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

Keefe, Bruyette & Woods Conference
September 2023

The Hanover Insurance Group®

The Hanover Insurance Group (NYSE: THG) Overview

	Exchange/Ticker	NYSE: THG
August 30, 2023	Stock price*	$106.00
	Market capitalization*	$3.8 billion
	Annual dividend per share	$3.18 (Yield: 3.0%)
June 30, 2023	GAAP Equity	$2.2 billion
	Equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax	$2.8 billion
	Total Capital	$3.0 billion
	Book value per share	$62.62

Business Mix



Company Ratings*	A.M. Best	S&P Global	Moody's
Financial Strength Ratings			
The Hanover Insurance Company	A	A	A2
Debt Ratings			
Senior Debt	bbb+	BBB	Baa2
Subordinated Debentures	bbb-	BB+	Baa3

As of August 30, 2023

Key Takeaways

Differentiation	Robust product capabilities and analytics combined with distinctive distribution approach and local underwriting drives Hanover's differentiation, positioning us well among both national and regional carriers
Strategy	Our winning business strategy presents a sustainable competitive advantage in the independent agency market
Growth	Broad set of specialized products and capabilities provides distinct growth opportunities, with a particular focus on further expansion of our specialty business
Profitability	Aggressively executing on margin recapture and catastrophe management initiatives; confident in ability to return to top-quartile operating ROE(1) of 14%
Sustainability	Building a sustainable organization by focusing on human capital development, enterprise risk management and impact of climate change

(1) See information about this and other non-GAAP measures and definitions used throughout this presentation on the final pages of this document.

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®

Strategy

Robust Product Capabilities and Analytics Combined with Fulsome Distribution and Local Underwriting Drives Hanover's Differentiation

The Hanover combines the best attributes of Nationals and Regionals

Large Carriers

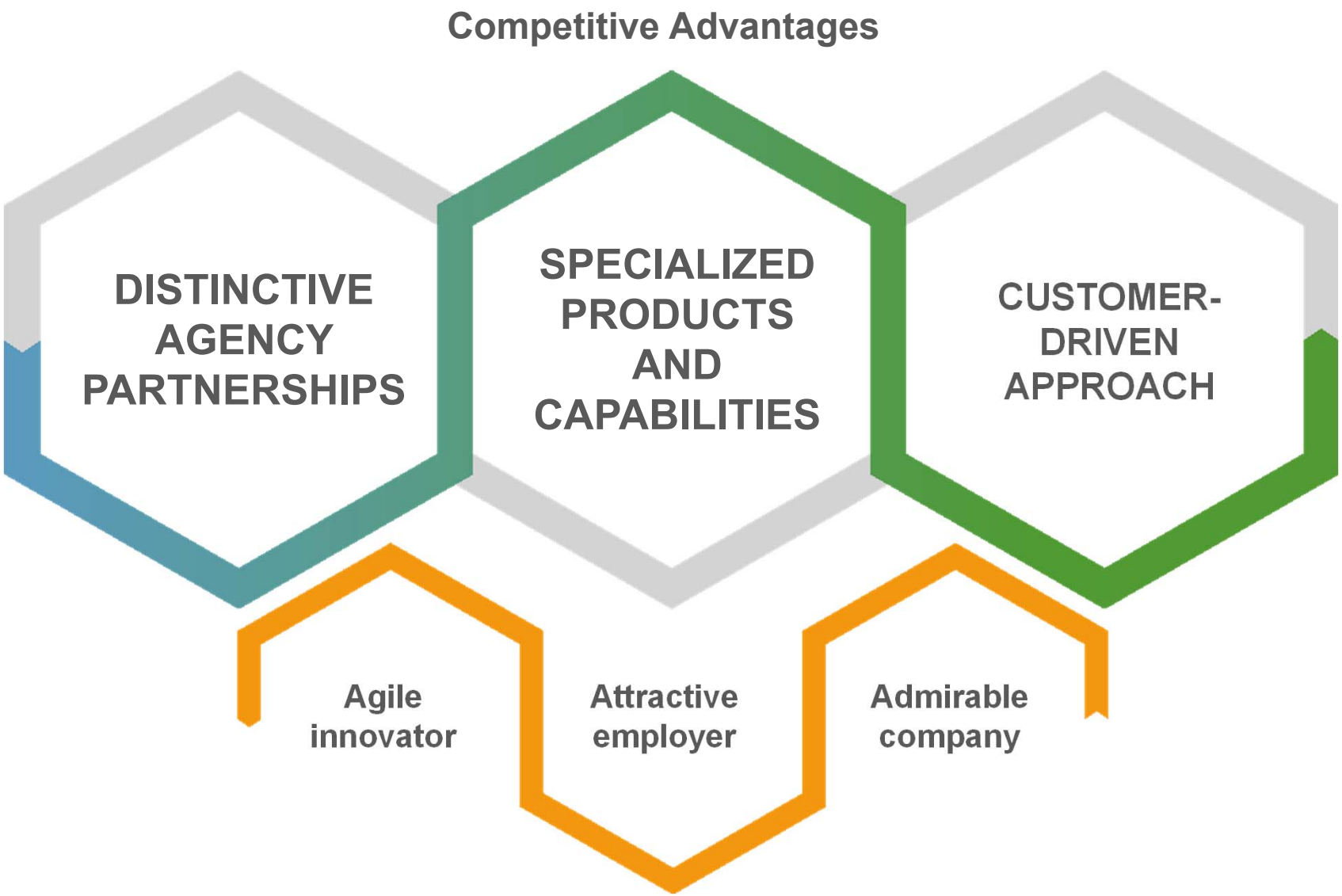
- Broad product offerings
- Technology
- Deep analytics

