The Hanover Insurance Group, Inc. (NYSE: THG)

Keefe, Bruyette & Woods Conference

September 10, 2020

The Hanover Insurance Group®

Key Messages

- Diversified franchise; achieving broad-based profitability through:
  - Differentiated agency-focused distribution strategy
  - Specialized and comprehensive portfolio mix, which provides continual growth opportunities
  - Conservative underwriting practices and mix management
- Well-positioned to thrive in the current and dynamic market environment
- Financial results and top-quartile returns validate our strategy
- Ambitious and achievable long-term target of 13% operating ROE

The Hanover Insurance Group®

~$4.6B net written premium P&C franchise with exceptional opportunities

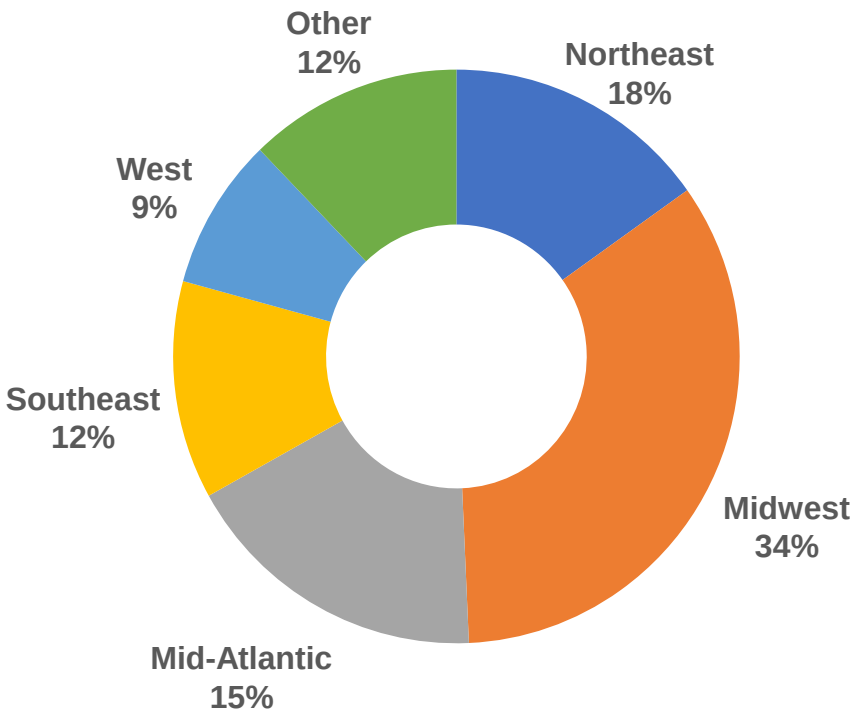
~$3.7B	$4.9B	12.8%	“A”
Market Capitalization*	2019 Revenue	2019 Adjusted Operating ROE(1)	Financial strength

*As of the close of trading on 9/9/2020

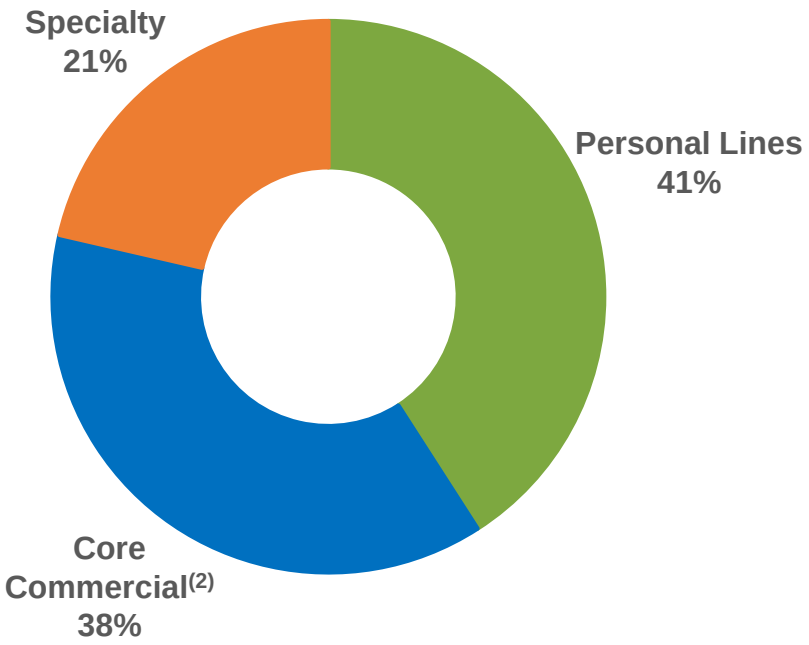
Well-diversified franchise with ***broad*** and ***relevant*** product mix

$4.6B 2019 Net Premiums Written

Geographic mix

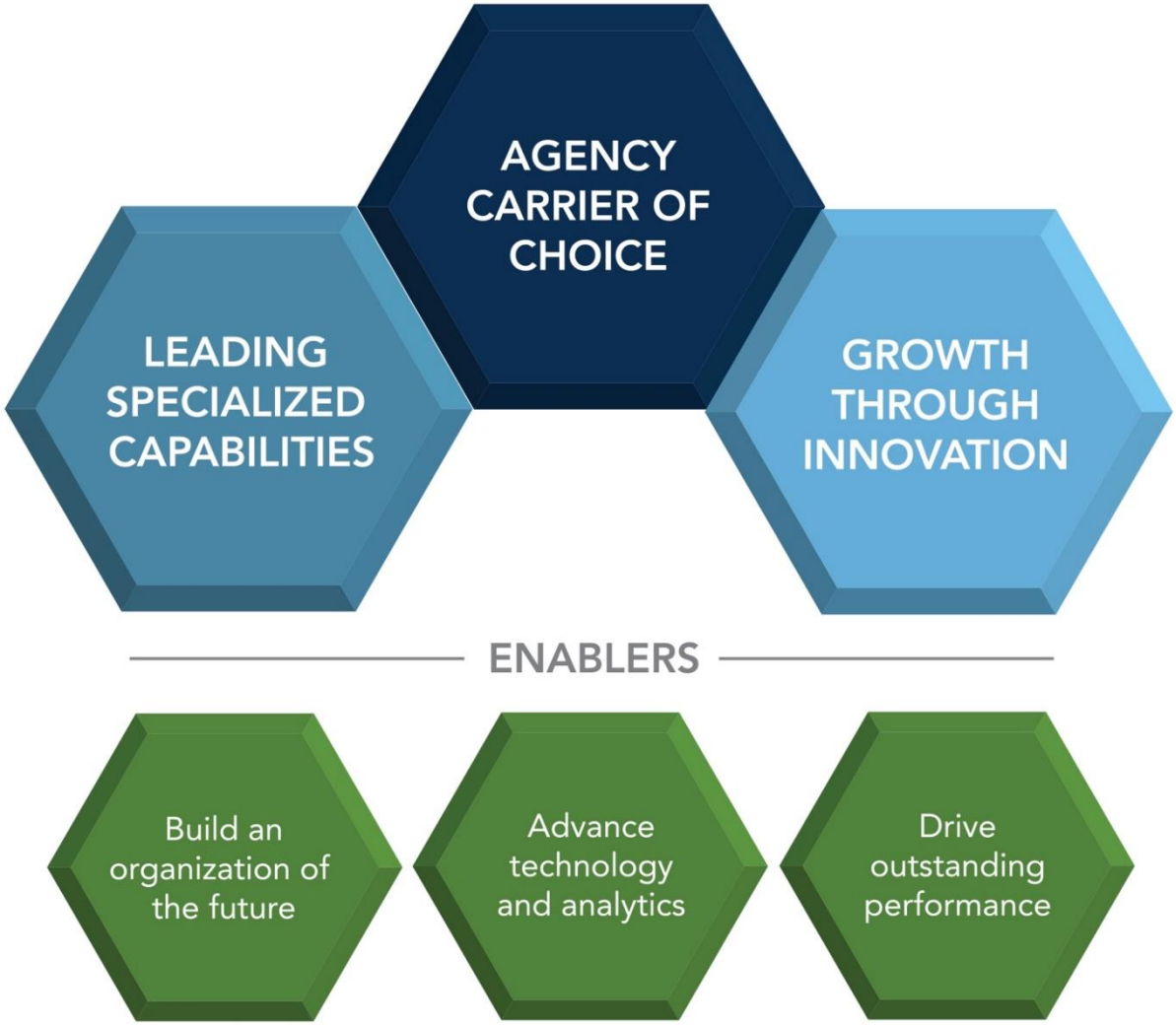


Business mix



The Hanover Insurance Group®

Our Vision: To be the premier property and casualty franchise in the independent agency channel



The Hanover Insurance Group®

Agency carrier of choice

Unique agency distribution approach

Targeted distribution

2,100 of the best agents in the U.S.

