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

Bank of America Conference
February 11, 2021

The Hanover Insurance Group®

The Hanover Insurance Group Overview

Diversified U.S. P&C franchise with strong growth opportunities and track record of success

$4.2B
Market Capitalization*

$4.6B
2020 NPW

13.1%
2020 Operating ROE(1)

"A"
Financial Strength**

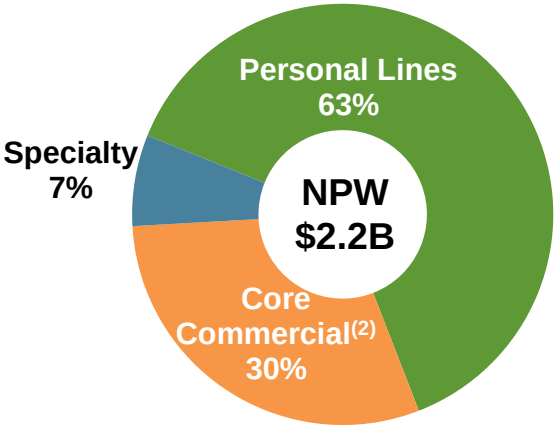
(1) See information about this and other non-GAAP measures and definitions used throughout this presentation on the final pages of this document.
*As of the close of trading on 2/5/2021
**AM Best and S&P
This presentation and the content thereof must be read and interpreted in conjunction with information 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 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 hanover.com under "Investors".

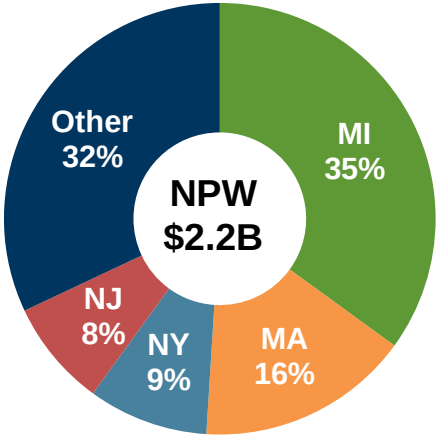
The Hanover Insurance Group®

Evolution to Today's Diversified Franchise

2005

Regional personal lines driven carrier with property concentration

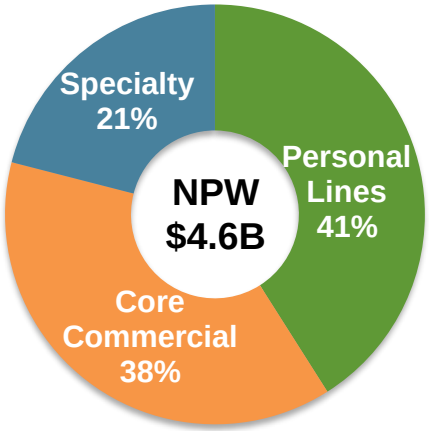


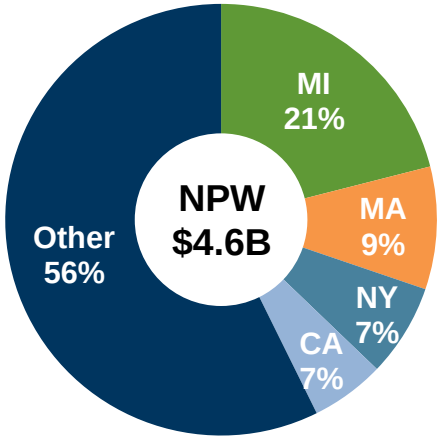


Top four states: 68%
Strong presence in 35 states

2020

Balanced, small/middle market focused commercial and personal lines carrier





Top four states: 44%
National presence

- Transformed to a more balanced, differentiated P&C franchise
- Change fueled by organic growth and targeted "capabilities" acquisitions
- Established broad-based profitability
- Reduced reliance on volatile property lines in challenging geographies
- Strengthened the balance sheet

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Our Investor Value Proposition



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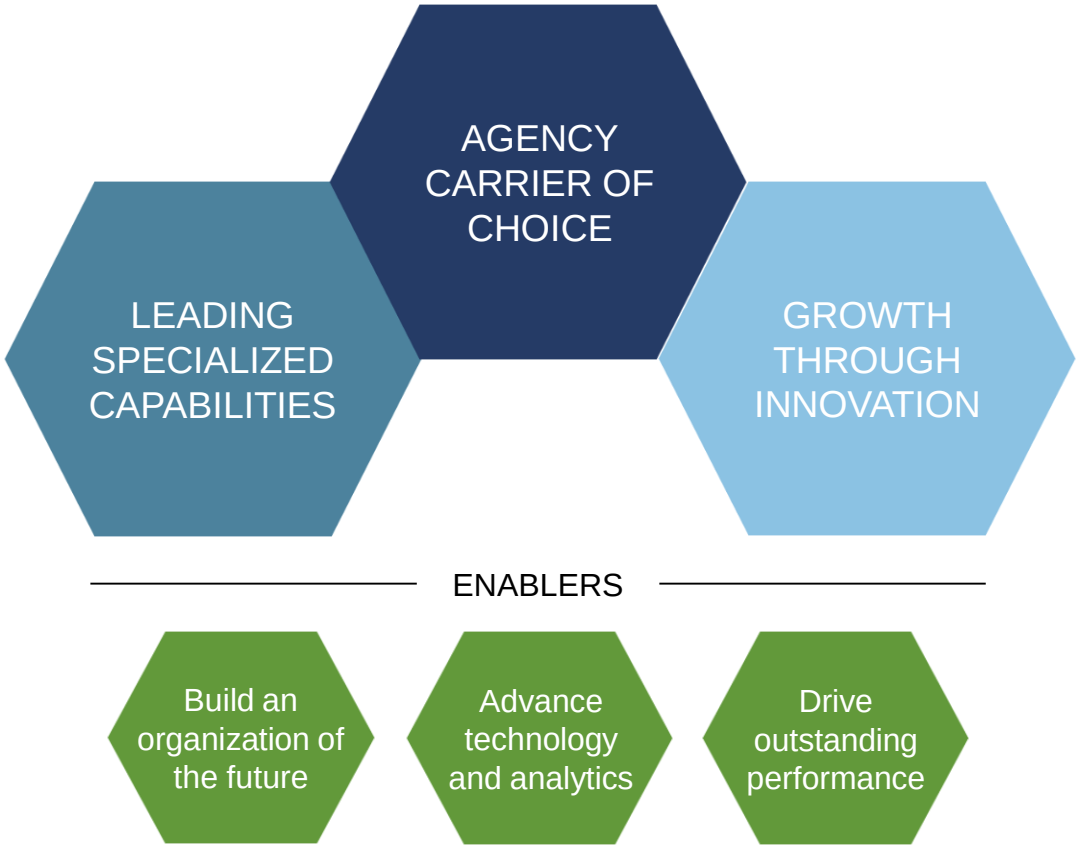
Our Vision

To be the Premier P&C Franchise in the Independent Agent channel and help agents transform the way customers value and experience insurance



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Unique Agency Distribution Approach Creates Competitive Advantage

Targeted distribution

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

7% average agency market share

Broad & relevant UW expertise

Specialized products

Local presence with 49 offices

Deep business insights

Consultative approach

$85B of target market data profiled

U.S. independent agency market		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%**