Regional Carriers

- Local presence
- Robust agency relationships
- Underwriting flexibility

The Hanover Insurance Group®

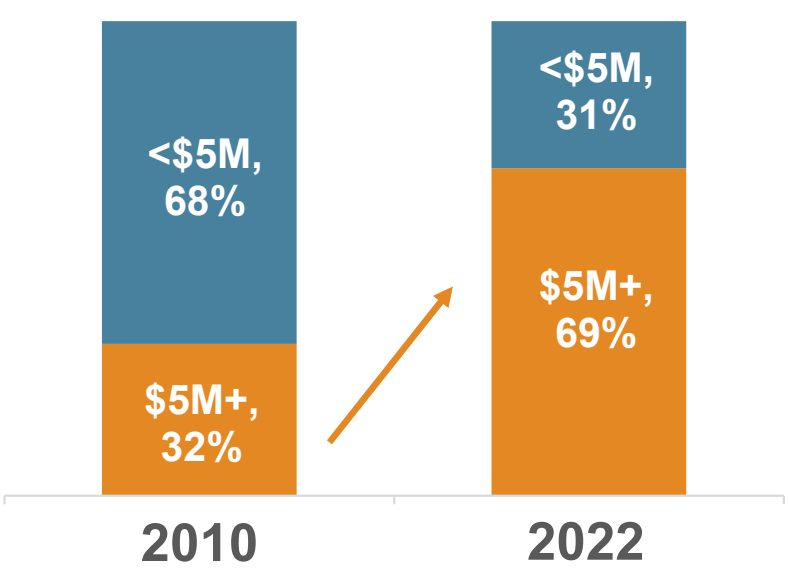
Our Differentiated Strategy Presents a Sustainable Competitive Advantage in the Independent Agency Market



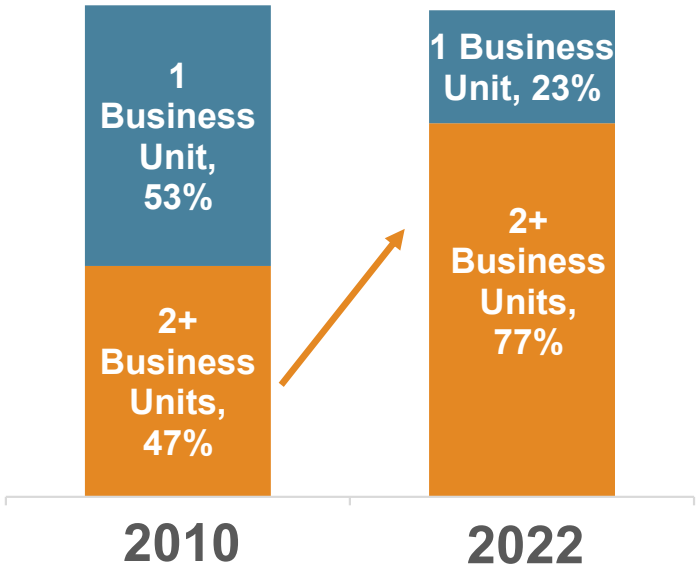
The Hanover Insurance Group®

Our Three-Pronged Agency Approach Focused on Targeted Distribution, Broad and Relevant Underwriting, and Deep Business Insights Drives Growth and Profitability

Depth of Hanover Relationships

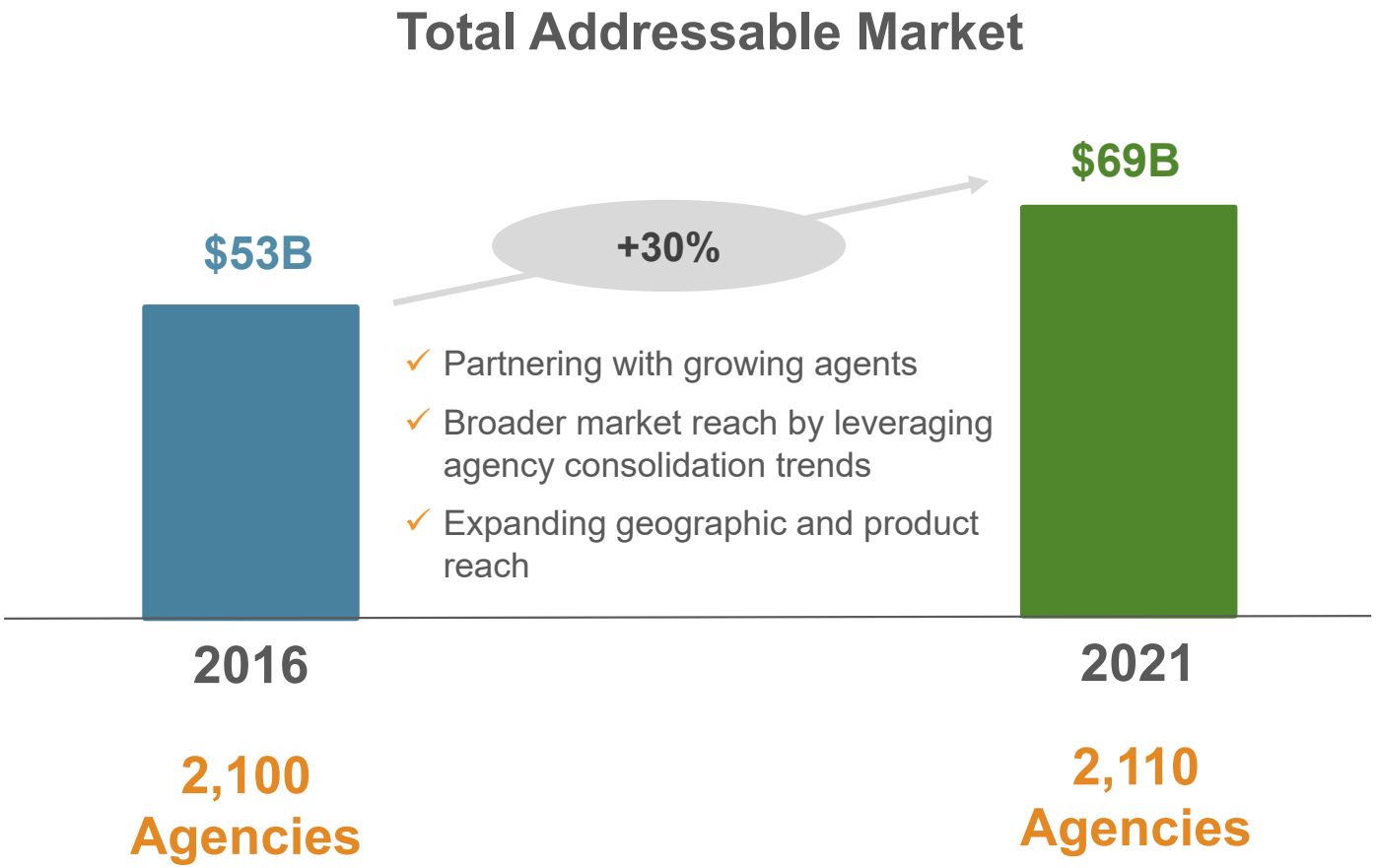


Breadth of Hanover Relationships



Increased depth and breadth of agency relationships drives growth and profitability, and increased relevance leads to higher retention and improved loss ratios