7% average agency market share

Underwriting expertise

Differentiated products

Insight through data and analytics

Local presence with 49 offices

Deep business insights

$60B of target market data profiled

Pursuit of informed opportunities

The Hanover Insurance Group®

Strong and leverageable distribution platform

Agent segmentation

The Hanover focus

Segment	# of Agents in U.S.	# of Target Agents	The Hanover share
1. Top 3 brokers	3	Limited	
1a. Top 4 – 10 brokers	7	7	4%
2. Top 200	200	150	5%
3. Regional agents	1,500	500	8%
4. Mid-size agents	≈7,000	1,000	16%
5. Small agents	≈26,000	450	22%
Total	**≈35,000**	**≈2,100**	**7%**

The Hanover Insurance Group®

Bringing agents along in our journey to enhance innovative solutions throughout the insurance value chain

Customer Acquisition	Selling, Underwriting, Binding	Customer Servicing
Finding and retaining customers through our agents	Underwriting data gathering / sharing	Policy administration and claims handling
insurago	**Workflow efficiency**	**Digital servicing**
Digital distribution	**Data analytics**	**Claims digital reporting and handling**
Digital customer acquisition	**Telematics and IOT pilots**	

The Hanover Insurance Group®

Leading specialized capabilities

Differentiation is key

Core Commercial

Industry specialization and unique operating model

68% Account Business

Specialty

Robust and relevant specialty offerings

~$1.0B Diversified Portfolio

Personal Lines

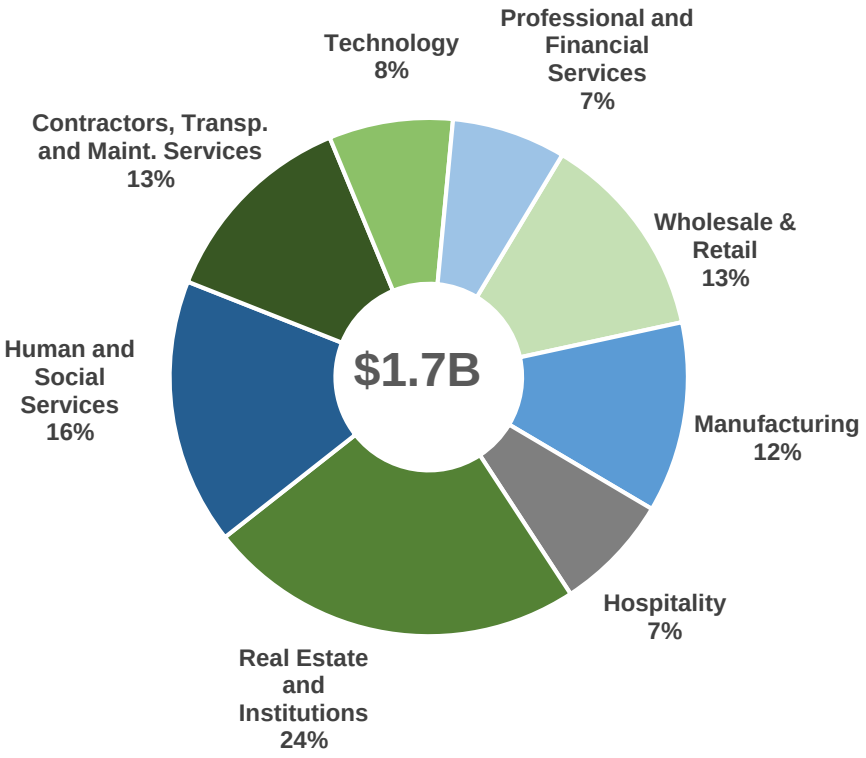
Account offering for customers with complex needs

85% Account Business

The Hanover Insurance Group®

Core Commercial – Industry specialization and unique operating model

2019 Net premiums written



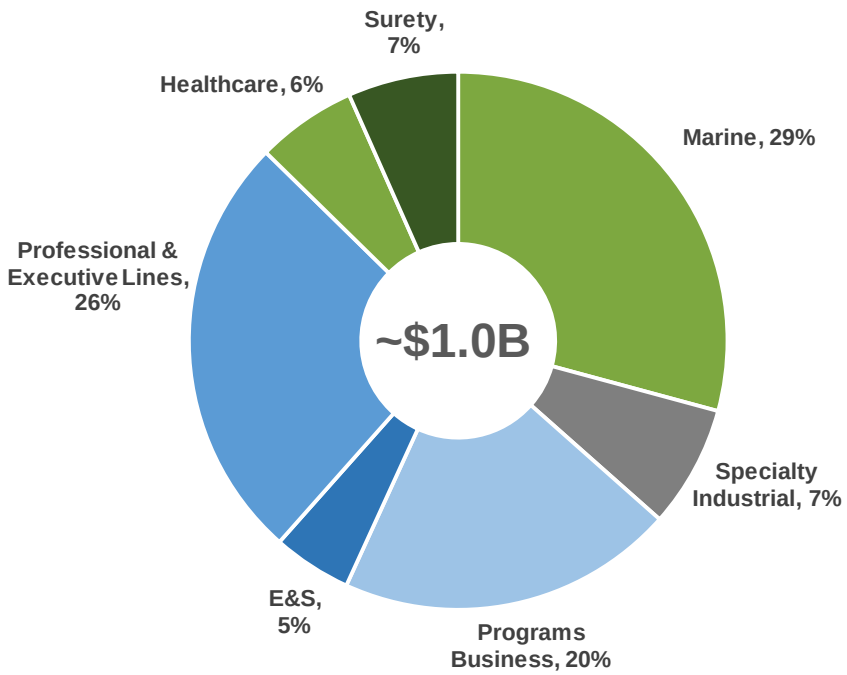
Areas for growth opportunities

- Further agency penetration
- New state of the art platform
- Enhanced product capabilities – Business Owners' Advantage

The Hanover Insurance Group®

Robust and relevant Specialty offerings

Specialty
2019 Net premiums written



Areas for growth opportunities

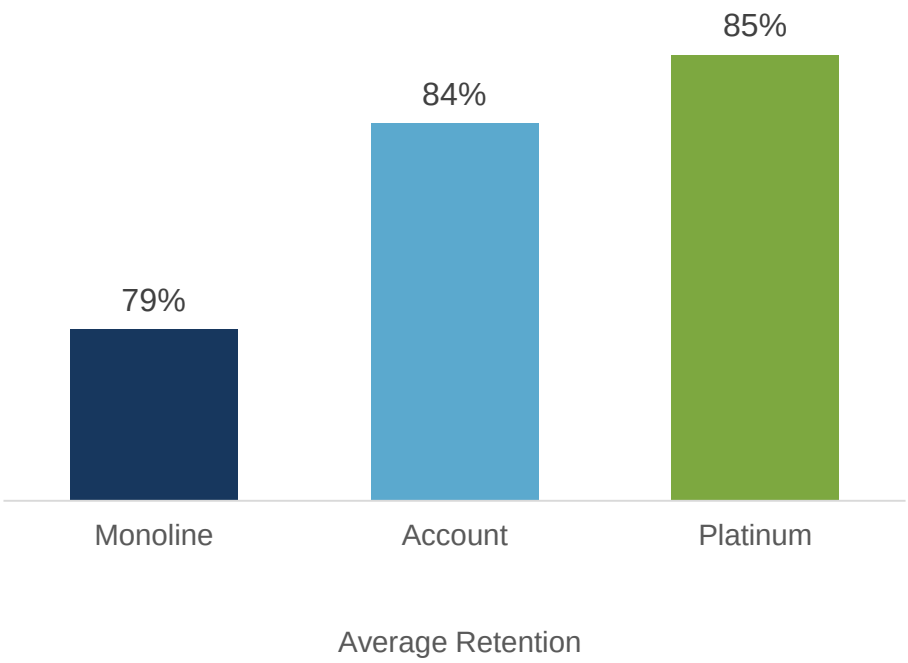
- Expanding product capabilities, including financial institutions and cyber
- Enhancing existing E&S platforms
- Expanding shelf space with agent partners
- Leveraging Core Commercial

The Hanover Insurance Group®

Complete, whole account-oriented Personal Lines offering for customers with complex needs

2019 Net premiums written
$1.9 billion

Maintain retention advantage with account and Hanover Platinum experience offering