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Leading Specialized Capabilities Drive Broad-Based Profitability

Core Commercial

Industry specialization and unique operating model

2020 NPW **$1.7B**
3-yr avg. CR **95.7%**

- ✓ Targets profitable account business (67%)
- ✓ POS and non-POS capabilities
- ✓ Specialized products by industry class
- ⊘ Avoid large account, intensely volatile market
- ⊘ Avoid heavy industry and recessionary pressures

Specialty

Robust and relevant specialty offerings

$1.0B
95.0%

- ✓ Unique retail agent value proposition
- ✓ Robust product offering tailored to agent needs
- ✓ Account based approach integrated with core
- ⊘ Avoid typical wholesale distribution model
- ⊘ Avoid potentially volatile products (med mal, excess casualty)

Personal Lines

Account offering for customers with complex needs

$1.9B
94.7%

- ✓ Account business (85%) creates higher lifetime value
- ✓ Moving upmarket to higher value (60% Platinum)
- ⊘ Thoughtfully manage cat exposed geographies
- ⊘ Do not target non-standard and mono-line business

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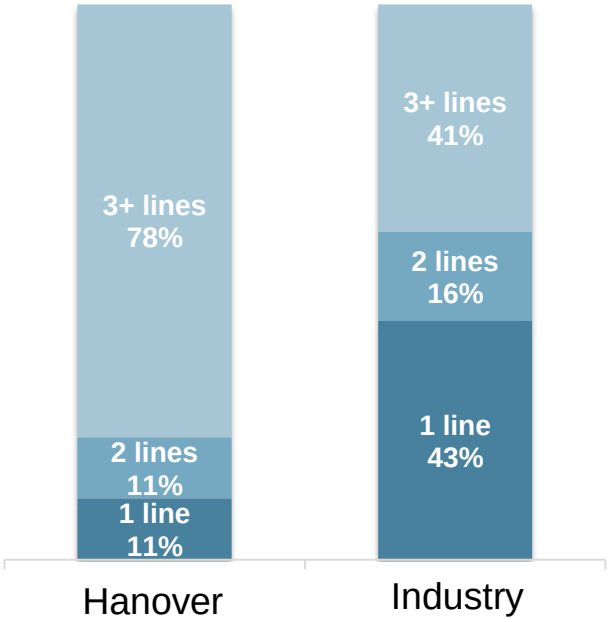
Partner with Agents to Deliver Holistic Customer-Centric Solutions

Focusing on meeting customer needs…



Differentiates our franchise in an increasingly fragmented market

U.S. Middle Market premium mix
by number of lines written with one carrier



Factors driving account focus:

- ✓ Ease of doing business
- ✓ Reduction in coverage gaps
- ✓ Meeting servicing needs/coordination

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Source: Agency Insights

Our Investor Value Proposition



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Well-Positioned For Long-Term Above Industry Growth and Top-Quartile Profitability

Agency Growth

- Increased penetration and targeted agency additions
- Agency Insight informs growth opportunities

Expanding Business Unit Capabilities

- Leveraging account relationships across businesses
- Focused product and industry appetite expansion
- Approach to talent as a differentiator

Innovation

- Customer acquisition and binding
- UW and claims data & analytics
- Customer omni-channel solutions

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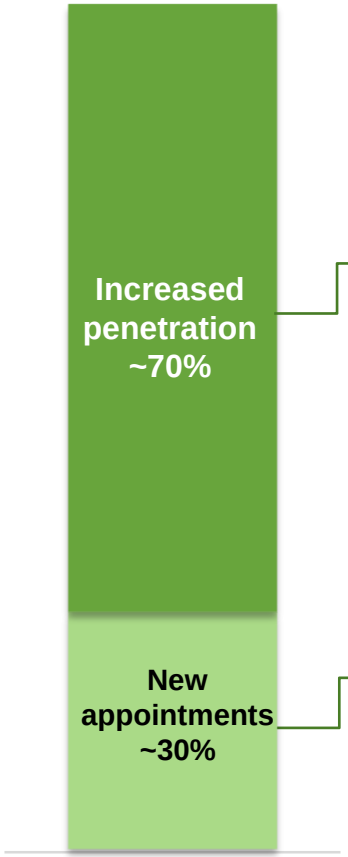
Agency Growth Strategy Driven By Penetration

5-year growth drivers



Success in expanding breadth and depth

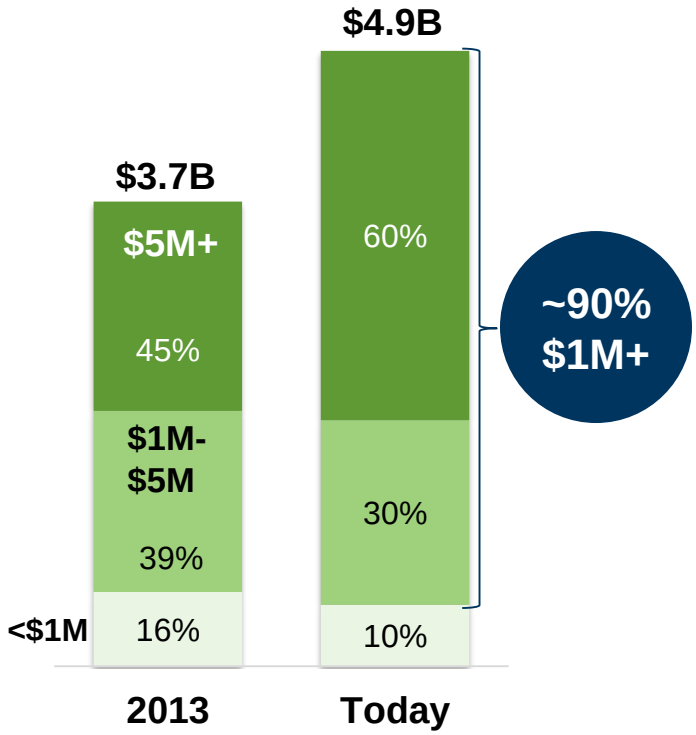
- Ample headroom with nearly $100 billion market opportunity
- Focus on achieving top 3 status
- Additional 1 point of share equals ~$1 billion premium
- "Franchise" agents account for 65% of premium and >50% have relationship with 5+ lines
- Loss ratios and retention improve with broader and deeper relationships

Targeted new agency appointments

- Maintain selective approach in line with historical experience
- Focus on productivity – target $500k+ relationship by Year 5
- 25% of new business generated from Agency Insight