Capitalizing on Our Agents' Growth and Consolidation Trends



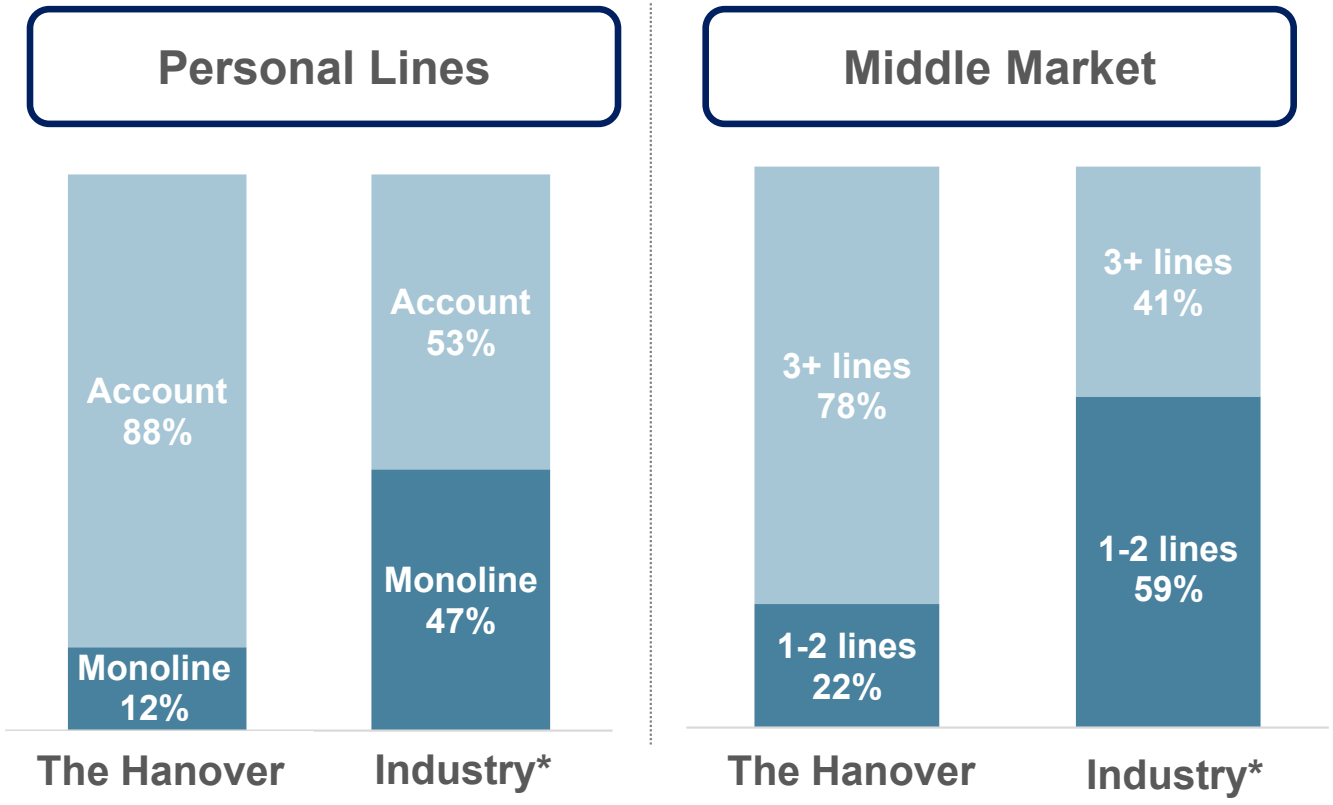
Positioned to drive continued expansion in a consolidating market through organic growth, partnering with consolidators, and new agency appointments

The Hanover Insurance Group®

Partner with Agents to Deliver Holistic, Customer-Centric Solutions

Differentiated and relevant approach in an increasingly fragmented market

Premium mix by number of lines written with one carrier



Confident that our success in personal lines account business can be applied in certain sectors of commercial lines as agents strengthen customer focus

**Data from Hanover appointed independent agencies only who participate in Agency Insight*

Specialized and Differentiated Offering in Each Business Segment

Business Profile
$5.5B 2022 Net Premiums Written

Personal Lines – 41%

- ✓ Account business creates higher retention and lifetime value
- ✓ Expanding up-market to higher value properties
- ⊘ Avoid non-standard and monoline business