Areas for growth opportunities

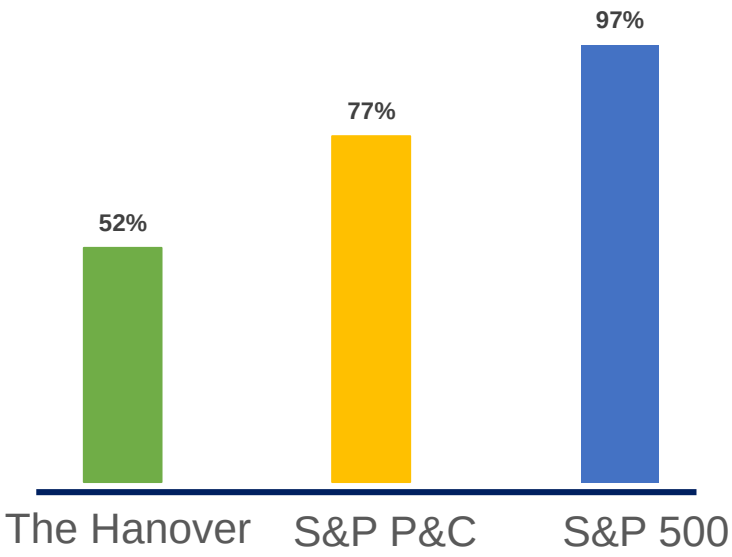
- Leveraging agent-centric distribution strategy to better serve customer needs and grow higher profit business
- New agency appointments in under-penetrated geographies

The Hanover Insurance Group®

Financial results validate The Hanover strategy

Made great financial strides over the last several years

5 Year Total Shareholder Return*



2019

12.8%
Adjusted operating ROE(1)

The Hanover Insurance Group®

* Based on September 4, 2015 through September 4, 2020. Assumes $100 invested on September 4, 2015 in the Hanover Insurance Group Inc.'s stock or applicable indices, including the reinvestment of dividends

Ambitious and achievable long-term goals

Strong financial platform for profitable growth

13% target operating ROE

Targeted profitable growth

Prioritizing margin over growth

Stable/ Improving loss ratio

Pricing increases and mix optimization

Financial Rigor and Expense Leverage

Continued expense discipline

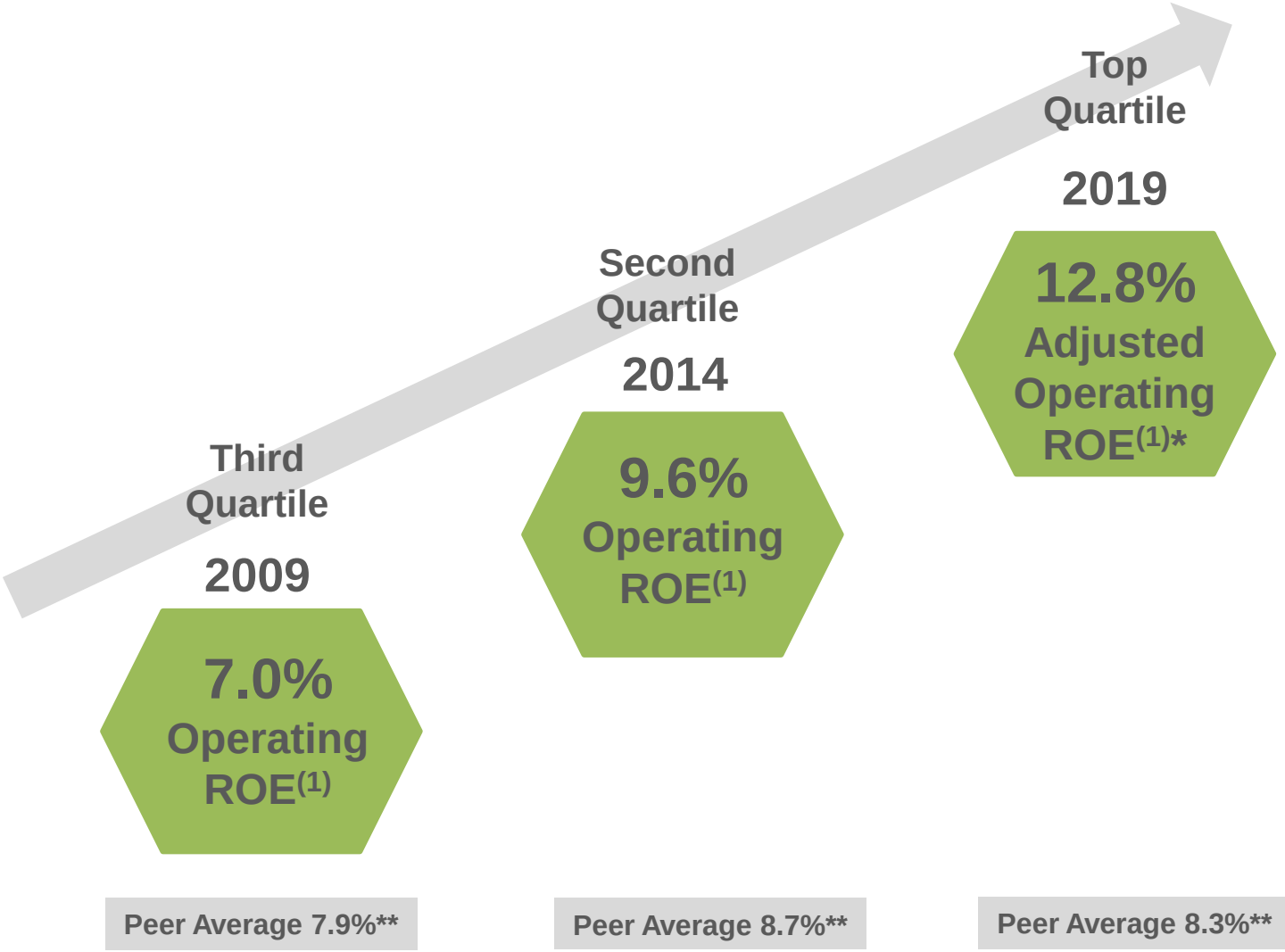
24-26% marginal expense ratio

Thoughtful capital management and allocation

The Hanover Insurance Group®

Strategic focus and financial rigor drive top-quartile ROE

Continuous portfolio management to deliver increased shareholder returns



* Adjusted for the un-deployed equity attributable to Chaucer, our former international specialty business we sold at the end of 2018.
** Source: S&P Global Market Intelligence. Peer set includes AFG, AIG, ARGO, AXS, CB, CINF, CNA, DGICA, HIG, HMN, JRVR, KMPR, MKL, MCY, ORI, PRA, PROS, SAFT, SIGI, STFC, ALL, TRV, UFCS, and WRB. The 2009 peer average does not include JRVR and PROS and 2014 does not include PROS as those companies went public in 2014 and 2019, respectively. Peer operating return on equity is calculated by taking full year operating income for each respective year and dividing by the average of the beginning and ending equity, excluding accumulated other comprehensive income, for each quarter in the respective year.

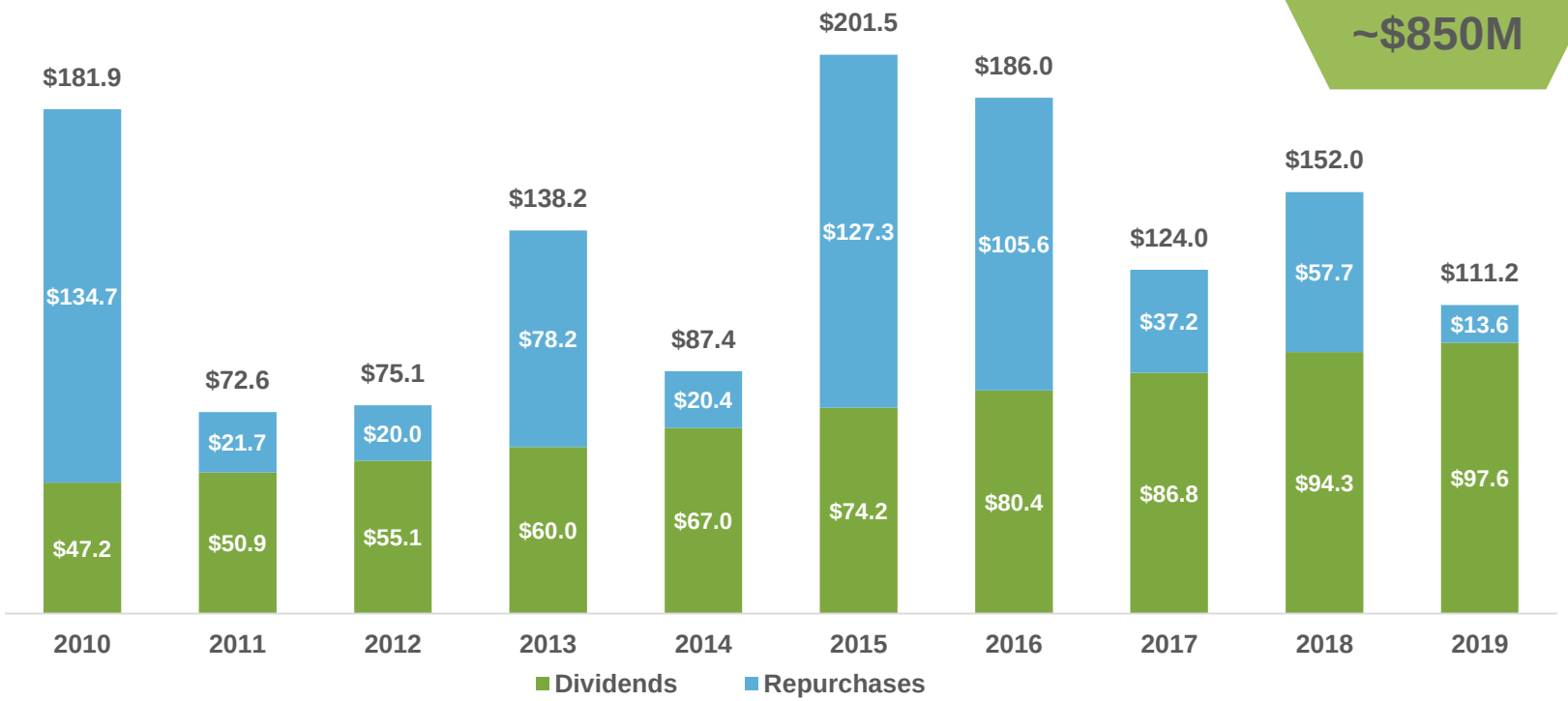
The Hanover Insurance Group®

History of Returning Excess Capital to Shareholders

Not included in graph is the capital returned from the sale of Chaucer:

~$850M

$ in millions



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Capital return as a percent of net income*	117.5%	197.8%	134.3%	55.1%	31.0%	60.8%	119.9%	66.6%	38.9%	26.2%*

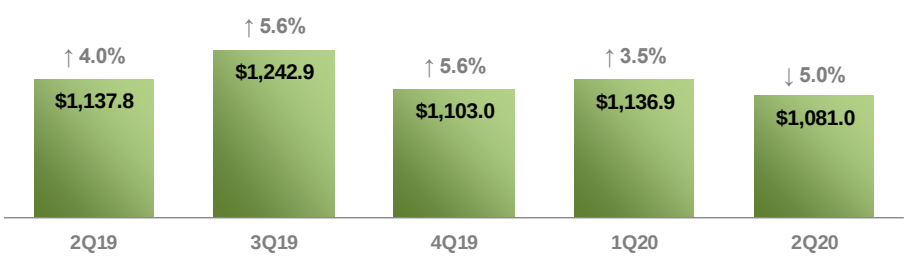
The Hanover Insurance Group®

* Net income is as reported and includes Chaucer

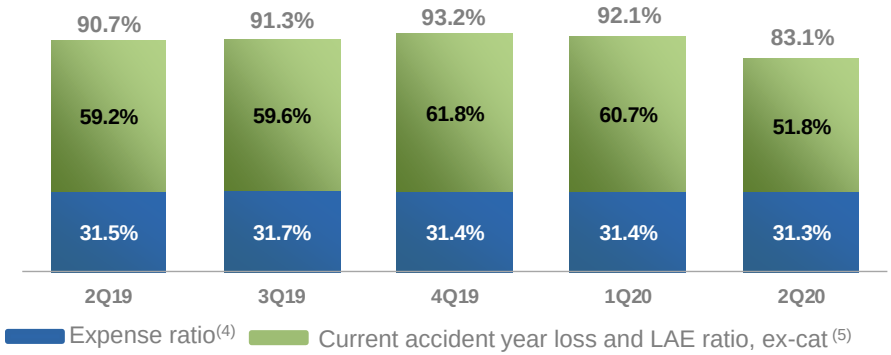
Second Quarter 2020 Financial Results

($ in millions)	Three months ended June 30 2019	2020
Net premiums written	$1,137.8	$1,081.0
Growth	4.0%	-5.0%
Net premiums earned	$1,111.0	$1,096.6
Combined ratio	96.1%	96.2%
Combined ratio, ex-cat[3]	90.7%	82.7%
Current accident year combined ratio, ex-cat [3]	90.7%	83.1%

Net premiums written and growth ($ in millions)



Current accident year combined ratio, ex-cat



Financial Update

- Strong results demonstrated by operating EPS[6] of $1.63 and operating ROE of 9.5%[1]
- Current accident year loss and loss adjustment expense ("LAE") ratio, excluding catastrophes[5], of 51.8%, which included favorable loss frequency in short-tail coverages, primarily Personal Auto, while prudently reserving for uncertainty in longer-tail lines
- Limited COVID-19-related loss activity experienced to date; increased COVID-19 loss reserves by $6 million to now include Workers' Compensation, bringing the total ultimate loss expectation to $19 million
- Catastrophe losses of $147.8 million, or 13.5 points, including favorable development on prior-year catastrophes of $7.0 million
- Net premiums written decrease of 5.0%*, primarily due to the impact of the Personal Auto premium return, lower new business and exposure reductions within Commercial Lines
- Core Commercial Lines rate increases[2] of 5.1% and 4.8% in Personal Lines [7]
- Book value per share of $81.10, up 12.6% from March 31, 2020, driven primarily by increases in the fair value of fixed income and net income

The Hanover Insurance Group®

* Unless otherwise stated, net premiums written growth and other growth comparisons are to the same period of the prior year.

COVID-19 Disclosures - Based on information as of July 28, 2020*

Thoughtful underwriting practices and carefully constructed business mix mitigate exposure

Well-positioned to successfully navigate the current environment:

- Thoughtful and conservative underwriting practices
- Broad, well-diversified business mix and broad-based profitability
  - 40% Personal Lines
  - 60% Commercial Lines, split evenly between Small, Middle Market and Specialty businesses
  - No exposure to event cancellation, travel insurance or trade credit
  - Workers' Compensation is ~7% of overall portfolio; No exposure to first responders or hospitals, and limited exposure to non-hospital medical facilities

Expect COVID-19 impacts to be manageable:

- COVID-19 loss reserve ultimate of $19 million includes a provision for business interruption and Workers' Compensation compensability regulation
- Claims activity against these reserves is consistent with expectations

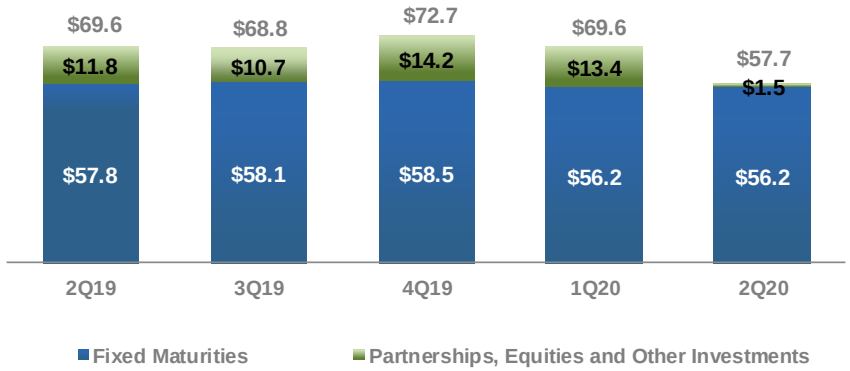
*Based on information as of July 28, 2020. This presentation and the content thereof must be read and interpreted in conjunction with information regarding risk factors and forward-looking information as set forth in this presentation and in the company's most recently filed reports on Form 10-K and Form 10-Q and other documents filed by The Hanover Insurance Group, Inc. with the Securities and Exchange Commission ("SEC") and that are also available at www.hanover.com under "Investors."

The Hanover Insurance Group®

Net Investment Income Trends

($ in millions)