Demonstrated success increasing depth of relationship

% of premium by relationship size



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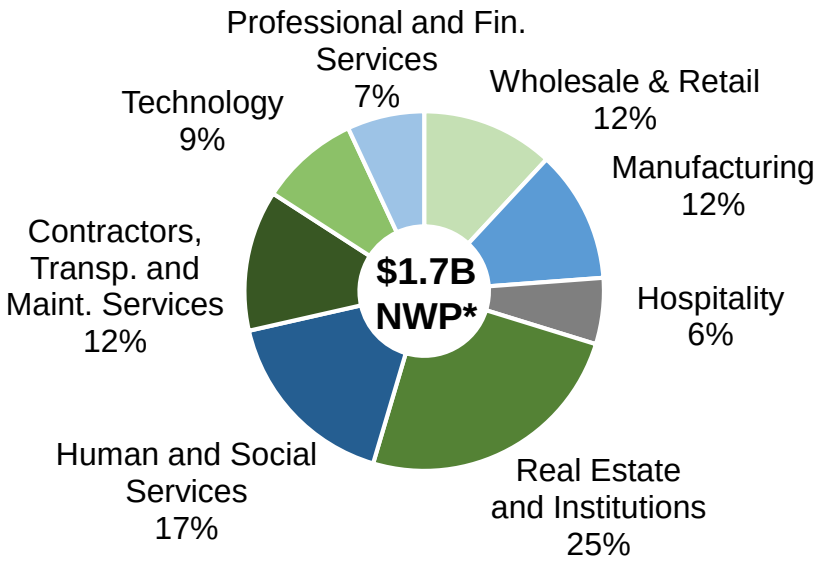
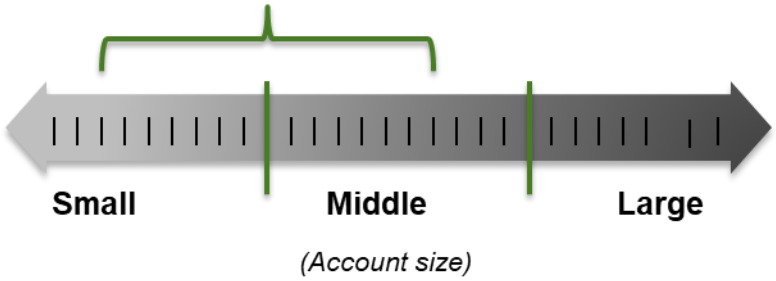
Source: Agency Insights

Business Unit - Core Commercial

Diversified portfolio, providing industry focused solutions…



…to a profitable and growing market segment



Growth drivers

- Deepen agency partnerships, leveraging market insights
- Enhanced use of granular pricing and segmentation; capitalizing on rate momentum
- New, state-of-the-art quoting and binding platform
- Targeted underwriting appetite expansion (workers' comp)

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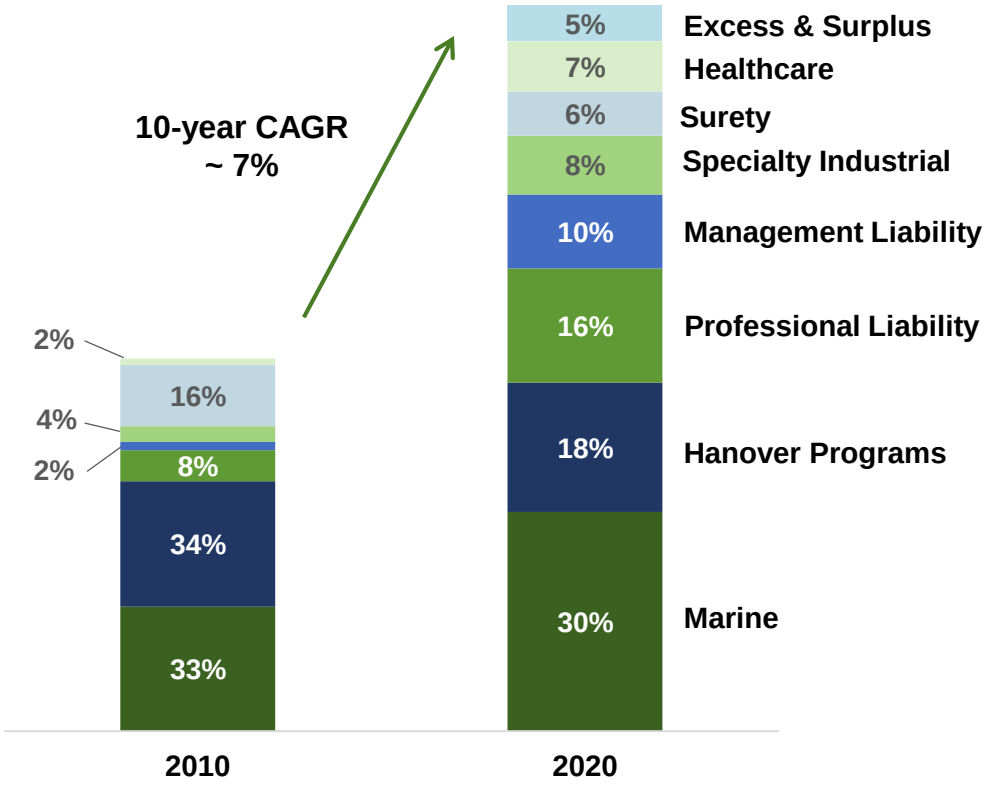
** Based on 2020 year-end data*

Business Unit - Specialty

>$1 billion diversified retail driven specialty business highly relevant to agents



Growth drivers

- Expanding product capabilities focused on agent needs:
  - Financial Institutions
  - Retail E&S platform
  - Cyber
- Expanding shelf space with agent partners
- Leveraging Core Commercial to pursue account strategy
- Capitalizing on rate increases (8.9% in Q4'20)
- Growth in capital efficient fronted business

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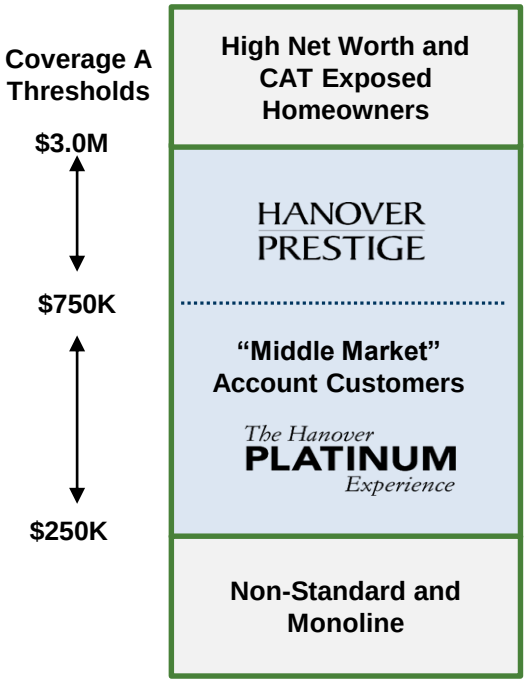
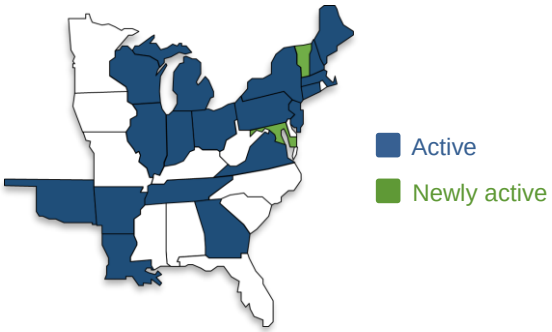
Business Unit - Personal Lines

Moving upstream toward a more value-oriented and growing customer segment…



… in an attractive and growing regional footprint



Growth Drivers

- Leveraging agent-centric distribution strategy and state-of-the-art TAP Sales platform to gain share
- Success with market consolidation opportunities provide a tailwind to growth and validate strategy is resonating with agent partners
- Continue successful move "upmarket" through launch of Prestige product
  - Added ~7,000 new customer accounts in 2020
  - In year 3 of product launch, Prestige grew ~82%
- New agency appointments in under-penetrated geographies
- Consistent and measured expansion into contiguous states