Core Commercial – 36%

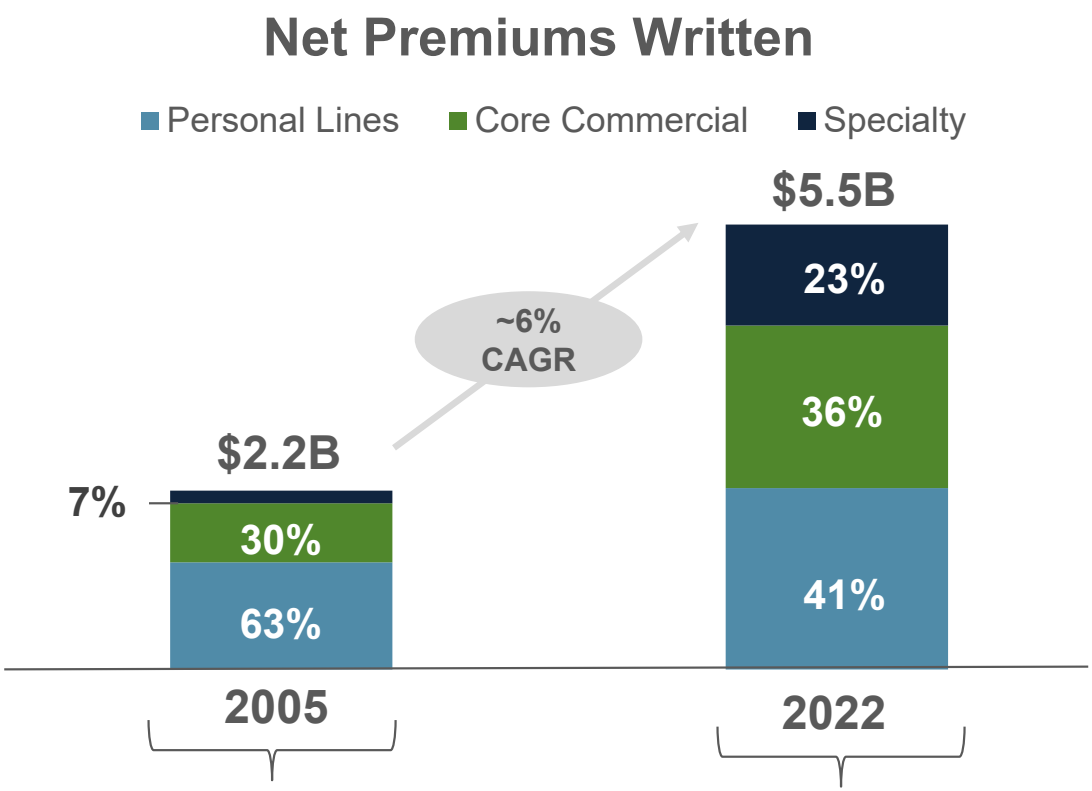
- ✓ Specialized products by industry class
- ✓ Profitable account business (67%)
- ✓ POS and non-POS capabilities
- ⊘ Avoid large account, intensely volatile markets

Specialty – 23%

- ✓ Lower end of the risk and size spectrum
- ✓ Account-based approach, integrated with core commercial
- ✓ Retail agency focus
- ⊘ Avoid typical wholesale distribution model
- ⊘ Avoid potentially volatile products (MedMal, Excess Casualty)

Growth

Transformed into diversified P&C franchise with strong growth opportunities



- Regional footprint
- PL focused
- Property concentration

- National footprint
- Diversified across PL, Core Commercial and Specialty
- Balanced between property/casualty

- ✓ Transformed to a more balanced, differentiated P&C franchise
  - In 1Q22, disaggregated the former Commercial Lines segment into Core Commercial and Specialty segments
- ✓ Change fueled by organic growth and targeted "capabilities" acquisitions
- ✓ Established broad-based profitability
- ✓ Reduced reliance on property lines in challenging geographies
- ✓ Strengthened the balance sheet

The Hanover Insurance Group®

Specialty

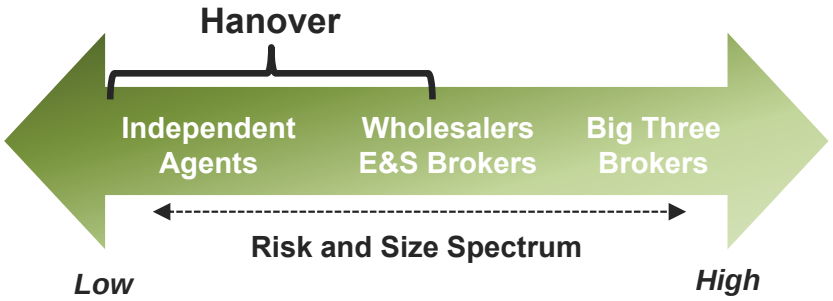
Leading carrier for small to mid-sized clients primarily served by retail agents, with proven growth strategy on track to deliver ~10% CAGR over the next 5 years

Business Mix
$1.3B NPW



Market Focus

Independent agency focus, with an emphasis on the lower-end of the risk and account size spectrum



Growth and Profitability Drivers

- ✓ Expanding product capabilities focused on agent needs
- ✓ Expanding shelf space with agent partners
- ✓ Leveraging Core Commercial to pursue account strategy
- ✓ Capitalizing on rate increases
- ✓ Nearly doubled written premium over the last 10 years using organic and inorganic opportunities

$45B
Market Opportunity

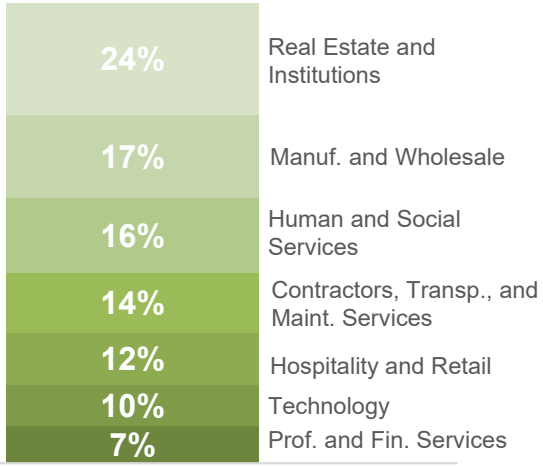
The Hanover Insurance Group®

Core Commercial

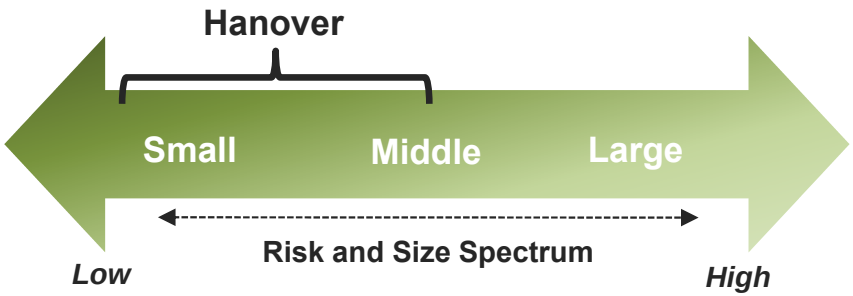
Leading carrier in providing agents with the flexibility between straight through and more complex, risk specific underwriting

