure also serves as a basis for establishing target levels and awards under RGA's management incentive programs. Management believes that adjusted operating income, on a pre-tax and after-tax basis, better measures the ongoing profitability and underlying trends of the Company's continuing operations, primarily because that measure excludes substantially all of the effects of net investment-related gains and losses, as well as changes in the fair value of certain embedded derivatives and related deferred acquisition costs. These items can be volatile, primarily due to the credit market and interest rate environment, and are not necessarily indicative of the performance of the Company's underlying businesses. Additionally, adjusted operating income excludes any net gain or loss from discontinued operations, the cumulative effect of any accounting changes, tax reform, and other items that management believes are not indicative of the Company's ongoing operations. The definition of adjusted operating income can vary by company and this measure is not considered a substitute for GAAP net income.

RGA uses a second non-GAAP financial measure called adjusted operating revenues as a basis for measuring performance. This measure excludes the effects of net realized capital gains and losses, and changes in the fair value of certain embedded derivatives. The definition of adjusted operating revenues can vary by company and this measure is not considered a substitute for GAAP revenues.

Additionally, the Company evaluates its stockholders' equity position excluding the impact of accumulated other comprehensive income ("AOCI"), a non-GAAP financial measure. The Company believes it is important to evaluate its stockholders' equity position excluding the effect of AOCI because the net unrealized gains or losses included in AOCI primarily relate to changes in interest rates, changes in credit spreads on investment securities, and foreign currency fluctuations that are not permanent and can fluctuate significantly from period to period.

Book value per share before the impact of AOCI is a non-GAAP financial measure that management believes is important in evaluating the balance sheet in order to exclude the effects of unrealized amounts primarily associated with mark-to-market adjustments on investments and foreign currency translation.

Adjusted operating earnings per diluted share is a non-GAAP financial measure calculated as adjusted operating income divided by weighted average diluted shares outstanding. Adjusted operating return on equity is a non-GAAP financial measure calculated as adjusted operating income divided by average stockholders' equity excluding AOCI. Similar to adjusted operating income, management believes these non-GAAP financial measures better reflect the ongoing profitability and underlying trends of the Company's continuing operations. They also serve as a basis for establishing target levels and awards under RGA's management incentive programs.

Reconciliations of non-GAAP financial measures to the nearest GAAP financial measures are provided in the Appendix at the end of this presentation.

Key Messages

RGA is extremely proud of its employees, whose perseverance, dedication, and flexibility have allowed RGA to fulfill promises and support clients during these very difficult times. The company's operations continue to run smoothly and remain well-positioned for the long-term.

Results Demonstrated Resilience of RGA's Global Platform

- Adjusted operating EPS of $1.19[1] was solid, absorbing significant COVID-19 impacts
- Strong results for the year from many businesses
- Premiums grew 9%; capital deployed was $100 million
- Strong balance sheet, well-positioned to weather additional COVID-19 impact
- Excess capital of $1.3 billion with ample liquidity

COVID-19 Impact Is Material, but Manageable

- Q4 COVID-19 claim costs were at the low end of our internal model range
  - $230 million of estimated COVID-19 U.S. individual mortality claim costs
  - $70 million of estimated COVID-19 claim costs in all other operations
- Expect to see ongoing COVID-19 impacts, but continue to view as manageable due to our strong balance sheet, power of our earnings engine and benefits of our global diversified franchise

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[1] Please refer to "Reconciliations of Non-GAAP Measures" in the Appendix.

Estimated COVID-19 Impacts

- Mortality claim costs are at the low end of RGA's previously disclosed claim cost estimates relative to population deaths
- Continue to see lower insured population mortality relative to general population
- Modestly favorable longevity experience
- Expense savings primarily from lower incentive compensation and lower travel and entertainment
- Possible morbidity benefits due to COVID-19 not included as difficult to quantify

Estimated Pre-tax COVID-19 Impacts[1]	4Q20	2020[2]
Mortality and Morbidity	$(300)	$(720)
Longevity	$5	$33
General Expenses	$36	$97
Total	$(259)	$(590)

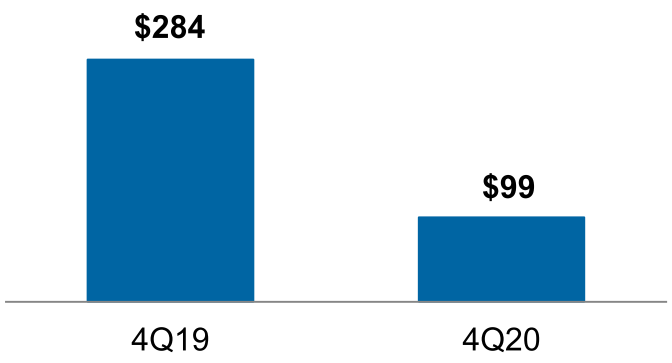
[1] $ in millions.
[2] Full year amounts include refinements to previous estimates based upon updated reporting.