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Pulling Technology Levers To Drive Growth Through Ease of Use and Efficiency

Re-platformed our organization over the past 4 years, paving the way into digital innovation

Upgraded or replaced nearly entire technology stack, including:

- New small commercial and Personal Lines platforms
- Additional platforms – claims, billing, general ledger

The Agency Place TAP

Digital innovation across the insurance value chain

Finding and retaining customers through:

- Digital distribution and customer acquisition through agents

coverwallet
insurago
insureon
BOLD PENGUIN

- Data and analytics
- Workflow efficiency
- Telematics & IOT pilots

IVANS A DIVISION OF APPLIED
indio
unqork
TARMIKA
semsee
towerIQ
TERRENE Labs
PLANCK

Omni-channel servicing:

- Digital
- Claims

Global 360
LOVELAND INNOVATIONS
UserTesting

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Driven By Leading Management Team With Depth of Experience

		Executive Leader	Years of experience	Selected P&C experience
Executive Leaders		**Jack Roche** *President and CEO*	35+	St. Paul, Travelers
		**Jeff Farber** *Chief Financial Officer*	35	AIG
Enterprise Leaders		**Ann Tripp** *Chief Investment Officer and Treasurer*	40+	30+ years at Hanover
		**Dennis Kerrigan** *General Counsel*	30+	Zurich
		**Denise Lowsley** *Chief Human Resources Officer*	25+	Navigators, Liberty Mutual
		**Mark Welzenbach** *Chief Claims Officer*	40	The Hartford, Travelers
Business Leaders		**Dick Lavey** *President, Hanover Agency Markets*	30+	The Hartford, Travelers
		**Bryan Salvatore** *President, Specialty*	30+	Zurich
Innovation		**Mark Berthiaume** *CIO and Chief Technology Innovation Officer*	40+	Chubb
		**Will Lee** *Deputy Chief Information Officer*	30	~20 years at Hanover

Strong culture and clear strategy attract top talent

Talent and diversity of experience is a differentiator

Compensation philosophy aligned with performance

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Our Investor Value Proposition



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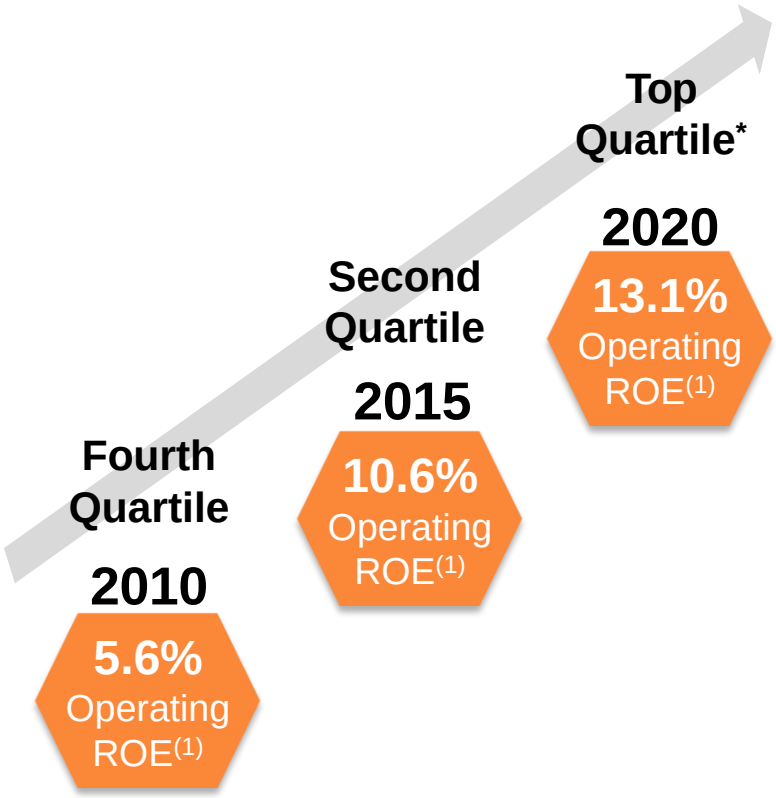
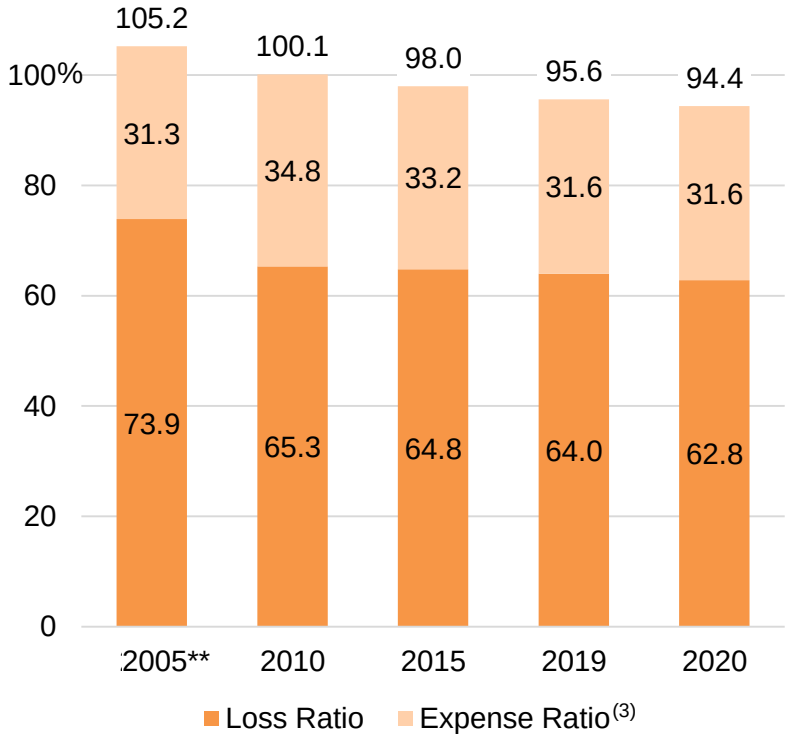
Platform Positioned to Deliver Consistent Profitability

Franchise repositioning delivers top-quartile ROEs



Improved domestic performance generated by lower expense and loss ratios



Source: S&P Global Market Intelligence
The peer group used to determine the quartiles above is a list of 25 companies with which we compete for capital. It includes publicly traded competitors that are predominantly U.S. primary P&C insurers with multiple lines of business. The list is comprised of American Financial, AIG, Allstate, Argo, Axis, Chubb, Cincinnati, CNA, Donegal, Hartford, Horace Mann, James River, Kemper, Markel, Mercury, Old Republic, ProAssurance, ProSight, RLI, Safety, Selective, State Auto, Travelers, United Fire, and W.R. Berkley.
**Top quartile based on actual full-year 2020 results for peers that have reported as of 2/5/21 and Dowling Research estimates for peers that had not yet reported.*
***2005 was a predominantly personal lines franchise.*