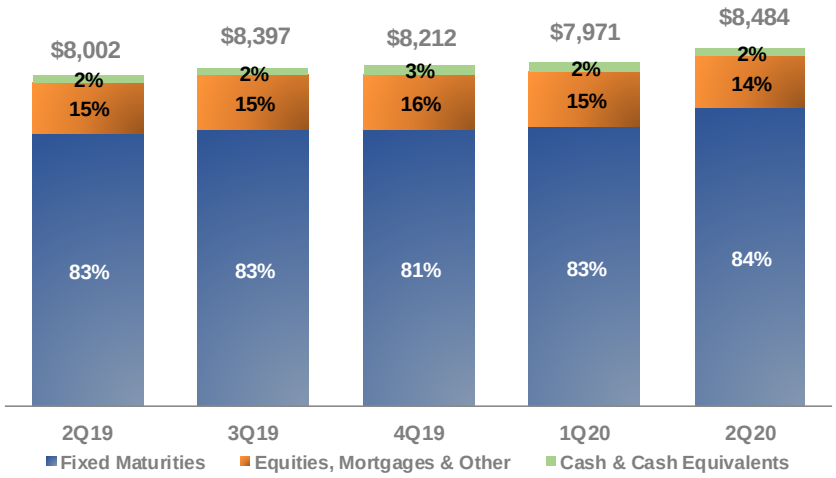
Net Investment Income*



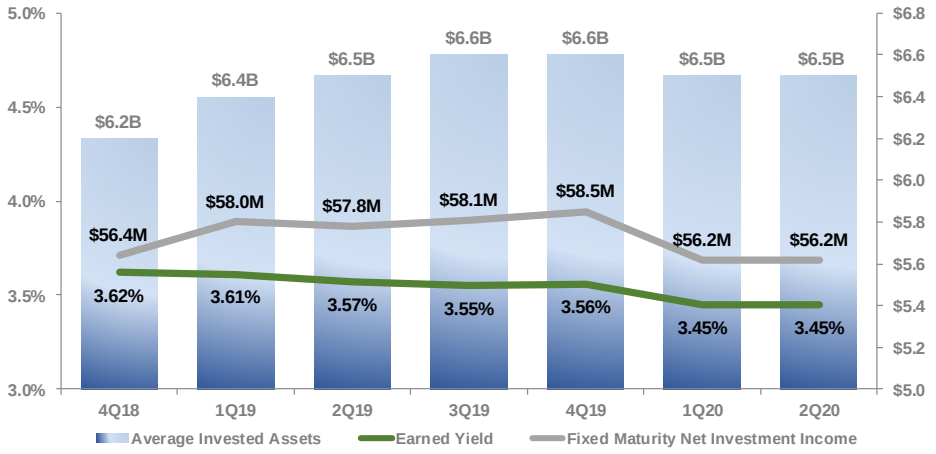
- Net investment income of $57.7 million in the second quarter, down from $69.6 million in the prior-year quarter due to:
  - Decline in the fair value of limited partnerships, which is reported on a quarter lag
  - Lower fixed income due to continued low interest rate environment

($ in millions)

Cash and Invested Assets



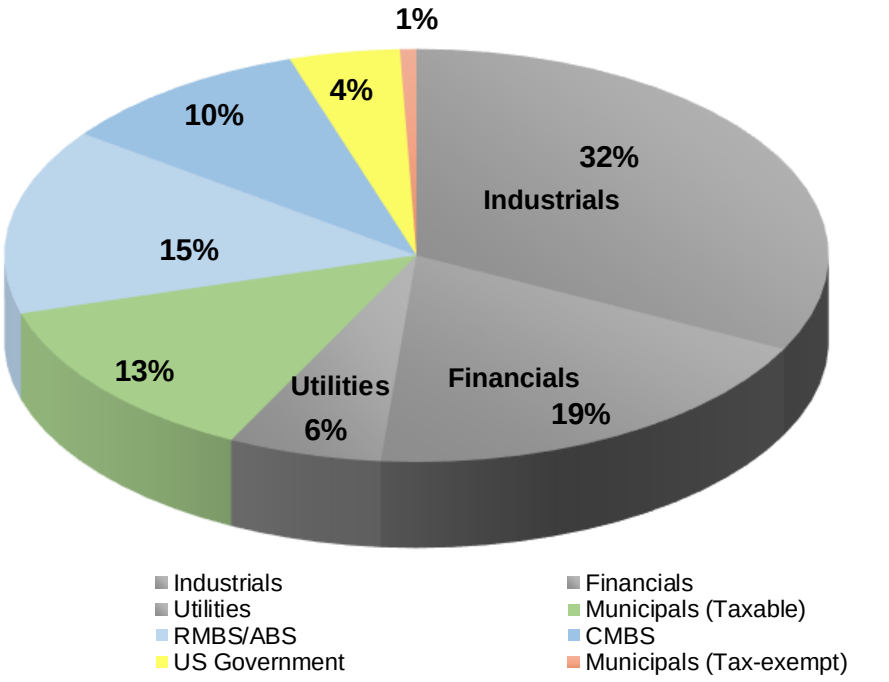
Fixed Maturity Investment Portfolio Trends



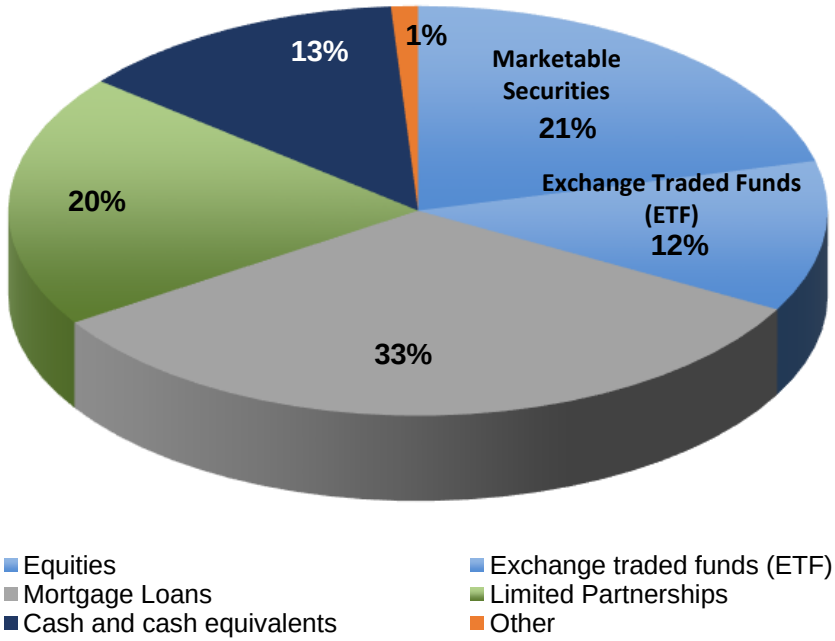
*Net Investment Income from Partnerships, Equities and Other investments is presented net of investment expenses

Investment Portfolio Holdings – Total Invested Assets and Cash of $8.5B
As of June 30, 2020

Fixed Maturities: $7.1 Billion



Equities, Cash and Other: $1.4 Billion



Fixed Income Characteristics:

- 96% of fixed maturity securities are investment grade
- Weighted average quality: A+
- Duration: 4.4 years

The Hanover Insurance Group®

Well-positioned to thrive in the current dynamic market environment

- Unique agency-focused distribution strategy continues to differentiate The Hanover
- Balanced and robust portfolio provides broad-based profitability across the business
- Leveraging our industry leading agency insights to identify attractive market opportunities
- Top-tier talent and expertise to win in the current market

The Hanover Insurance Group®

Appendix

Strong and experienced Executive Leadership



John "Jack" Roche

President and Chief Executive Officer

- Appointed president and chief executive officer of The Hanover in November 2017
- Served in several senior leadership positions since joining The Hanover in 2006, responsible for personal and commercial lines, field operations, marketing and distribution, as well as commercial lines underwriting and product management
- Served in senior management roles at the St. Paul Travelers Companies
- Began his career at Fireman's Fund and Atlantic Mutual Insurance
- Serves on the board of directors for The Institutes and American Property Casualty Insurance Association



Jeff Farber

Executive Vice President,
Chief Financial Officer

- Successful track record in the insurance and financial services industries over the last 30 years
- Held senior executive roles at American International Group
- Served as chief financial officer of GAMCO Investors, Inc., a publicly-traded asset manager
- Held senior accounting and finance roles at The Bear Stearns Companies, Inc.
- Began career at Deloitte & Touche LLP, rising to partner in the firm



Richard "Dick" Lavey

Executive Vice President,
President, Hanover Agency Markets

- 30 years in property and casualty industry, 15 with The Hanover
- Multiple leadership roles in the home office as well as the field, including President of Field Operations, President of Personal Lines, Chief Marketing Officer and Chief Growth Innovation Officer
- Vice president of strategic initiatives for The Hartford's property and casualty organization and vice president, strategic marketing for The Hartford's small commercial division
- Began career at The Travelers Insurance Company
- Phi Beta Kappa graduate of The College of The Holy Cross and MBA degree from Harvard Business School



Bryan Salvatore

Executive Vice President,
President, Specialty

- 25 years of experience in the specialty business
- Served for 20 years with Zurich North America, including nearly five years as president of the company's specialty products business
- Led the rebuilding of Zurich's presence in the accident and health insurance space
- Director in the programs division of Frank Crystal & Co., Inc., a leading brokerage firm

The Hanover Insurance Group®

Forward-Looking Statements and Additional Risks and Uncertainties

Forward-Looking Statements

Certain statements in this document and comments made by management may be "forward-looking statements" as defined in the Private Securities Litigation Reform Act of 1995. All statements, other than statements of historical facts, may be forward-looking statements. Words such as, but not limited to, "believes," "anticipates," "expects," "may," "projects," "projections," "plan," "likely," "potential," "targeted," "forecasts," "should," "could," "continue," "outlook," "guidance," "modeling", "moving forward", "going forward", "trajectory", and other similar expressions are intended to identify forward-looking statements. Forward-looking statements by their nature address matters that are, to different degrees, uncertain. The company cautions investors that any such forward-looking statements are estimates, beliefs, expectations and/or projections that involve significant judgement, and that historical results, trends and forward-looking statements are not guarantees and are not necessarily indicative of future performance. Actual results could differ materially from those anticipated.