Fourth Quarter Results

Pre-tax Adjusted Operating Income[1]

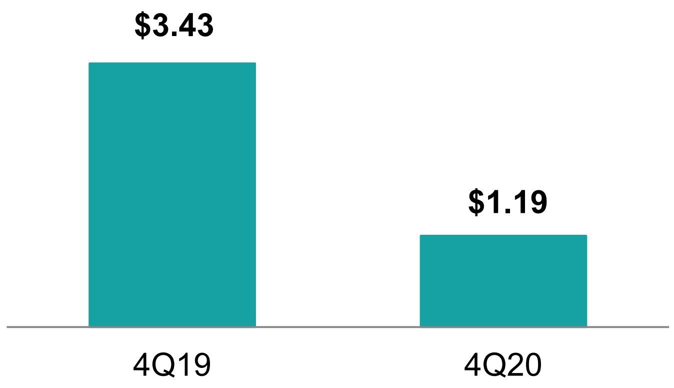
- Solid results, absorbing approximately **$259 million** of estimated COVID-19-related impacts[2]
- Results highlight RGA's well-diversified and resilient operating model

$ in millions



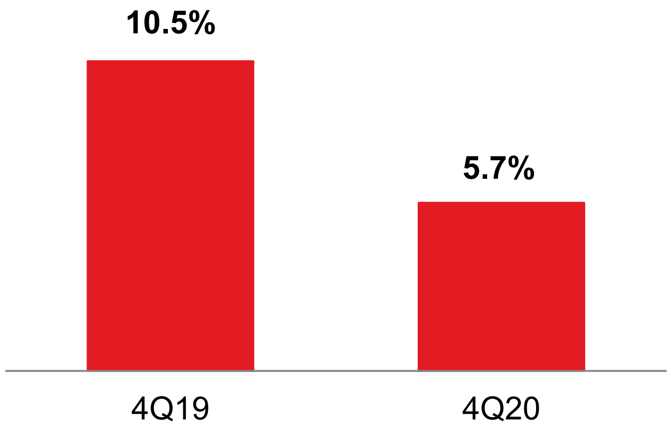
Adjusted Operating EPS[1]

- Adjusted operating income of $81 million
- Effective tax rate was 18.3% on pre-tax adjusted operating income
- Fourth quarter estimated COVID-19-related impacts[2] of approximately **$2.88 per diluted share**[3]



Trailing 12 Month Adjusted Operating ROE[1]

- Ongoing headwinds from COVID-19, low interest rates and foreign exchange rates
- Full year of estimated COVID-19-related impacts[2] reduced adjusted operating ROE by approximately **5.0%**[3]



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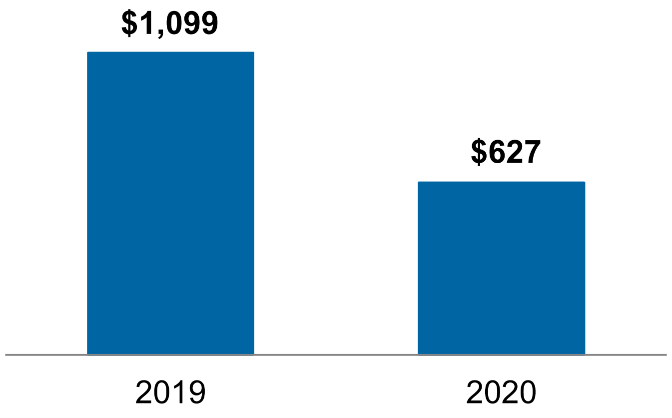
[1] Please refer to "Reconciliations of Non-GAAP Measures" in the Appendix.
[2] COVID-19-related impact estimates include mortality and morbidity claims with offsetting impacts from longevity and expense savings.
[3] Tax effected at 24%

Full Year Results

Pre-tax Adjusted Operating Income[1]

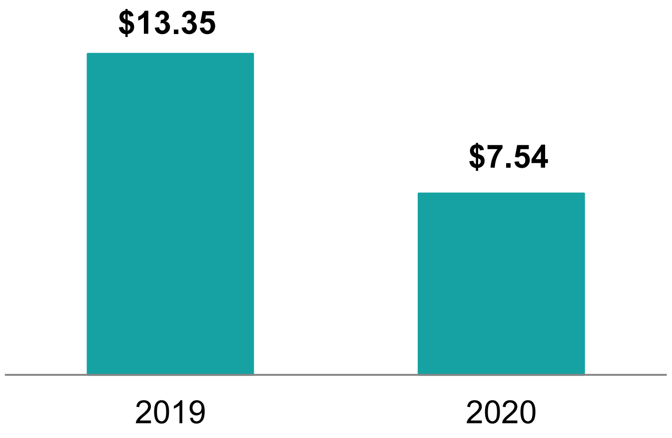
- Solid results, absorbing approximately **$590 million** of estimated COVID-19-related impacts[2]
- Results highlight RGA's well-diversified and resilient operating model

$ in millions



Adjusted Operating EPS[1]

- Adjusted operating income of $496 million
- Effective tax rate was 20.9% on pre-tax adjusted operating income
- Full year estimated COVID-19-related impacts[2] of approximately **$6.80 per diluted share**[3]



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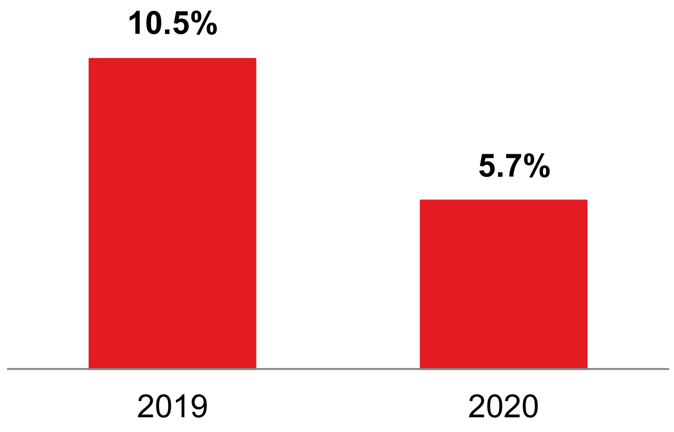

[1] Please refer to "Reconciliations of Non-GAAP Measures" in the Appendix.
[2] COVID-19-related impact estimates include mortality and morbidity claims with offsetting impacts from longevity and expense savings.
[3] Tax effected at 24%