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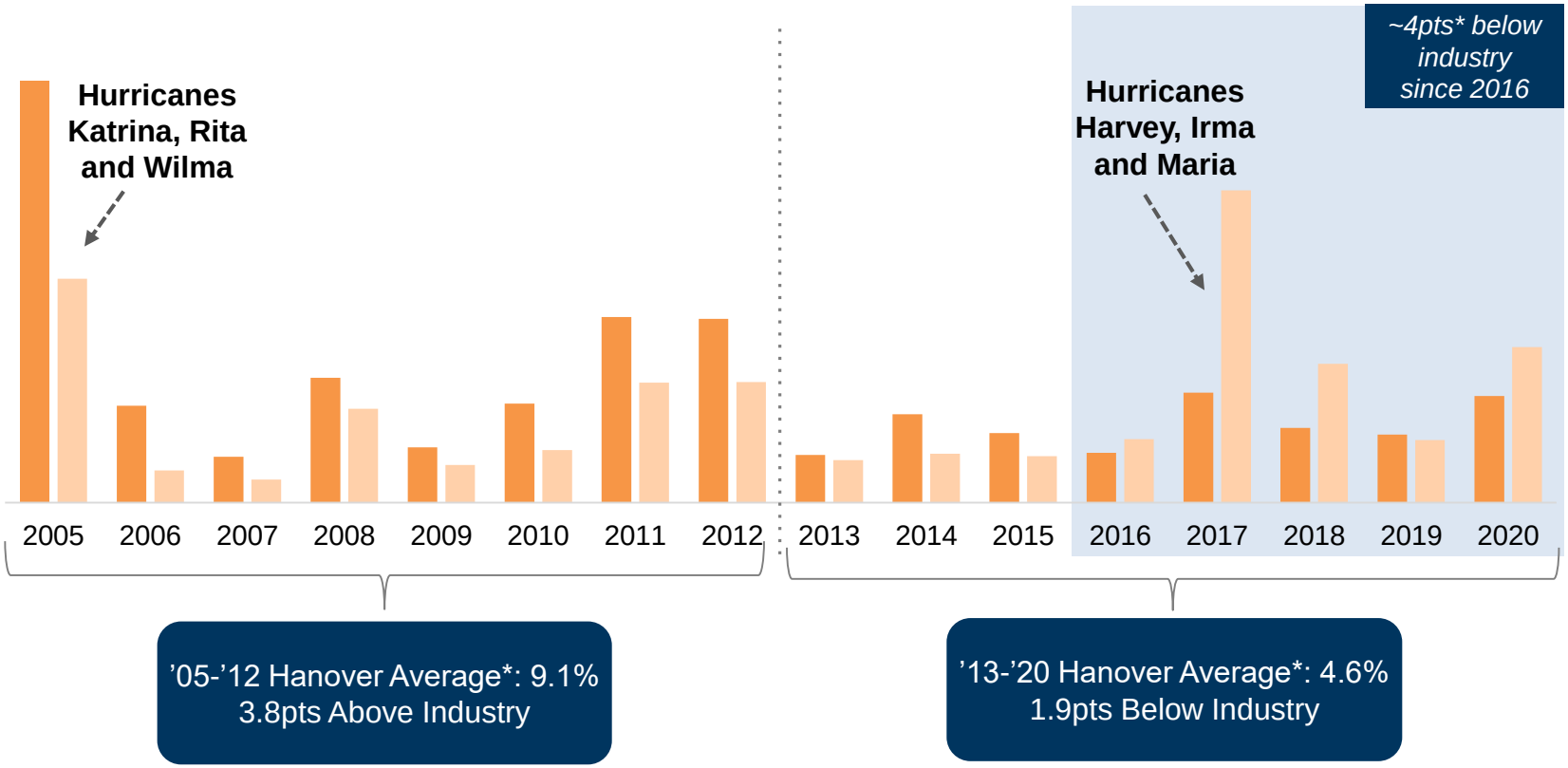
Targeted Management of Property Aggregation Reduces Volatility

Our catastrophe management and corporate reinsurance philosophy is grounded in risk analytics, and the group's earnings and financial strength

Domestic catastrophe experience compared to industry



Note: Based on direct catastrophe loss ratio.
**Average annual performance*
Source: Guy Carpenter

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Ambitious and Achievable Long-term Goals

Strong financial platform for profitable growth

ROE improvement to come from expense leverage; insurance rate increases to offset investment yield pressure

13%+ target operating ROE

Targeted Profitable Growth

Prioritizing margin over growth

Stable/ Improving Loss Ratio

Commercial lines pricing increases

Mix optimization

Financial Rigor and Expense Leverage

Continued expense discipline

24-26% marginal expense ratio

Thoughtful capital management and allocation

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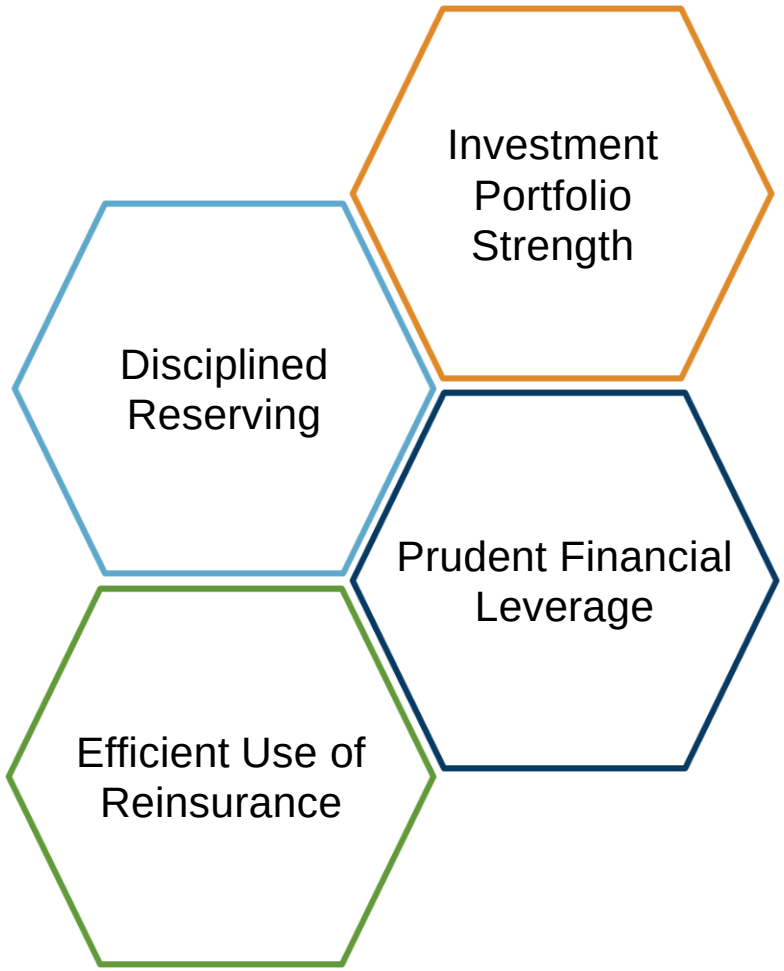
Backed by Financial Discipline and Strong Balance Sheet