These statements include, but are not limited to, the company's statements regarding:

- The company's outlook and its ability to achieve components or the sum of the respective period guidance on its future results of operations including: the combined ratio, excluding or including both prior-year reserve development and/or catastrophe losses; catastrophe losses; net investment income; growth of net premiums written and/or net premiums earned in total or by line of business; expense ratio; operating return on equity; and/or the effective tax rate;
- The impact of the COVID-19 outbreak and subsequent global pandemic ("Pandemic") and related economic conditions on the company's operating and financial results, including, but not limited to, the impact on the company's investment portfolio, declining claims frequency as a result of reduced economic activity, severity from higher cost of repairs due to, among other things, supply chain disruptions, declines in premium as a result of, among other things, credits or returns to the company's customers, lower submissions, changes in renewals and policy endorsements, and the impact of re-opening plans in the states and jurisdictions in which the company operates;
- Uses of capital for share repurchases, special or ordinary cash dividends, business investments or growth, or otherwise, and outstanding shares in future periods as a result of various share repurchase mechanisms, capital management framework, especially in the current environment, and overall comfort with capital levels;
- Variability of catastrophe losses due to risk concentrations, changes in weather patterns including global warming, terrorism, civil unrest, riots or other events, as well as the complexity in estimating losses from large catastrophe events due to delayed reporting of the existence, nature or extent of losses or where "demand surge," regulatory assessments, litigation, coverage and technical complexities or other factors may significantly impact the ultimate amount of such losses;
- Current accident year losses and loss selections ("picks"), excluding catastrophes, and prior accident year loss reserve development patterns, particularly in complex "longer tail" liability lines, as well as the inherent variability in short-tail property and non-catastrophe weather losses;
- The confidence or concern that the current level of reserves is adequate and/or sufficient for future claim payments, whether due to losses that have been incurred but not reported, circumstances that delay the reporting of losses, business complexity, adverse judgments or developments with respect to case reserves, the difficulties and uncertainties inherent in projecting future losses from historical data, changes in replacement and medical costs, as well as complexities related to the Pandemic, including legislative, regulatory or judicial actions that expand the intended scope of coverages, or other factors;
- Characterization of some business as being "more profitable" in light of inherent uncertainty of ultimate losses incurred, especially for "longer tail" liability businesses;
- Efforts to manage expenses, including the company's long-term expense savings targets, while allocating capital to business investment, which is at management's discretion;
- Mix improvement, underwriting initiatives, coverage restrictions and pricing segmentation actions, among others, to grow businesses believed to be more profitable or reduce premiums attributable to products or lines of business believed to be less profitable; balance rate actions and retention; offset long-term and/or short-term loss trends due to increased frequency; increased "social inflation" from a more litigious environment and higher average cost of resolution, increased property replacement costs, and/or social movements;
- The ability to generate growth in targeted segments through new agency appointments; rate increases (as a result of its market position, agency relationships or otherwise), retention improvements or new business; expansion into new geographies; new product introductions; or otherwise; and
- Investment returns and the effect of macro-economic interest rate trends and overall security yields, including the macro-economic impact of the Pandemic and corresponding governmental initiatives taken in response, and geopolitical circumstances on new money yields and overall investment returns.

The Hanover Insurance Group®

Additional Risks and Uncertainties (continued)

Additional Risks and Uncertainties

Investors are further cautioned and should consider the risks and uncertainties in the company's business that may affect such estimates and future performance that are discussed in the company's most recently filed reports on Form 10-K and Form 10-Q and other documents filed by The Hanover Insurance Group, Inc. with the Securities and Exchange Commission ("SEC") and that are also available at www.hanover.com under "Investors." These risks and uncertainties include, but are not limited to:

- The severity, duration and long-term impact related to the Pandemic, including, but not limited to, decline in economic conditions, possible government responses, legislative, regulatory and judicial actions, adverse impacts to the investment portfolio valuation and yield, changes in frequency and severity of claims in both Commercial and Personal Lines, customers' abilities to pay premiums or renew existing insurance policies, impacts to distributors (including agent partners), and the possibility of additional premium adjustments, including credits and returns, for the benefit of insureds;
- The potential for operations to be disrupted or negatively impacted due to (i) the risk of the company's workforce, including third-party contractors, being unable to work due to illness, quarantine, limitations on travel or other government restrictions in connection with COVID-19 and the Pandemic; (ii) the company's reliance on the functioning of business continuity plans and technological applications while the majority of employees work remotely for an extended period of time; and (iii) the ongoing threat of cyber attacks and vulnerabilities;
- Changes in regulatory, legislative, economic, market and political conditions, particularly in response to COVID-19 and the Pandemic (such as legislative or regulatory actions that would retroactively require insurers to cover business interruption or other types of claims irrespective of terms, exclusions or other conditions included in the contractual terms of the policies that would otherwise preclude coverage, mandatory returns and other rate-related actions, as well as presumption legislation in regards to workers' compensation);
- Heightened investment market volatility, fluctuations in interest rates (which have a significant impact on the market value of the investment portfolio and thus book value), U.S. Federal Reserve actions, inflationary pressures, default rates, prolonged global market conditions and other factors that affect investment returns from the investment portfolio;
- Adverse claims experience, including those driven by large or increased frequency of catastrophe events (including those related to terrorism, civil unrest and riots), and severe weather;
- The uncertainty in estimating weather-related losses or the long-term impacts of the Pandemic, and the limitations and assumptions used to model other property and casualty losses (particularly with respect to products with longer tail liability, such as casualty and bodily injury claims, or involving emerging issues related to losses incurred as the result of new lines of business, such as cyber or financial institutions coverage, or reinsurance contracts and reinsurance recoverables), leading to potential adverse development of loss and loss adjustment expense reserves;
- Litigation and the possibility of adverse judicial decisions, including those which expand policy coverage beyond its intended scope or award "bad faith" or other non-contractual damages, and the impact of "social inflation" affecting judicial awards and settlements;
- The ability to increase or maintain insurance rates in line with anticipated loss costs and/or governmental action, including mandates by state departments of insurance to either raise or lower rates or provide credits or return premium to insureds;
- Investment impairments, which may be affected by, among other things, the company's ability and willingness to hold investment assets until they recover in value, as well as credit and interest rate risk and general financial and economic conditions;
- Disruption of the independent agency channel, including the impact of competition and consolidation in the industry and among agents and brokers, and the degree to which agents and brokers remain operational during the Pandemic;
- Competition, particularly from competitors who have resource and capability advantages;
- The global macroeconomic environment, including actions taken in response to the Pandemic, inflation, global trade wars, energy market disruptions, equity price risk, and interest rate fluctuations, which, among other things, could result in reductions in market values of fixed maturity and other investments;
- Adverse state and federal regulation, legislative and/or regulatory actions (including recent significant revisions to Michigan's automobile personal injury protection system and related litigation, and various regulations, orders and proposed legislation related to business interruption and workers' compensation coverages, premium grace periods and returns, and rate actions);
- Financial ratings actions, in particular, downgrades to the company's ratings;
- Operational and technology risks and evolving technological and product innovation, including risks created by remote work environments, and the risk of cyber-security attacks or breaches on the company's systems or resulting in claim payments (including from products not intended to provide cyber coverage);
- Uncertainties in estimating indemnification liabilities recorded in conjunction with obligations undertaken in connection with the sale of various businesses and discontinued operations; and
- The ability to collect from reinsurers, reinsurance pricing, and the performance of the run-off voluntary property and casualty pools business (including those in the Other segment or in Discontinued operations).

Investors should not place undue reliance on forward-looking statements, which speak only as of the date they are made, and should understand the risks and uncertainties inherent in or particular to the company's business. The company does not undertake the responsibility to update or revise such forward-looking statements.

The Hanover Insurance Group®

Non-GAAP Financial Measures

Non-GAAP Financial Measures

As discussed on page 38 of the company's Annual Report on Form 10-K for the year ended December 31, 2019, the company uses non-GAAP financial measures as important measures of its operating performance, including operating income, operating income before interest expense and taxes, operating income per share, and components of the combined ratio, both excluding and/or including, catastrophe losses, prior-year reserve development and the expense ratio. Management believes these non-GAAP financial measures are important indications of the company's operating performance. The definition of other non-GAAP financial measures and terms can be found in the Company's Annual Report on Form 10-K for the year ended December 31, 2019 on pages 67-70.