Diversified portfolio providing distinctive industry solutions

Business Mix
$2.0B NPW



Market Focus



Growth and Profitability Drivers

- ✓ Deepen agency relationships, 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

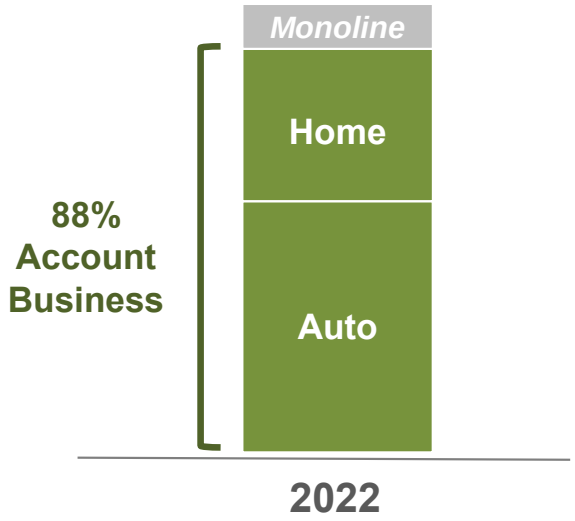
$190B
Market Opportunity

The Hanover Insurance Group®

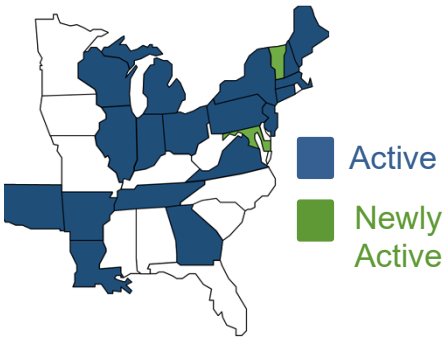
Personal Lines

Leading carrier for whole account offerings for middle market customers across an attractive regional footprint

Business Mix
$2.2B NPW

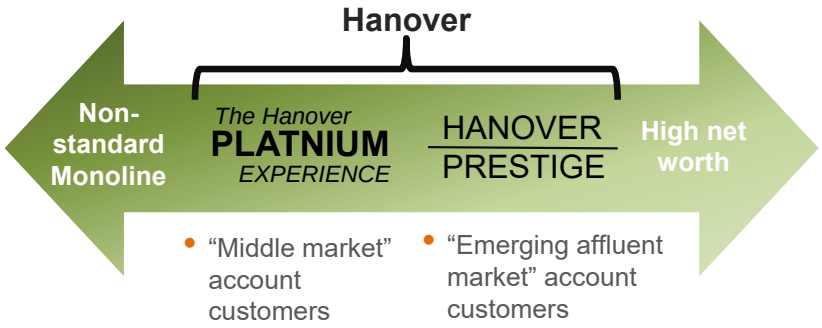


20 State Footprint



Market Focus

Expanding upstream toward a more value-oriented and growing customer segment



Value Drivers

- ✓ Partnering with select independent agents to gain share of preferred accounts (~30% current market share of preferred accounts)
- ✓ Leveraging state-of-the-art TAP Sales platform
- ✓ Continue successful expansion "upmarket" through Prestige product
- ✓ New agency appointments in under-penetrated geographies

$70B
Market Opportunity

The Hanover Insurance Group®

Profitability

Long-term Approach to Financial Discipline Drives Success

- Rigorous underwriting performance management
- Investment in innovation

- Conservative reserving philosophy strengthens resilience
- Limited earnings volatility



- Business investment based on risk-adjusted returns
- Return excess capital to shareholders

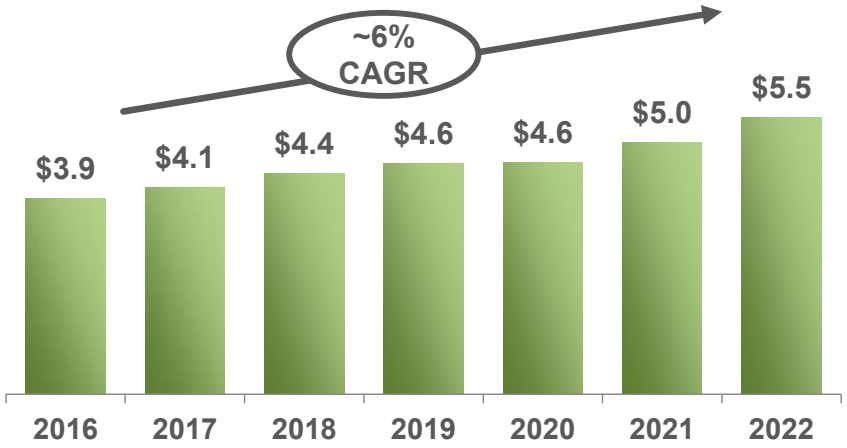
- Enterprise-wide risk management
- Responsible appetite expansion

The Hanover Insurance Group®

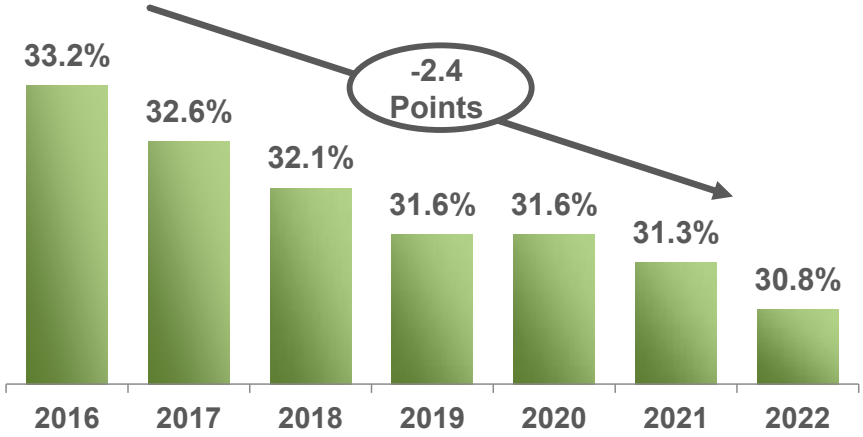
Built a Robust Performance Track Record Over The Last Several Years…