- Balance sheet supported by diversified business profile and lower severity focus
- Broadly diversified, high-quality ~$9 billion investment portfolio is well-positioned in the current market
- Rigorous reserving process, integrated with the business
- Reinsurance strategy designed to protect balance sheet and reduce volatility
- Prudent financial leverage with demonstrated access to capital markets

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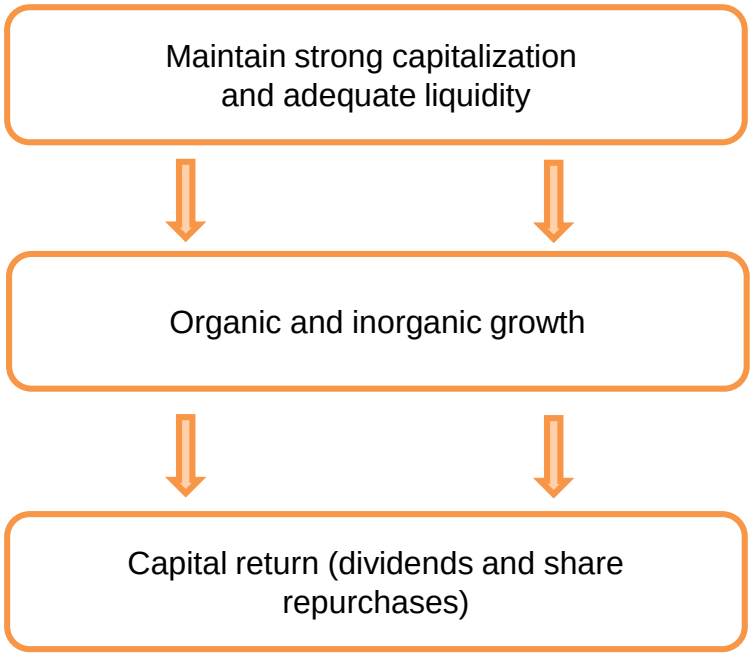
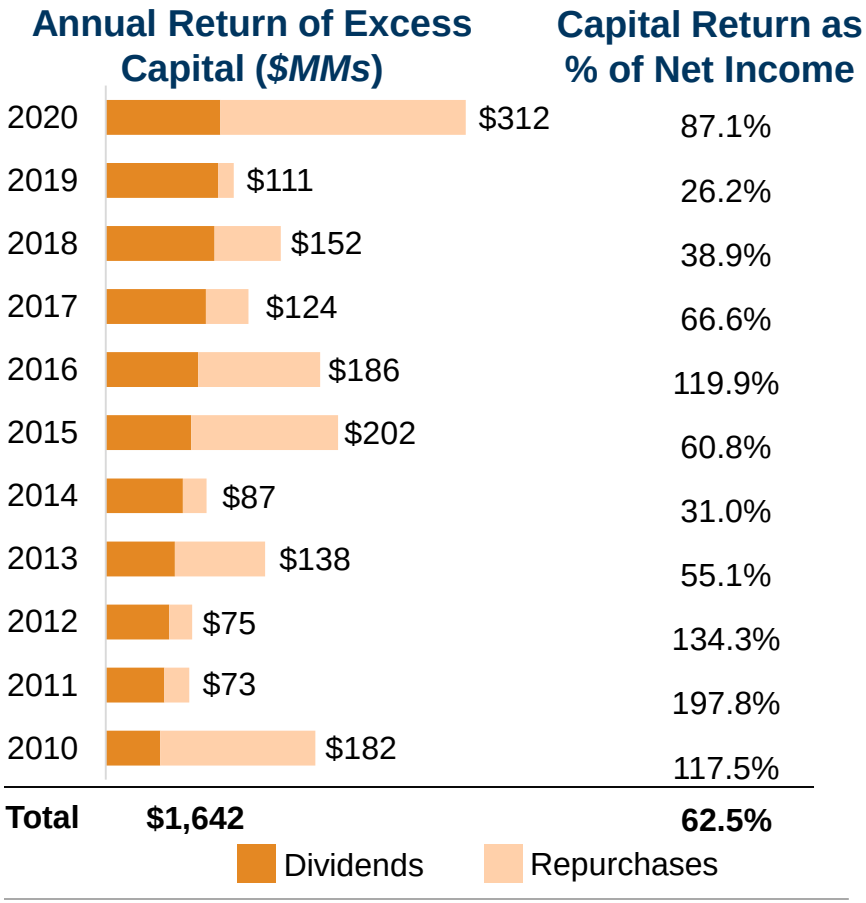
Clear Priorities Have Driven Consistent Return of Capital

- Focused on maximizing ROE and shareholder total value creation (growth in TBVPS plus dividends)
- Clear prioritization of uses of generated excess capital guides decision-making:





Excludes the use and return of capital related to the purchase and sale of Chaucer. $850M related to the Chaucer sale was returned in the form of $550M of share repurchases and $300M of special dividends.

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Diverse Board Focused on Delivering Stakeholder Value Through Strong Governance

	Board member	Selected experience
	**Cynthia Egan** *Chair of the Board*	T. Rowe Price, Fidelity
	**Kevin Bradicich**	McKinsey
	**Theodore Bunting, Jr.**	Entergy
	**Jane Carlin**	Morgan Stanley, Credit Suisse
	**Kevin Condron**	The Granite Group
	**Daniel Henry**	American Express, Ernst & Young
	**Martin Hughes**	HUB
	**Wendell Knox**	Abt Associates
	**Kathleen Lane**	TJX, National Grid, Gillette, GE, Pepsi
	**Joseph Ramrath**	Colchester Partners, United Asset Management
	**Harriett "Tee" Taggart**	Wellington

Collective expertise

- ✓ **P&C Insurance**
- ✓ **Financial Services**
- ✓ **Mergers & Acquisitions**
- ✓ **Finance / Accounting**
- ✓ **Investments / Capital Markets**
- ✓ **Technology**
- ✓ **Senior Management and Talent Development**
- ✓ **Operations**
- ✓ **Marketing and Distribution**
- ✓ **Governance**

Depth and breadth of industry experience

55% gender, race or ethnically diverse

36% female

Average tenure 7.3 years
Median tenure 5 years

Female Chair

Women chair two-thirds of standing Board committees

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Committed to Social Responsibility

Environment

- Promoting sustainability through:
  - Investments in green technology
  - Energy efficiency
  - Conservation
- Enhanced analytics and robust risk management practices help reduce exposure to weather volatility



Social

- Advancing an inclusive and diverse culture through:
  - Employee-led business resource groups
  - Educational programs and training opportunities
- Active involvement in the community
  - The Hanover Foundation

HUMAN RIGHTS CAMPAIGN FOUNDATION
BEST PLACES TO WORK
2020 for LGBTQ Equality
100% CORPORATE EQUALITY INDEX

Governance

- Strong corporate governance structure and principles
  - Diverse Board of Directors led by female chair
  - Pay structure aligned with shareholder value (80% performance-based comp)

20% BY 2020
2020
WOMEN ON BOARDS

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The Hanover Awards and Recognitions

$1.4M
Raised through United Way Campaign
(2019)

100% score on Human Rights Corporate Equality Index
(2018, 2019, 2020, 2021)

Women on Boards Award
(2016, 2019, 2020)

Over **95%** Say-on-Pay Approval Rating Annually Since 2011 Inception



Joined CEO Action for Diversity & Inclusion pledge
(2019)