Fourth Quarter Results by Segment

- U.S. and Latin America Traditional results reflect estimated excess individual mortality claim costs of approximately $230 million due to COVID-19; Individual Health and U.S. Group results were favorable
- U.S. and Latin America Asset-Intensive results reflect higher than expected variable investment income and favorable equity markets
- Canada Traditional results reflect modestly unfavorable individual mortality experience, primarily due to COVID-19, offset by favorable underwriting experience in the other lines of business
- EMEA Traditional results reflect estimated COVID-19 claim costs of approximately $20 million; EMEA Financial Solutions results reflect modestly unfavorable longevity experience
- APAC Traditional results reflect favorable overall experience in Asia, partially offset by a loss in Australia
- Corporate results in line with expected average run rate

Pre-tax Adjusted Operating Income (Loss)[1]	4Q20	4Q19
U.S. and Latin America Traditional	$(89)	$83
U.S. and Latin America Asset-Intensive	$70	$65
U.S. and Latin America Capital Solutions	$23	$26
Canada Traditional	$35	$27
Canada Financial Solutions	$8	$7
EMEA Traditional	$(13)	$23
EMEA Financial Solutions	$41	$73
APAC Traditional	$25	$12
APAC Financial Solutions	$23	$8
Corporate & Other	$(24)	$(40)
Total	$99	$284

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[1] $ in millions. Please refer to “Reconciliations of Non-GAAP Measures” in the Appendix.

Full Year Results by Segment

- Consolidated results for the year were solid, absorbing approximately $590 million of estimated COVID-19-related impacts[1]
- Strong results from many businesses, despite the impact of COVID-19
- Global Financial Solutions results were particularly good, with all regions performing well
- APAC Traditional results reflect favorable overall experience in Asia and a loss in Australia; loss in Australia was considerably smaller than previous year

Pre-tax Adjusted Operating Income (Loss)[2]	2020	2019
U.S. and Latin America Traditional	$(287)	$283
U.S. and Latin America Asset-Intensive	$253	$259
U.S. and Latin America Capital Solutions	$94	$83
Canada Traditional	$140	$161
Canada Financial Solutions	$21	$15
EMEA Traditional	$27	$80
EMEA Financial Solutions	$242	$216
APAC Traditional	$174	$105
APAC Financial Solutions	$54	$20
Corporate & Other	$(91)	$(123)
Total	$627	$1,099

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[1] COVID-19-related impact estimates include mortality and morbidity claims with offsetting impacts from longevity and expense savings.
[2] $ in millions. Please refer to “Reconciliations of Non-GAAP Measures” in the Appendix.

U.S. Individual Mortality

Favorable Q4 mortality, excluding COVID-19

- Excluding COVID-19, overall favorable experience of approximately $30 million driven by lower large claims
- Approximately $230 million of estimated claim costs, including $100 million of claims incurred but not reported (IBNR), attributed to COVID-19 based on known cause-of-death reporting, adjusted for reporting lags
  - At the low end of our expected range using previously disclosed claim cost estimates based on an estimated 139,000[1] reported U.S. population COVID-19 deaths
  - Not included in the above COVID-19 estimates is the impact of excess general population deaths not specifically identified as COVID-19
- For the full year, approximately $545 million of estimated claim costs attributed to COVID-19 based on known cause-of-death reporting, adjusted for reporting lags and IBNR
  - At the low end of our expected range using previously disclosed claim cost estimates based on an estimated 350,000[1] reported U.S. population COVID-19 deaths
  - Not included in the above COVID-19 estimates is the impact of excess general population deaths not specifically identified as COVID-19

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[1] Source: Our World in Data, https://ourworldindata.org/coronavirus-data-explorer?zoomToSelection=true&time=2020-03-01..latest&country=~USA&region=World&deathsMetric=true&interval=total&smoothing=0&pickerMetric=total_deaths&pickerSort=desc.

Investments Summary

- Our investment strategy strives to balance risk and return to build a portfolio to weather cycles; strong underwriting is foundational
- Investment portfolio credit performance continues to benefit from diligent selection; impairments remain below the low end of our previously provided stress scenario ranges
  - Q4 net impairments and change in allowances of approximately $3 million pre-tax
- Portfolio average quality of “A” maintained in the quarter
- Private market originations increased in Q4, and pipelines continued to build
- Variable investment income (VII) above the average run rate in Q4 reflecting both strong limited partnership realizations and commercial mortgage loan (CML) prepayments

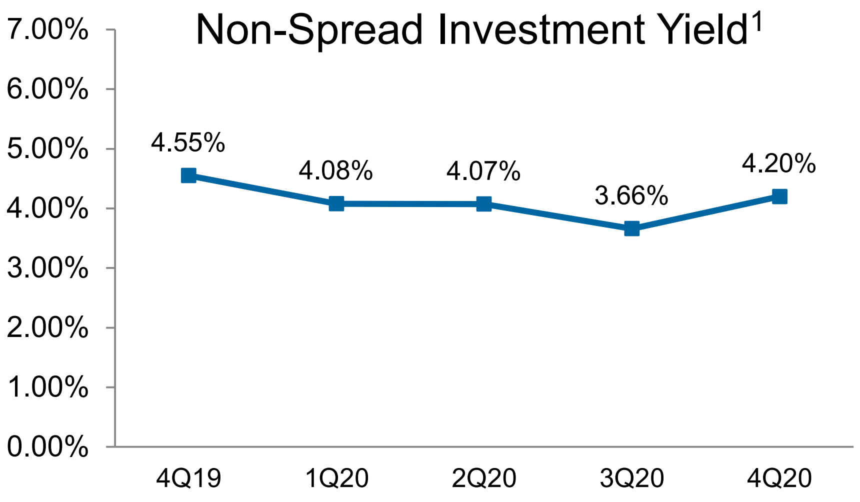
Non-Spread Investment Yield[1]