Operating income and operating income per share are non-GAAP measures. They are defined as net income excluding the after-tax impact of net realized investment gains (losses), fair value changes of equity securities, gains and/or losses on the repayment of debt, other non-operating items, and results from discontinued operations. Net realized investment gains and losses, which include changes in the fair value of equity securities still held, are excluded for purposes of presenting operating income as they are, to a certain extent, determined by interest rates, financial markets and the timing of sales. Operating income also excludes net gains and losses from disposals of businesses, gains and losses related to the repayment of debt, costs to acquire businesses, restructuring costs, the cumulative effect of accounting changes and certain other items. Operating income is the sum of the segment income from: Commercial Lines, Personal Lines, and Other, after interest expense and taxes. In reference to one of the company's three segments, "operating income" is the segment income before both interest expense and taxes. The company also uses "operating income per share" (which is after both interest expense and taxes). It is calculated by dividing operating income by the weighted average number of diluted shares of common stock. The company believes that metrics of operating income and operating income in relation to its three segments provide investors with a valuable measure of the performance of the company's continuing businesses because they highlight the portion of net income attributable to the core operations of the business. Income from continuing operations is the most directly comparable GAAP measure for operating income (and operating income before taxes) and measures of operating income that exclude the effects of catastrophe losses and/or reserve development should not be misconstrued as substitutes for income from continuing operations or net income determined in accordance with GAAP. A reconciliation of operating income (loss) to income from continuing operations and net income for the relevant periods is included on slide 31 of this presentation and in the Financial Supplement.

The company may also provide measures of operating income and combined ratios that exclude the impact of catastrophe losses (which in all respects include prior accident year catastrophe loss development). A catastrophe is a severe loss, resulting from natural or manmade events, including, but is not limited to, hurricanes, tornadoes, windstorms, earthquakes, hail, severe winter weather, fire, explosions, civil unrest and terrorism. Due to the unique characteristics of each catastrophe loss, there is an inherent inability to reasonably estimate the timing or loss amount in advance. The company believes a separate discussion excluding the effects of catastrophe losses is meaningful to understand the underlying trends and variability of earnings, loss and combined ratio results, among others.

Prior accident year reserve development, which can either be favorable or unfavorable, represents changes in the company's estimate of costs related to claims from prior years. Calendar year loss and loss adjustment expense ("LAE") ratios determined in accordance with GAAP, excluding prior accident year reserve development, are sometimes referred to as "accident year loss ratios." The company believes a discussion of loss and combined ratios, excluding prior accident year reserve development, is helpful since it provides insight into both estimates of current accident year results and the accuracy of prior-year estimates.

The loss and combined ratios in accordance with GAAP are the most directly comparable GAAP measures for the loss and combined ratios calculated excluding the effects of catastrophe losses and/or reserve development. The presentation of loss and combined ratios calculated excluding the effects of catastrophe losses and/or reserve development should not be construed as substitutes for the loss and/or combined ratios determined in accordance with GAAP.

Operating return on equity ("ROE") is a non-GAAP measure. See end note (8) for a detailed explanation of how this measure is calculated. Operating ROE is based on non-GAAP operating income. In addition, the portion of shareholder equity attributed to unrealized appreciation (depreciation) on fixed maturity investments, net of tax, is excluded. The company believes this measure is helpful in that it provides insight to the capital used by, and results of, the continuing business exclusive of interest, taxes, and other non-operating items. These measures should not be misconstrued as substitutes for GAAP ROE, which is based on net income and shareholders' equity of the entire company and without adjustments.

The Hanover Insurance Group®

End notes*

(1) Operating Return on Average Equity and Adjusted Operating Return on Average Equity ("Operating ROE" and "Adjusted Operating ROE") are non-GAAP measures. Operating ROE is calculated by dividing operating income after tax for the applicable period (see under the heading in this presentation "Non-GAAP Financial Measures" and end note (2)), by the average of total shareholders' equity, excluding net unrealized appreciation (depreciation) on available-for-sale securities and derivative instruments, net of tax, for 2009; average shareholders' equity, excluding net unrealized appreciation on available-for-sale securities and derivative instruments, net of tax, for 2014; and average shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, for 2019 for the beginning, ending, and interim quarters (if applicable). For the calculation of Adjusted Operating ROE for year ended December 31, 2019, shareholders' equity is adjusted for "the [then] un-deployed equity" attributable to Chaucer and for net unrealized appreciation (depreciation) on fixed maturity investments, net of tax (end note (4)). Please see end note (4) for a detailed reconciliation of adjusted shareholders' equity with and without both net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, and including the payment of the $250 million ASR agreement for the full year 2019 calculation. This adjustment eliminates the dilutive impact that the un-deployed equity attributable to Chaucer had for the year ended December 31, 2019. Additionally, for the calculation of Adjusted Operating ROE, Operating Income, net of tax, is adjusted for the net investment income related to un-deployed equity attributable to Chaucer, net of tax. Operating ROE and Adjusted Operating ROE should not be construed as substitutes for GAAP ROE. See calculations in the table on the following page, including the calculation of Net Income ROE using net income, and average shareholders' equity without adjustments:

The Hanover Insurance Group®

*All numbers within these end notes are as of the end of each respective period and have not been restated, unless otherwise noted.

End notes continued

(1) Continued.

Net Income ROE (non-GAAP)	Years Ended December 31, 2009	Years Ended December 31, 2014	Years Ended December 31, 2019	Three months ended June 30, 2020
Net Income (GAAP)	$197.2	$282.0	$425.1	$115.2
Annualized net income (non-GAAP)				$460.8
Average shareholders' equity (GAAP)	$2,168.3	$2,737.3	$2,965.2	2,904.2
Return on equity	9.1%	10.3%	14.3%	15.9 %
Operating Income ROE (non-GAAP)				
Operating income after taxes	$157.5	$232.7	$331.6	$62.7
Annualized operating income after taxes*				$250.8
Average shareholders' equity, excluding net unrealized (depreciation) appreciation on available-for-sale securites and derivative instruments, net of tax, for year ended December 31, 2009; average shareholders' equity, excluding net unrealized apprecation on available-for-sale and derivative instruments, net of tax, for year ended December 31, 2014; and average shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, and including the ASR payment for year ended December 31, 2019; and average shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, for three months ended June 30, 2020	$2,243.6	$2,436.4	$2,773.7	2,645.5
Operating return on equity	7.0%	9.6%	12.0%	9.5%
Adjusted Operating Income ROE (non-GAAP)				
Operating income, net of tax			$331.6	
Less: Annualized net investment income related to un-deployed equity attributable to Chaucer, net of tax**			9.3	
Operating income, excluding the net investment income related to the un-deployed equity attributable to Chaucer, net of tax			322.3	
Average adjusted shareholders' equity, excluding both net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, and un-deployed equity attributable to Chaucer; and including the ASR payment			2,508.5	
Adjusted operating return on equity			12.8%	

*For three months ended June 30, 2020 annualized net and operating income (loss) is calculated by multiplying three months ended net and operating income, respectively, by four

**Net investment income related to the un-deployed equity attributable for each quarter is calculated by multiplying the respective quarter's un-deployed equity attributable to Chaucer by the respective quarter's total pre-tax yield, net of tax and dividing by 4. For the year ended December 31, 2019 calculation, net investment income related to the un-deployed equity attributable to Chaucer is calculated by adding the respective quarters' net investment income related to the un-deployed equity attributable to Chaucer, net of tax.

The Hanover Insurance Group®

End notes continued

(2) Core Commercial business provides commercial property and casualty coverages to small and mid-sized businesses in the U.S., generally with annual premiums per policy up to $250,000, primarily through the Commercial Multiple Peril, Commercial Auto and Workers' Compensation lines of business, as reported on the current quarter financial supplement. Price increases in Commercial Lines and Core Commercial Lines represent the average change in premium on renewed policies caused by the estimated net effect of base rate changes, discretionary pricing, inflation or changes in policy level exposure or insured risks. Rate increases in Commercial Lines and Core Commercial Lines represent the average change in premium on renewed policies caused by the base rate changes, discretionary pricing, and inflation, excluding the impact of changes in policy level exposure on insured risks:

($ in millions)	Year ended December 31, 2019				Three months ended June 30, 2020		
	Core Commercial	Other Commercial	Total Commercial		Core Commercial	Other Commercial	Total Commercial
Net premiums written	$1,580.1	$1,127.1	$2,707.2	Net premiums written	$347.2	$267.7	$614.9
Net premiums earned	$1,550.0	$1,104.2	$2,654.2	Net premiums earned	$381.7	$276.9	$658.6

The Hanover Insurance Group®

End notes continued

(3) Combined ratio, excluding catastrophes, and current accident year combined ratio, excluding catastrophes, are non-GAAP measures. The combined ratio, excluding catastrophes is equal to the combined ratio, excluding catastrophe losses. The current accident year combined ratio, excluding catastrophes, is equal to the combined ratio, excluding catastrophe losses and prior-year reserve development. These measures are used throughout this document. The combined ratio (which includes catastrophe losses and prior-year reserve development) is the most directly comparable GAAP measure. The following is a reconciliation of the GAAP combined ratio to the combined ratio, excluding catastrophe losses, and the current accident year combined ratio, excluding catastrophe losses:

	Three months ended				
	June 30, 2019	September 30, 2019	December 31, 2019	March 31, 2020	June 30, 2020
Total combined ratio	96.1%	94.4%	96.2%	95.2%	96.2%
Less: Catastrophe loss ratio	5.4%	3.1%	3.1%	3.3%	13.5%
Combined ratio, excluding catastrophe losses	90.7%	91.3%	93.1%	91.9%	82.7%
Less: Prior-year reserve development ratio	-	-	(0.1%)	(0.2%)	(0.4%)
Current accident year combined ratio, excluding catastrophe losses	90.7%	91.3%	93.2%	92.1%	83.1%

(4) The expense ratio is reduced by installment fees and other revenues for purposes of the ratio calculation.