Top Gun Award Since 2014 for High-Quality Investments

Top Charitable Contributor
(Boston Business Journal)

Opus named **Pension and Investments Best Places to Work**
(2019)

Ranked 2nd in J.D. Power 2017 U.S. Property Claims Satisfaction Survey

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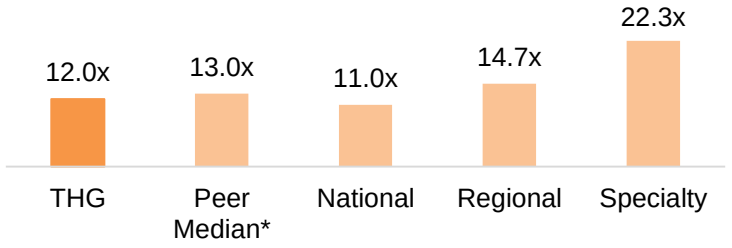
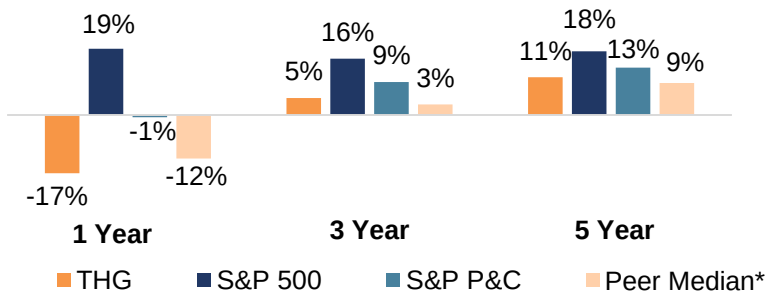
Valuation Perspectives

- Strong competitive position
- Broad-based profitability
- Top-quartile ROE
- Strong track record of earnings improvement
- Earnings consistency and low volatility compared to many peers
- Strong market position and growth prospects
- Very low COVID-19 risks and exposure
- Financial discipline
  - Capital management
  - Expense rigor

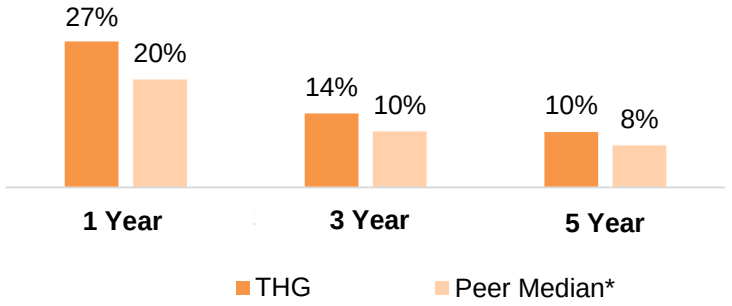
Price/NTM Earnings



Total Return**



Total Value Creation[4]***



Source: Source: S&P Global Market Intelligence. Data as of 2/5/2021.
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***Total Return equals the annualized change in stock price plus cumulative dividends over the period.*
****Total Value Creation is the annualized change in tangible book value per share plus cumulative dividends over the period.*

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Investment Thesis



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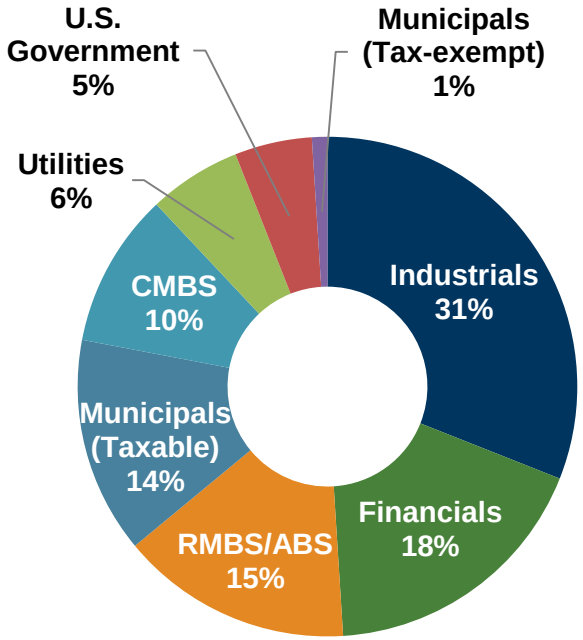
Investment Portfolio Holdings

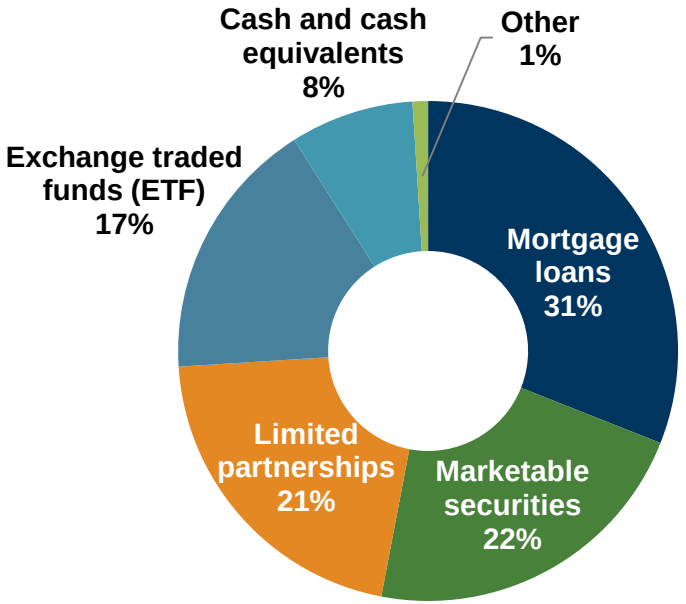
Total invested assets and capital of $9.0 billion

As of December 31, 2020

Fixed Maturities: $7.5 billion



Equities, Cash and Other: $1.5 billion



Fixed income characteristics

- 96% of fixed maturity securities are investment grade
- Weighted average quality: A+
- Duration: 4.8 years

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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" 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, public health guidance, and the impact of government orders and restrictions 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 climate change, wildfires, 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.

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, actual and 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 technology while the majority of employees work remotely for an extended period of time; and (iii) the ongoing threat of cyberattacks 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, riots and civil unrest), 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 lines, 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 maturities 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, reinsurance terms and conditions, 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.

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 income 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 2019 Annual Report 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 income taxes. In reference to one of the company's three segments, "operating income" is the segment income before both interest expense and income taxes. The company also uses "operating income per share" (which is after both interest expense and income 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 income 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 page 35 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 misconstrued 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 (1) 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 expense, income 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.

Tangible book value per share is total shareholders' equity, excluding goodwill and intangible assets, divided by the number of common shares outstanding.