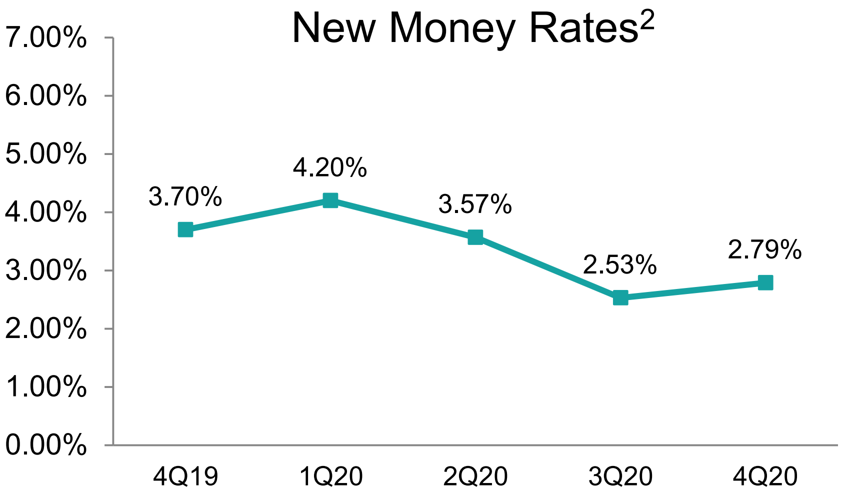
Non-Spread Investment Yield[1]

- Investment yield moved higher led by above average run rate for variable investment income

New Money Rates[2]

- New money rate rose to 2.79%
- Purchase yields increased modestly, as we took advantage of some spread sector and private market opportunities





[1] On an amortized cost basis, excluding spread business.
[2] Excludes cash, cash equivalents, and U.S. Treasury notes purchased.

Capital and Liquidity

Capital

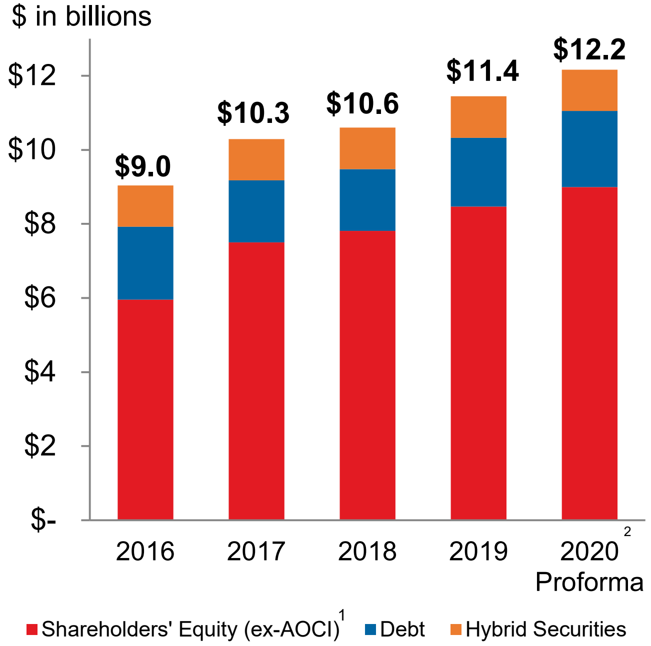
- Strong balance sheet with a stable capital mix
- Excess capital position of $1.3 billion

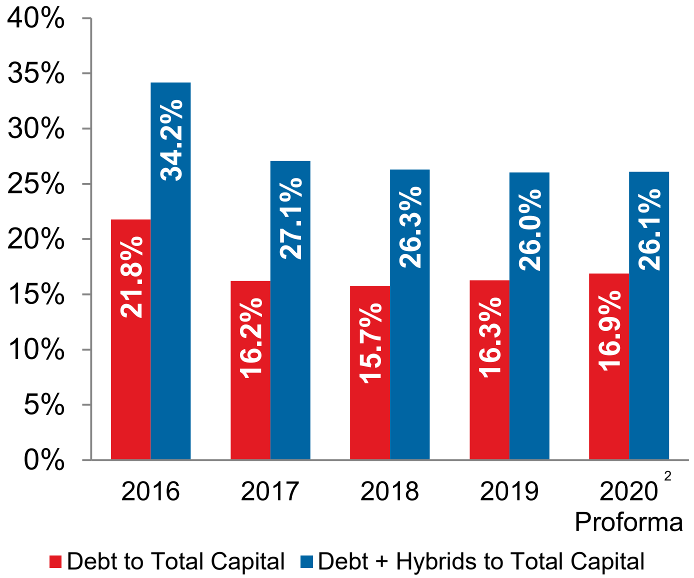
Leverage Ratios

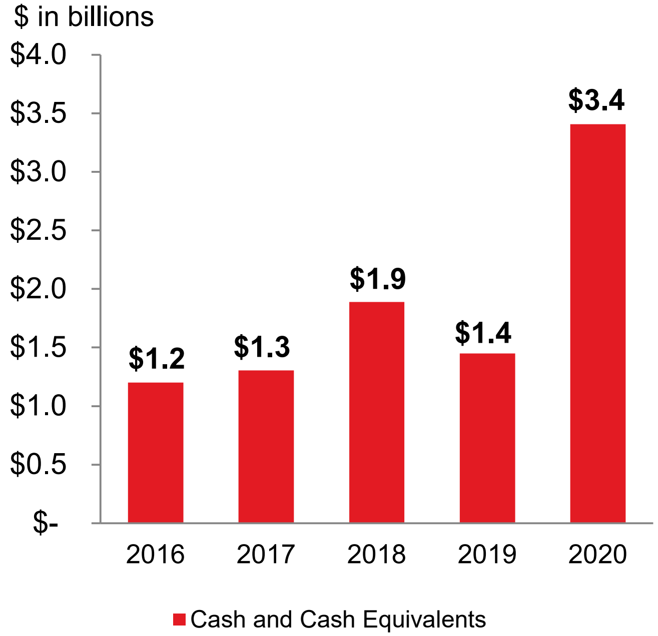
- Leverage ratios within our targeted ranges
- Pre-funded 2021 senior debt maturity