($ in billions)

Net Premiums Written

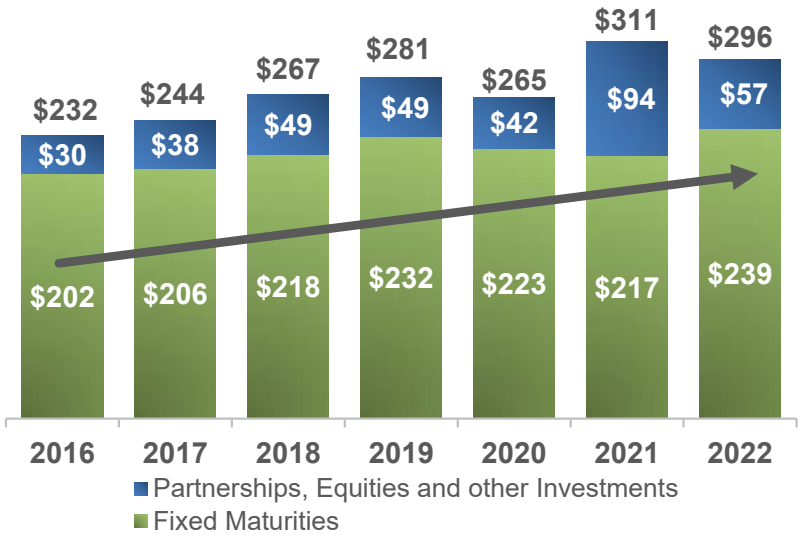


Expense Ratio[(2)]

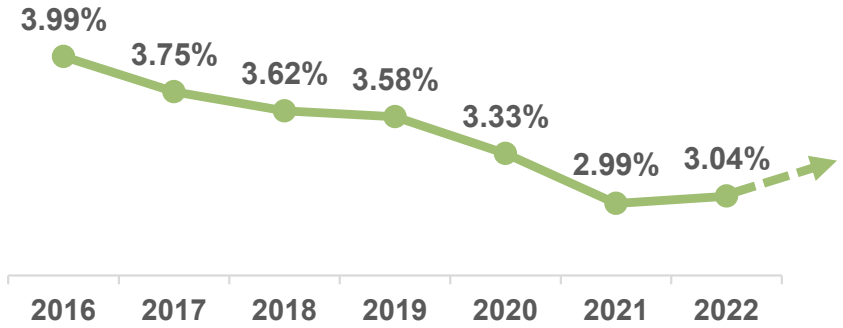


($ in millions)

Pre-Tax Net Investment Income*



Pre-tax Fixed Maturity Investment Yields**

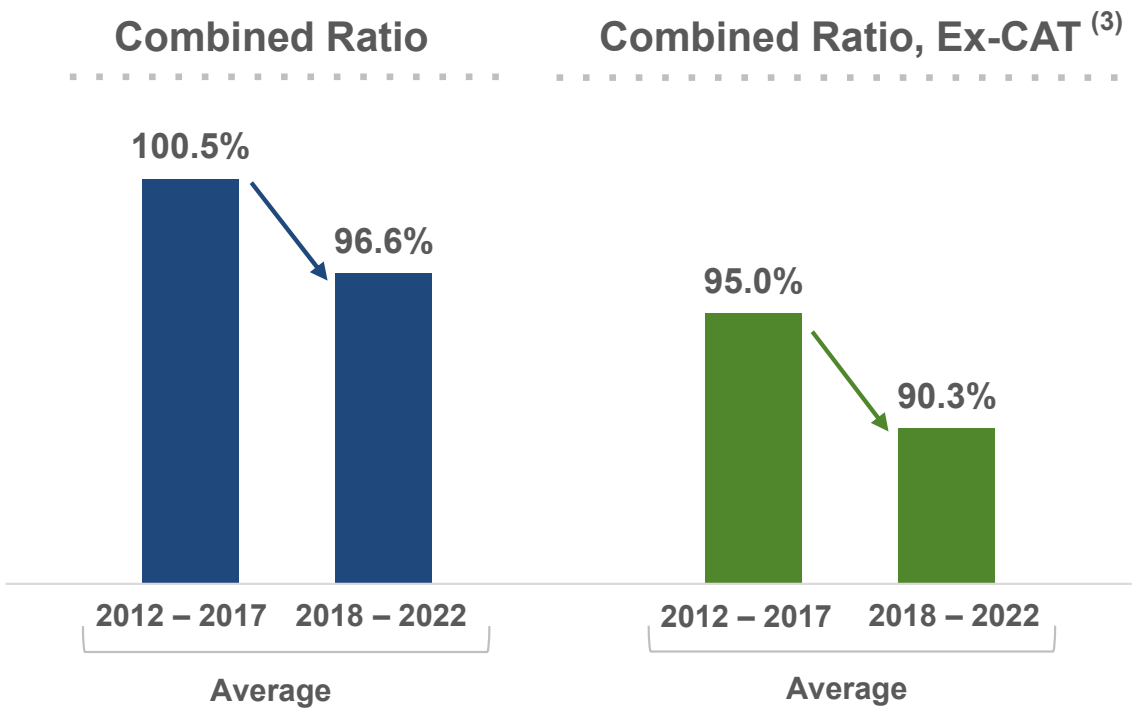


* Net investment income from partnerships, equities and other investments are presented net of investment expenses

** Pre-tax yields represent annualized net investment income for the period divided by the monthly average invested assets at amortized cost or cost, which excludes accumulated changes in fair value for fixed maturities and equity securities