End notes*

(1) Operating Return on Average Equity ("Operating ROE") is a non-GAAP measure. Operating ROE is calculated by dividing annualized operating income after taxes for the applicable period (see under the heading in this presentation "Non-GAAP Financial Measures" and end note (5)), by the average shareholders' equity, excluding net unrealized appreciation (depreciation) on available-for-sale securities and derivative instruments, net of tax, for 2010; average total shareholders' equity, excluding net unrealized appreciation (depreciation) on investments and derivative instruments, net of tax for 2015; and average shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, for 2020 (end note (6)).Operating ROE should not be misconstrued as a substitute for GAAP ROE. See calculations in table below, including the calculation of Net Income ROE using net income and average shareholders' equity without adjustments:

	Year ended		
Net Income ROE (non-GAAP)	December 31 2010	December 31 2015	December 31 2020
Net Income (GAAP)	$154.8	$331.5	$358.7
Average shareholders' equity (GAAP)	2,390.3	2,874.9	3,016.3
Return on equity (non-GAAP)	6.5%	11.5%	11.9%
Operating Income ROE			
Operating income, net of tax	$122.2	$280.0	$355.0
Average shareholders' equity, excluding net unrealized (depreciation) appreciation on available-for-sale securites and derivative instruments, net of tax, for year ended December 31, 2010; average shareholders' equity, excluding net realized apprecation (depreciation) on investments and derivative instruments, net of tax, for year ended December 31, 2015; average shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, for year ended December 31, 2020	2,200.3	2,633.0	2,701.6
Operating return on equity	5.6%	10.6%	13.1%

*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

(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 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 or insured risks:

($ in millions)	Year ended		
	December 31, 2020		
	Core Commercial	Other Commercial	Total Commercial
Net premiums written	$1,578.0	$1,155.1	$2,733.1
Net premiums earned	$1,561.6	$1,121.7	$2,683.3
	December 31, 2005		
	Core Commercial	Other Commercial	Total Commercial
Net premiums written	$636.5	$150.7	$787.2
Net premiums earned	$646.6	$127.8	$774.4

(3) Throughout this presentation, for purposes of the expense ratio calculation, expenses are reduced by installment and other fee revenues.

End notes continued*

(4) Tangible book value per share is a non-GAAP measure. Book value per share is the most directly comparable GAAP measure and is reconciled in the table below. Tangible book value per share is total shareholders' equity, excluding goodwill and intangible assets, divided by the number of diluted common shares outstanding.

($ millions)	Year ended					
	December 31 2015	December 31 2016	December 31 2017	December 31 2018	December 31 2019	December 31 2020
Common shareholders' equity	$ 2,844.4	$ 2,857.5	$ 2,997.7	$ 2,954.7	$ 2,916.1	$ 3,202.3
Less: goodwill	186.0	184.8	192.6	185.3	178.8	178.8
Less: intangible assets	94.6	79.4	89.7	30.5	21.0	18.2
Tangible common shareholders' equity	$ 2,563.8	$ 2,593.3	$ 2,715.5	$ 2,738.9	$ 2,716.3	$ 3,005.2
Diluted common shares outstanding	43.0	42.4	42.5	42.3	38.4	36.4
Book value per share	$ 66.21	$ 67.40	$ 70.59	$ 69.81	$ 75.94	$ 87.96
Tangible book value per share	$ 59.68	$ 61.17	$ 63.94	$ 64.71	$ 70.74	$ 82.55

*For years ended December 31, 2017 and 2018, goodwill excludes the impact of discontinued operations related to Chaucer

End notes continued

(5) 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, 2015, 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 from continuing operations, respectively, and to net income, respectively:

	Year ended		
	December 31, 2010	December 31, 2015	December 31, 2020
OPERATING INCOME (LOSS)			
Commercial Lines	$111.2	$143.3	$275.4
Personal Lines	113.0	149.3	212.5
Chaucer	NA	183.7	NA
Other	3.5	(10.2)	(3.2)
Total	227.7	466.1	484.7
Interest expense	(44.3)	(60.6)	(37.1)
Operating income before income taxes	183.4	405.5	447.6
Income tax expense on operating income	(61.2)	(125.5)	(92.6)
Operating income after income taxes	122.2	280.0	355.0
Gain on disposal of U.K. motor business, net of tax	NA	40.6	NA
Other non-operating items:			
Net realized gains from sales and other	29.7	19.5	17.9
Net change in fair value of equity securities	NA	NA	13.4
Impairment losses on investments	NA	NA	(26.3)
Loss from repayment of debt	(2.0)	(24.1)	(6.2)
Other	-	0.1	(1.6)
Income tax benefit on non-operating items	3.3	14.7	9.8
Income from continuing operations, net of taxes	153.2	330.8	362.0
Discontinued Operations (net of taxes):			
Gain from discontinued FAFLIC business	0.5	NA	NA
Loss from discontinued accident and health business	(0.3)	NA	NA
Income from Chaucer business	NA	NA	0.4
Income (loss) from discontinued life businesses	1.3	0.7	(3.7)
Income from other discontinued operations	0.1	NA	NA
Net income	$154.8	$331.5	$358.7

NA = Not Applicable

End notes continued

(6) 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. For the calculation of Operating ROE, the average of total shareholders' equity, excluding net unrealized appreciation (depreciation) on available-for-sale securities and derivative instruments, net of tax, for 2010; average of total shareholders' equity, excluding net unrealized appreciation (depreciation) on investments and derivative instruments, net of tax, for 2015; and average of total shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, for 2020.

($ in millions)	December 31, 2009	March 31, 2010	June 30, 2010	September 30, 2010	December 31, 2010
Total shareholders' equity (GAAP)	$2,358.6	$2,302.2	$2,351.6	$2,478.8	$2,460.5
Less: net unrealized appreciation (depreciation) on available-for-sale securites and derivative instruments, net of tax	107.7	145.1	201.9	277.4	218.3
Total shareholders' equity, excluding net unrealized appreciation (depreciation) on available for sale securites and derivative instruments, net of tax	$2,250.9	$2,157.1	$2,149.7	$2,201.4	$2,242.2
Average shareholders' equity (GAAP)					$2,390.3
Average shareholders' equity, excluding net unrealized (depreciation) appreciation on available-for-sale securites and derivative instruments, net of tax					$2,200.3

($ in millions)	December 31, 2014	March 31, 2015	June 30, 2015	September 30, 2015	December 31, 2015
Total shareholders' equity (GAAP)	$2,844.0	$2,899.9	$2,908.5	$2,877.5	$2,844.4
Less: net unrealized apprecation (depreciation) on investments and derivative instruments, net of tax	300.9	327.7	233.0	197.9	149.9
Total shareholders' equity, excluding net unrealized apprecation (depreciation) on investments and derivative instruments, net of tax	$2,543.1	$2,572.2	$2,675.5	$2,679.6	$2,694.5
Average shareholders' equity (GAAP)					$2,874.9
Average shareholders' equity, excluding net unrealized apprecation (depreciation) on investments and derivative instruments, net of tax					$2,633.0

($ in millions)	December 31, 2019	March 31, 2020	June 30, 2020	September 30, 2020	December 31, 2020
Total shareholders' equity (GAAP)	$2,916.2	$2,736.6	$3,071.7	$3,155.0	$3,202.2
Less: net unrealized appreciation (depreciation) on fixed maturity investments, net of tax	216.0	132.8	384.5	412.3	428.1
Total shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax	2,700.2	2,603.8	2,687.2	2,742.7	2,774.1
Average shareholders' equity (GAAP)					$3,016.3
Average shareholders' equity, excluding net unrealized apprecation (depreciation) on fixed maturity investments, net of tax					$2,701.6