Ample Liquidity Available

- Continued to hold a high level of liquidity throughout 2020
- Access to $850 million syndicated credit facility and other sources







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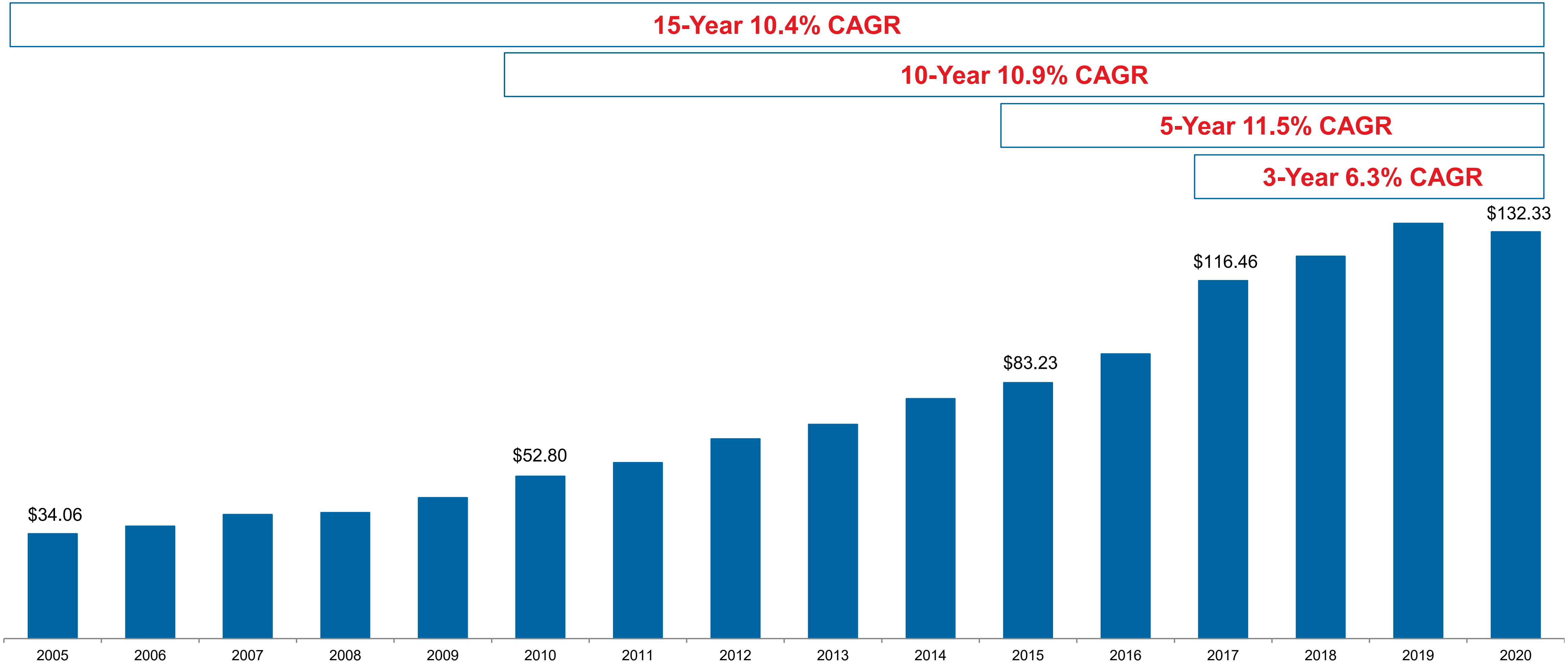
[1] Please refer to “Reconciliations of Non-GAAP Measures” in the Appendix.
[2] Assumes $400 million of senior notes due June 2021 are retired as of December 31, 2020, for a net debt issuance of $200 million. Senior notes due June 2021 will be repaid upon maturity.

COVID-19 Mortality Model Update

- Aggregate COVID-19-attributed claim costs continue to be at the low end of our expected range based on levels of reported general population deaths
  - Continue to see lower insured population mortality relative to general population
  - U.S. accounted for over 80% of COVID-19 mortality claim costs both for Q4 and for the full year
- Reiterating previously disclosed claim cost estimates for our major markets
  - Estimated $15 million to $25 million pre-tax mortality claims for every additional 10,000 U.S. population deaths
  - Estimated $4 million to $6 million pre-tax mortality claims for every additional 10,000 U.K. population deaths
  - Estimated $10 million to $15 million pre-tax mortality claims for every additional 10,000 Canada population deaths
- Q4 longevity experience was modestly favorable
- Expecting ongoing COVID-19 impact
  - Elevated claim levels expected to continue given the level of general population deaths so far in 2021
  - Expect the global rollout of vaccines to reduce the level of general population deaths, although uncertainty remains given COVID-19 variants

Consistent Execution Drives Track Record of Value Creation

Book value per share (ex-AOCI)[1] total return growth[2]



[1] Periods prior to 4Q06 not restated for 2012 DAC accounting change. Please refer to "Reconciliations of Non-GAAP Measures" in Appendix.
[2] CAGR growth of book value plus dividends.