(5) Current accident year loss and LAE ratio, excluding catastrophe losses, is a non-GAAP measure, which is equal to the loss and LAE ratio ("loss ratio"), excluding prior-year reserve development and catastrophe losses. The loss ratio (which includes losses, LAE, catastrophe losses and prior-year loss reserve development) is the most directly comparable GAAP measure. The following is a reconciliation of the GAAP loss ratio to the current accident year loss and LAE ratio, excluding catastrophe losses:

	Three months ended				
	June 30, 2019	September 30, 2019	December 31, 2019	March 31, 2020	June 30, 2020
Total loss and LAE ratio	64.6%	62.7%	64.8%	63.8%	64.9%
Less:					
Prior-year reserve development ratio	-	-	(0.1%)	(0.2%)	(0.4%)
Catastrophe ratio	5.4%	3.1%	3.1%	3.3%	13.5%
Current accident year loss ratio, excluding catastrophe losses	59.2%	59.6%	61.8%	60.7%	51.8%

The Hanover Insurance Group®

End notes continued

(6) Operating income (loss) is a non-GAAP measure. Operating income (loss) before taxes, as referenced in the results of the three business segments (for year ended December 31, 2014, which also included Chaucer), is defined as, with respect to such segment, operating income (loss) before taxes and interest expense. The following table provides the reconciliation of operating income (loss) to the most directly comparable GAAP measure, income (loss) from continuing operations, which is then reconciled to net income, respectively:

As reported (In millions)	Years Ended December 31, 2009 $ Amount	Years Ended December 31, 2014 $ Amount	Years Ended December 31, 2019 $ Amount	Three Months Ended June 30, 2020 $ Amount	Three Months Ended June 30, 2020 Per Share (Diluted)
OPERATING INCOME (LOSS)					
Commercial Lines	$189.7	$139.9	$300.1	$55.3	
Personal Lines	76.4	99.0	144.9	32.6	
Chaucer	NA	177.6	NA	NA	
Other	4.0	(10.3)	8.6	1.0	
Total	270.1	406.2	453.6	88.9	
Interest expense	(35.1)	(65.2)	(37.5)	(9.4)	
Operating income before income taxes	235.0	341.0	416.1	79.5	$2.07
Income tax expense on operating income	(77.5)	(108.3)	(84.5)	(16.8)	(0.44)
Operating income after income taxes	157.5	232.7	331.6	62.7	1.63
Other non-operating items:					
Net realized gains from sales and other	34.3	55.6	4.9		
Net change in fair value of equity securities	NA	NA	106.5	0.8	0.02
Impairment recoveries (losses) on investments	(32.9)	(5.5)	(2.0)	61.5	1.61
Gain (loss) from repayment of debt	34.5	(0.1)	-	1.4	0.04
Loss from settlement of pension obligation	NA	(12.1)	NA	-	-
Other	-	(0.9)	(3.4)	(0.1)	-
Income tax benefit (expense) on non-operating items	(5.6)	12.6	(8.6)	(11.0)	(0.29)
Income from continuing operations, net of taxes	187.8	282.3	429.0	115.3	3.01
Discontinued Operations (net of taxes):					
Gain from discontinued FAFLIC business	7.1	NA	NA	NA	NA
Loss from discontinued accident and health business	(2.6)	0.2	(2.8)	NA	NA
Sale of Chaucer business	NA	NA	(1.2)	NA	NA
Income from Chaucer business	NA	NA	1.6	NA	NA
Income (loss) from discontinued life businesses	4.9	(0.5)	(1.5)	(0.1)	NA
Net income	$197.2	$282.0	$425.1	$115.2	$3.01
Dilutive weighted average shares outstanding					38.3

NA = not applicable

End notes continued

(7) Price increases in Personal Lines is the estimated cumulative premium effect of approved rate actions applied to policies available for renewal, regardless of whether or not policies are actually renewed. Accordingly, pricing changes do not represent actual increases or decreases realized by the company.

(8) Total shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, is a non-GAAP measure. Total shareholders' equity is the most directly comparable GAAP measure, and is reconciled in the table below and on the following pages. For the calculation of Operating ROE, the average of total shareholders' equity, excluding net unrealized appreciation (deprecation) on available-for-sale securities and derivative instruments, net of tax, for 2009; average shareholders' equity, excluding net unrealized appreciation on available-for-sale and derivative instruments, net of tax for 2014; and average of total shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, for 2019 and three months ended June 30, 2020, for the beginning, ending, and interim quarters are used. For the calculation of Adjusted Operating ROE for year ended December 31, 2019, the average shareholders' equity, excluding both net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, and "un-deployed equity" attributable to Chaucer for measurement periods post-close, for the beginning and ending, and interim (if applicable) quarters are used. For the calculation of Operating ROE and Adjusted Operating ROE for the full year 2019 only, the balance at December 31, 2018 was adjusted by the $250 million paid on January 2, 2019 to eliminate the dilutive impact the accelerated share repurchase ("ASR") program would have had on unadjusted and adjusted Operating ROE:

($ in millions)	December 31, 2008	March 31, 2009	June 30, 2009	September 30, 2009	December 31, 2009
Total shareholders' equity (GAAP)	$1,887.2	$1,967.6	$2,221.1	$2,407.1	$2,358.6
Less: net unrealized (depreciation) appreciation on available-for-sale securities and derivative instruments, net of tax	(276.1)	(227.3)	(69.8)	89.2	107.7
Total shareholders' equity, excluding net unrealized (depreciation) appreciation on available for sale securities and derivative instruments, net of tax	$2,163.3	$2,194.9	$2,290.9	$2,317.9	$2,250.9
Average shareholders' equity (GAAP)					$2,168.3
Average shareholders' equity, excluding net unrealized (depreciation) appreciation on available-for-sale securities and derivative instruments, net of tax					$2,243.6

($ in millions)	December 31, 2013	March 31, 2014	June 30, 2014	September 30, 2014	December 31, 2014
Total shareholders' equity (GAAP)	$2,594.5	$2,681.1	$2,795.1	$2,771.9	$2,844.0
Less: net unrealized appreciation on available-for-sale securities and derivative instruments, net of tax	259.3	308.1	342.4	293.7	300.9
Total shareholders' equity, excluding net unrealized appreciation on available-for-sale securities and derivative instruments, net of tax	$2,335.2	$2,373.0	$2,452.7	$2,478.2	$2,543.1
Average shareholders' equity (GAAP)					$2,737.3
Average shareholders' equity, excluding net unrealized appreciation on available-for-sale securities and derivative instruments, net of tax					$2,436.4

The Hanover Insurance Group®

End notes continued

(8) Continued.

($ in millions)	December 31, 2018	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019
Total shareholders' equity (GAAP)	$2,954.7	$2,927.0	$2,941.1	$3,086.8	$2,916.2
Less: net unrealized appreciation (depreciation) on fixed maturity investments, net of tax	(27.2)	90.7	192.3	235.3	216.0
Total shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity	2,981.9	2,836.3	2,748.8	2,851.5	2,700.2
Less: Payment made on January 2, 2019 for the ASR agreement entered into on December 30, 2018	250.0	-	-	-	-
Total shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, and including the ASR payment	2,731.9	2,836.3	2,748.8	2,851.5	2,700.2
Less: post-close, un-deployed equity	406.6	406.6	256.6	256.6	-
Adjusted shareholders' equity, excluding both net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, and un-deployed equity	$2,325.3	$2,429.7	$2,492.2	$2,594.9	$2,700.2

Average shareholders' equity (GAAP)	$2,965.2
Average shareholders' equity, excluding net realized apprecation (depreciation) on investments and derivative instruments, net of tax, and including the ASR payment	$2,773.7
Average adjusted shareholders' equity, excluding both net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, and un-deployed equity; and including the ASR payment	$2,508.5

The Hanover Insurance Group®

End notes continued

(8) Continued.

($ in millions)	March 31, 2020	June 30, 2020
Total shareholders' equity (GAAP)	$2,736.6	$3,071.7
Less: net unrealized appreciation (depreciation) on fixed maturity investments, net of tax	132.8	384.5
Total shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax	2,603.8	2,687.2
Average shareholders' equity (GAAP)		$2,904.2
Average shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax		$2,645.5

The Hanover Insurance Group®