The Hanover Insurance Group®

Strong Execution Delivers Improved Performance

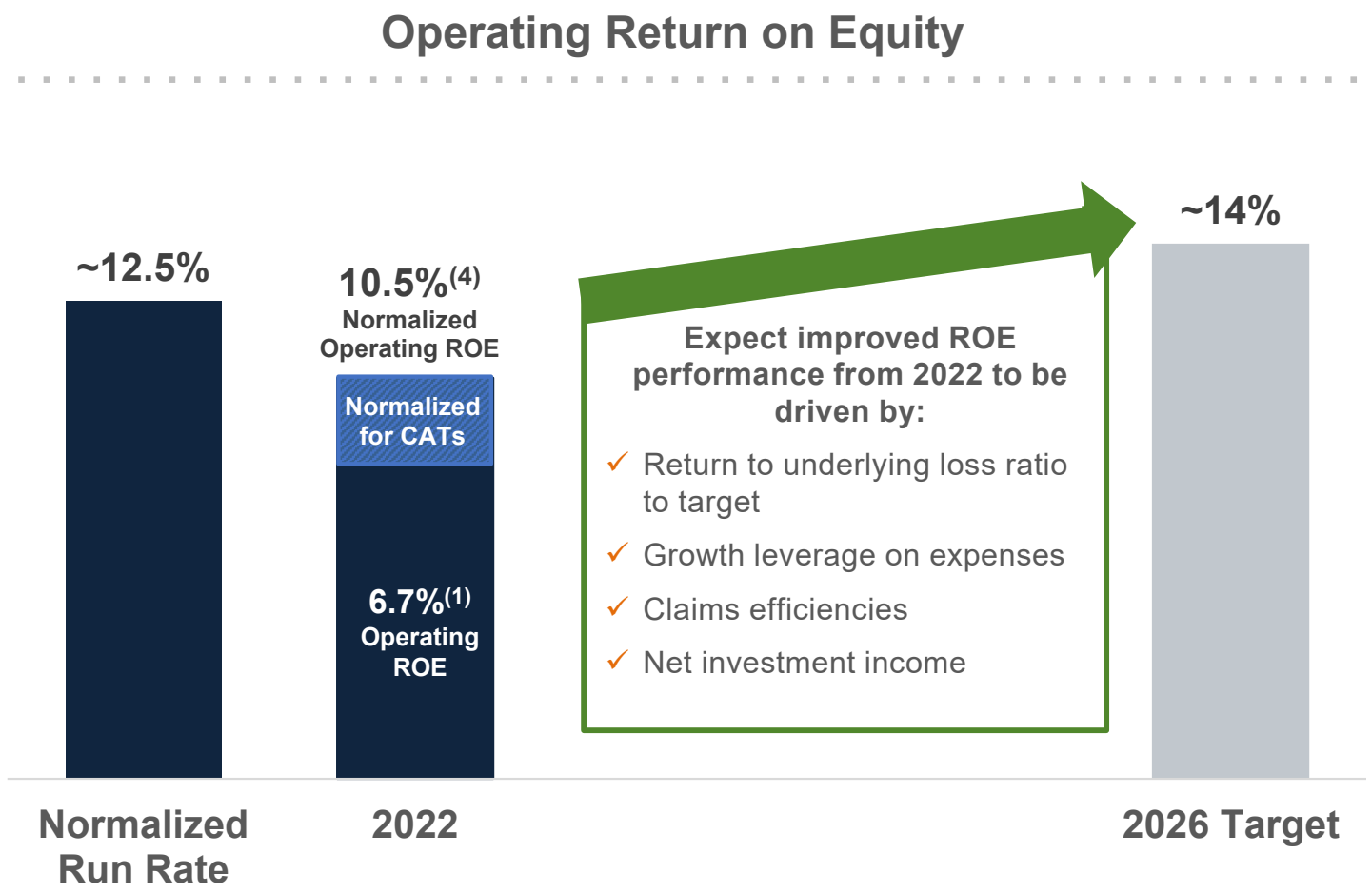


- Improved performance generated by:
  - Lower expense ratio driven by growth and operating efficiencies
  - Improved underlying loss ratio through 2021, supported by our maturing and very profitable Specialty business
- Franchise repositioning delivers robust ROEs

The Hanover Insurance Group®

For additional information regarding forward-looking statements and non-GAAP measures on this page and throughout this presentation, please refer to page 34 of this presentation.

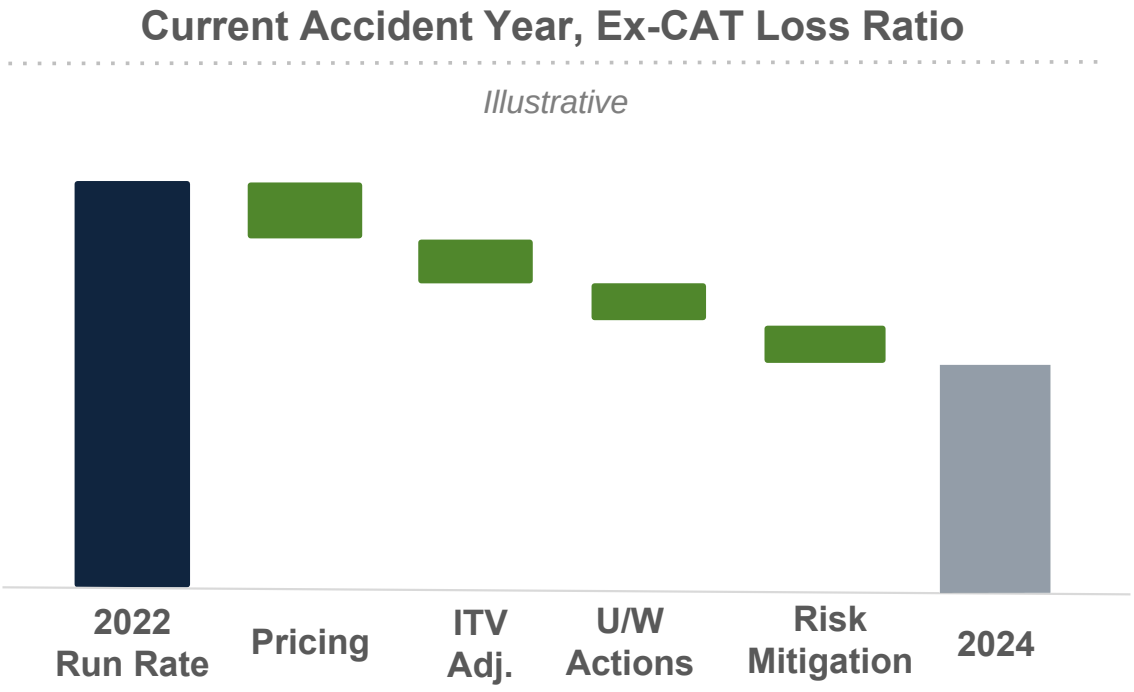
Well-positioned to Deliver on our Long-term ROE Target of 14% or Higher By 2026, Despite Inflationary Pressures and CATs in 2022