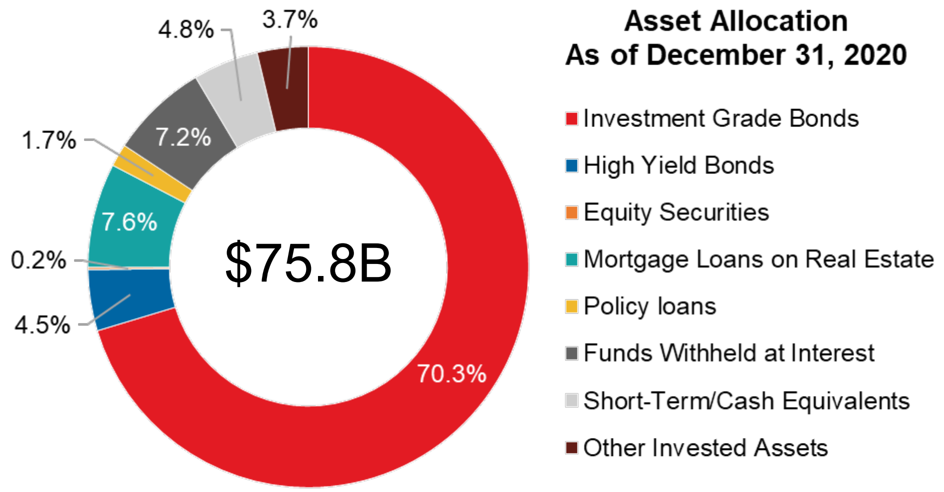
Outlook

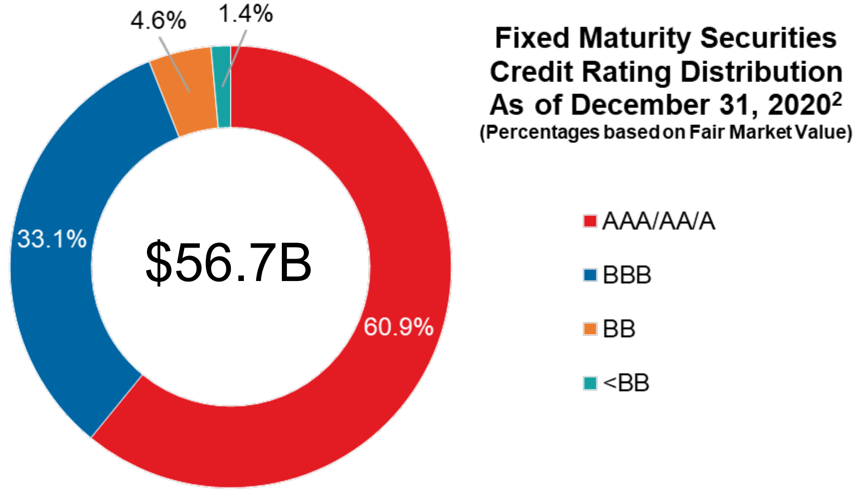
- Ongoing earnings power of the RGA franchise was demonstrated in 2020 and is intact for the future
- RGA has supported clients during COVID-19, reinforcing its position as a trusted and valued long-term partner
- COVID-19 has increased awareness and need for life insurance industry products and solutions
- Broad investment capabilities combined with well-constructed investment portfolio positions us to navigate through the low interest rate environment and future credit cycles
- RGA has a strong balance sheet and is well-positioned to withstand additional COVID-19 impacts and take advantage of emerging opportunities

Appendix

Diversified and High-Quality Portfolio

- Average portfolio credit rating: A
- 94.0% investment grade
- Short-term, cash and cash equivalents 4.8%, up from 4.6% in Q3
- CML average LTV 58.6%
- CLO book value $1.9 billion[1], AA average credit quality (94.4% A and above)
- Diversification and strong underwriting are core to our investment strategy
  - We believe BBB investments are defensively positioned; underweight energy, consumer cyclical, and BBB- allocations relative to broader index
  - Impairments and credit downgrades tracking below or at low end of our stress scenarios



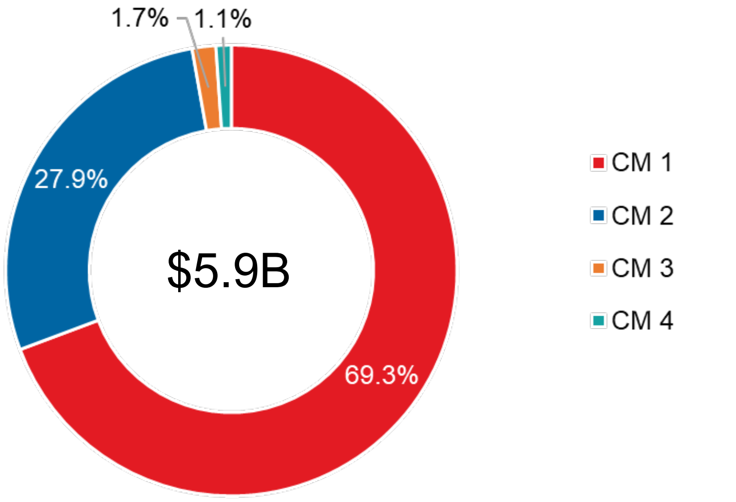


[1] Includes funds withheld.
[2] The Rating Agency Designation includes all "+" or "-" at that rating level (e. g. "BBB" includes "BBB+", "BBB", and "BBB-").
Note: Data as of December 31, 2020. Additional information on investments can be found in the Quarterly Financial Supplement available on the Investors page of RGA's website, rgare.com.

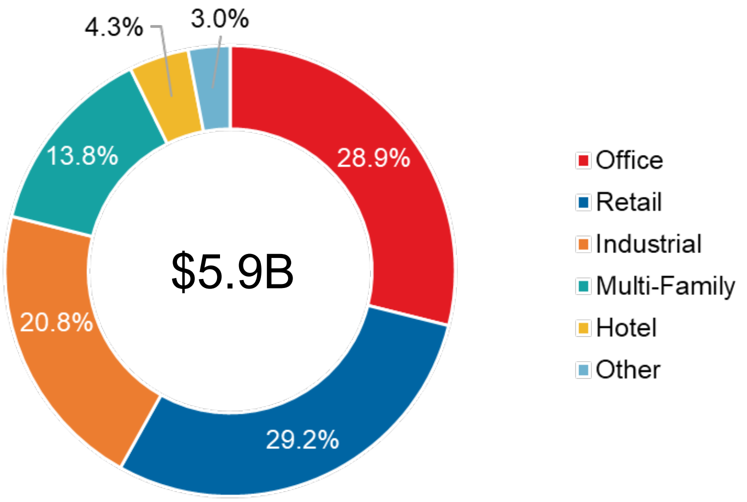
Commercial Mortgage Loans (CML)

- Team has managed through multiple real estate cycles; robust infrastructure to protect value in times of stress
- Portfolio underwriting metrics provide significant downside support
  - Loan to value of approximately 58%, significant borrower equity ahead of our investment
  - Debt service coverage (>1.8x), predictable income stream to make debt service payments
  - Well-laddered maturity profile coupled with amortization reduces maturity default risk
  - Portfolio well-diversified both geographically and by property type
  - Portfolio average loan balance ~$10 million
- Implemented interest only or payment deferral modifications for a small portion of the portfolio
- No loan impairments in 2020 due to COVID-19
- Portfolio delinquency 0.25% at end of Q4

Commercial Mortgage Investment by NAIC Rating



Commercial Mortgage Investment by Property Type



Pre-Tax Income (Loss) Reconciliation

- Investment impairments have slowed due to various improvements in the financial markets, while the allowance for commercial mortgage loans and other impairments increased due to macro economic factors
- Movement in other embedded derivatives (mostly B36) was primarily due to credit spreads tightening
- “Other derivative instruments” are primarily comprised of non-qualifying hedges (such as inflation increases in reinsured policyholder benefits) and investment strategies that utilize credit derivatives to replicate fixed income investments

$ in millions	1Q20	2Q20	3Q20	4Q20	2020 YTD
Pre-tax income (loss)	$ (96)	195	285	169	553
Investment-related					
Investment impairments and CECL[1]	47	22	5	3	77
Net gains/losses on sale of fixed maturity securities	(27)	(20)	25	(27)	(49)
Change in market value of equity securities and other	17	(15)	(5)	14	11
Derivative-related					
GMXBs[2] (net of hedging and DAC)	(36)	(36)	60	4	(8)
Other embedded derivatives (net of DAC)	121	2	(44)	(27)	52
Change in market value of other derivative instruments	95	(42)	(24)	(34)	(5)
Tax-related items and other	(3)	3	(1)	(3)	(4)
Pre-tax adjusted operating income	$ 118	109	301	99	627

[1] New accounting standard related to current expected credit losses.
[2] GMXBs are policy riders that provide a specified guaranteed minimum benefit. Examples include Guaranteed Minimum Withdrawal Benefits and Guaranteed Minimum Income Benefits.

Reconciliations of Non-GAAP Measures

Reconciliation of GAAP pre-tax income to pre-tax adjusted operating income

In millions	4Q19	4Q20	2019	2020
U.S. & Latin America Traditional				
GAAP pre-tax income (loss)	$ 85	$ (92)	$ 265	$ (298)
Capital (gains) losses, derivatives and other, net	-	-	-	-
Change in MV of embedded derivatives [1]	(2)	3	18	11
Pre-tax adjusted operating income	$ 83	$ (89)	$ 283	$ (287)
U.S. & Latin America Asset-Intensive				
GAAP pre-tax income	$ 78	$ 96	$ 315	$ 201
Capital (gains) losses, derivatives and other, net [1]	60	72	(81)	11
Change in MV of embedded derivatives [1]	(73)	(98)	25	41
Pre-tax adjusted operating income	$ 65	$ 70	$ 259	$ 253
U.S. & Latin America Capital Solutions				
GAAP pre-tax income	$ 26	$ 23	$ 83	$ 94
Pre-tax adjusted operating income	$ 26	$ 23	$ 83	$ 94
Canada Traditional				
GAAP pre-tax income	$ 28	$ 37	$ 168	$ 134
Capital (gains) losses, derivatives and other, net	(1)	(2)	(7)	6
Pre-tax adjusted operating income	$ 27	$ 35	$ 161	$ 140
Canada Financial Solutions				
GAAP pre-tax income	$ 7	$ 8	$ 15	$ 21
Pre-tax adjusted operating income	$ 7	$ 8	$ 15	$ 21
EMEA Traditional				
GAAP pre-tax income	$ 23	$ (13)	$ 80	$ 27
Pre-tax adjusted operating income	$ 23	$ (13)	$ 80	$ 27
EMEA Financial Solutions				
GAAP pre-tax income	$ 72	$ 38	$ 223	$ 258
Capital (gains) losses, derivatives and other, net	1	3	(7)	(16)
Pre-tax adjusted operating income	$ 73	$ 41	$ 216	$ 242

[1] Net of DAC offset

Reconciliations of Non-GAAP Measures

Reconciliation of GAAP pre-tax income to pre-tax adjusted operating income

In millions	4Q19	4Q20	2019	2020
Asia Pacific Traditional				
GAAP pre-tax income	$ 12	$ 25	$ 105	$ 174
Pre-tax adjusted operating income	$ 12	$ 25	$ 105	$ 174
Asia Pacific Financial Solutions				
GAAP pre-tax income (loss)	$ 13	$ 48	$ 23	$ 59
Capital (gains) losses, derivatives and other, net	(5)	(25)	(3)	(5)
Pre-tax adjusted operating income	$ 8	$ 23	$ 20	$ 54
Corporate and Other				
GAAP pre-tax income (loss)	$ (36)	$ (1)	$ (145)	$ (117)
Capital (gains) losses, derivatives and other, net	(4)	(23)	22	26
Pre-tax adjusted operating loss	$ (40)	$ (24)	$ (123)	$ (91)
RGA Consolidated				
GAAP pre-tax income	$ 308	$ 169	$ 1,132	$ 553
Capital (gains) losses, derivatives and other, net [1]	51	25	(76)	22
Change in MV of embedded derivatives [1]	(75)	(95)	43	52
Pre-tax adjusted operating income	$ 284	$ 99	$ 1,099	$ 627
GAAP net income	$ 235	$ 132	$ 870	$ 415
Capital (gains) losses, derivatives and other, net [1]	25	9	(43)	(6)
Change in MV of embedded derivatives [1]	(43)	(64)	18	66
U.S. tax reform and statutory tax rate changes	2	4	8	(21)
Adjusted operating income	$ 219	$ 81	$ 853	$ 454

[1] Net of DAC offset

Reconciliation of earnings-per-share to adjusted operating earnings-per-share

Diluted share basis	4Q19	4Q20	2019	2020
Earnings-per-share	$ 3.68	$ 1.94	$ 13.62	$ 6.31
Capital (gains) losses, derivatives and other, net [1]	0.40	0.12	(0.68)	(0.10)
Change in MV of embedded derivatives [1]	(0.68)	(0.93)	0.28	1.01
U.S. tax reform and statutory tax rate changes	0.03	0.06	0.13	0.32
Adjusted operating earnings-per-share	$ 3.43	$ 1.19	$ 13.35	$ 7.54

[1] Net of DAC offset

Reconciliations of Non-GAAP Measures

Reconciliation of GAAP stockholders' equity to stockholders' equity excluding AOCI

In millions	**2019**	**2020**
GAAP stockholders' equity	$ 11,602	$ 14,352
Less: Unrealized appreciation of securities	3,299	5,500
Less: Accumulated currency translation adjustments	(92)	(69)
Less: Unrecognized pension and post retirement benefits	(70)	(72)
Stockholders' equity excluding AOCI	$ 8,465	$ 8,993
GAAP stockholders' average equity	$ 10,391	$ 12,204
Less: Unrealized appreciation of securities	2,481	3,771
Less: Accumulated currency translation adjustments	(137)	(153)
Less: Unrecognized pension and post retirement benefits	(56)	(75)
Stockholders' average equity excluding AOCI	$ 8,103	$ 8,661

Reconciliation of trailing twelve months of consolidated net income to adjusted operating income and related return on equity (ROE)

	2019		2020	
Trailing twelve months	Income	ROE	Income	ROE
Net income	$ 870	8.4%	$ 415	3.4%
Reconciliation to adjusted operating income:				
Capital (gains) losses, derivatives and other, net	-23		7	
Change in fair value of embedded derivatives	23		59	
Deferred acquisition cost offset, net	(25)		(6)	
Tax expense on uncertain positions	8		21	
Adjusted operating income	$ 853	10.5%	$ 496	5.7%

Reconciliation of book value per share to book value per share excluding AOCI

	2005	2006	2007	2008	2009	2010	2011	2012
Book value per share	$ 41.38	$ 43.64	$ 48.70	$ 33.54	$ 49.87	$ 64.96	$ 79.31	$ 93.47
Less: Effect of unrealized appreciation of securities	5.92	5.46	5.05	(7.62)	1.43	8.88	19.35	25.40
Less: Effect of accumulated currency translation adjustments	1.40	1.77	3.43	0.35	2.80	3.48	3.13	3.62
Less: Effect of unrecognized pension and post retirement benefits	-	(0.18)	(0.14)	(0.20)	(0.22)	(0.20)	(0.42)	(0.50)
Book value per share excluding AOCI	$ 34.06	$ 36.59	$ 40.36	$ 41.01	$ 45.86	$ 52.80	$ 57.25	$ 64.95

Periods prior to 2006 not restated for 2012 DAC accounting change.

	2013	2014	2015	2016	2017	2018	2019	2020
Book value per share	$ 83.87	$ 102.13	$ 94.09	$ 110.31	$ 148.48	$ 134.53	$ 185.17	$ 211.19
Less: Effect of unrealized appreciation of securities	11.59	23.63	14.35	21.07	34.14	13.63	52.65	80.94
Less: Effect of accumulated currency translation adjustments	2.93	1.19	(2.78)	(2.68)	(1.34)	(2.69)	(1.46)	(1.02)
Less: Effect of unrecognized pension and post retirement benefits	(0.31)	(0.72)	(0.71)	(0.67)	(0.78)	(0.80)	(1.12)	(1.06)
Book value per share excluding AOCI	$ 69.66	$ 78.03	$ 83.23	$ 92.59	$ 116.46	$ 124.39	$ 135.10	$ 132.33