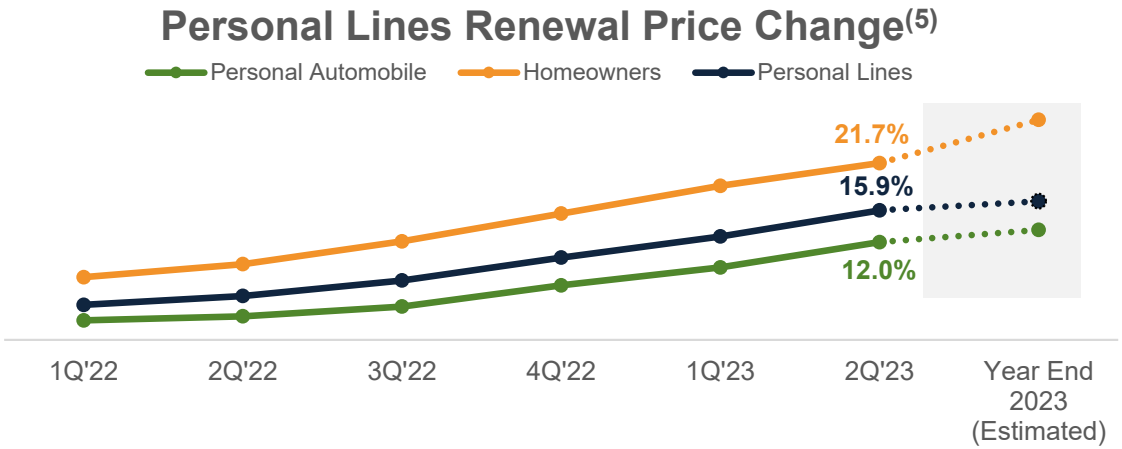


The Hanover Insurance Group®

For additional information regarding forward-looking statements and non-GAAP measures on this page and throughout this presentation, please refer to page 34 of this presentation.

Drivers of Loss Ratio Improvement





- Need to recapture approximately 3.5 points of the loss ratio from elevated 2022 base
- We expect further implementation of accelerated rate filings and exposure adjustments, supported by the hard market, will result in:
  - Homeowners renewal price change* of approximately 27% by the end of the year, which is about nine points above the company's original expectation
  - Personal auto renewal price change* of approximately 13% to 14% in the second half of the year, which is about three to four points above the company's original expectation

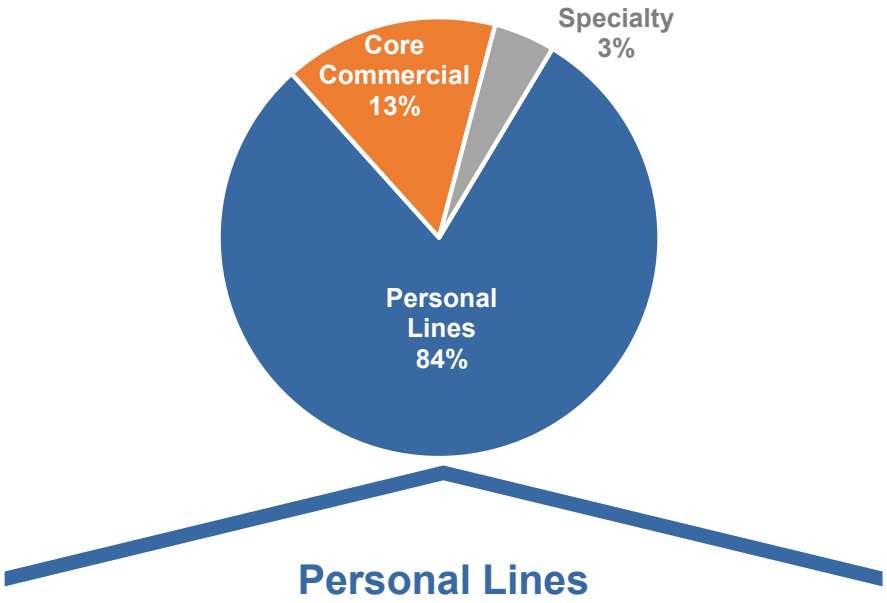
The Hanover Insurance Group®

For additional information regarding forward-looking statements and non-GAAP measures on this page and throughout this presentation, please refer to page 34 of this presentation.

Second Quarter Catastrophe Losses

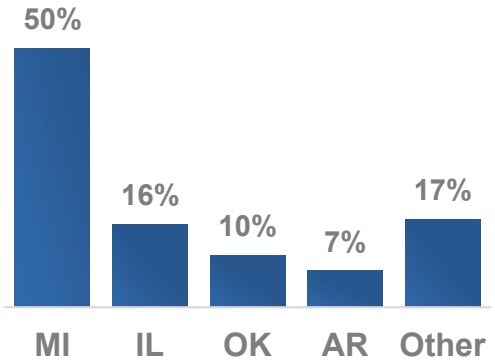
CAY CAT Losses of $261.6 million (18.5pts of CR)

Losses by Segment

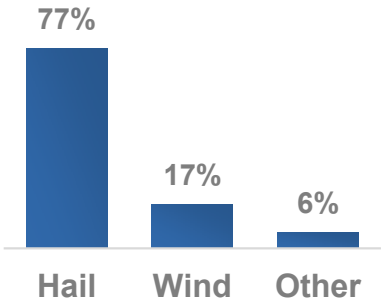


CAY CAT Losses of $210.2 million (36.4pts of CR)

PL CAT Losses by State



PL CAT Losses by Peril



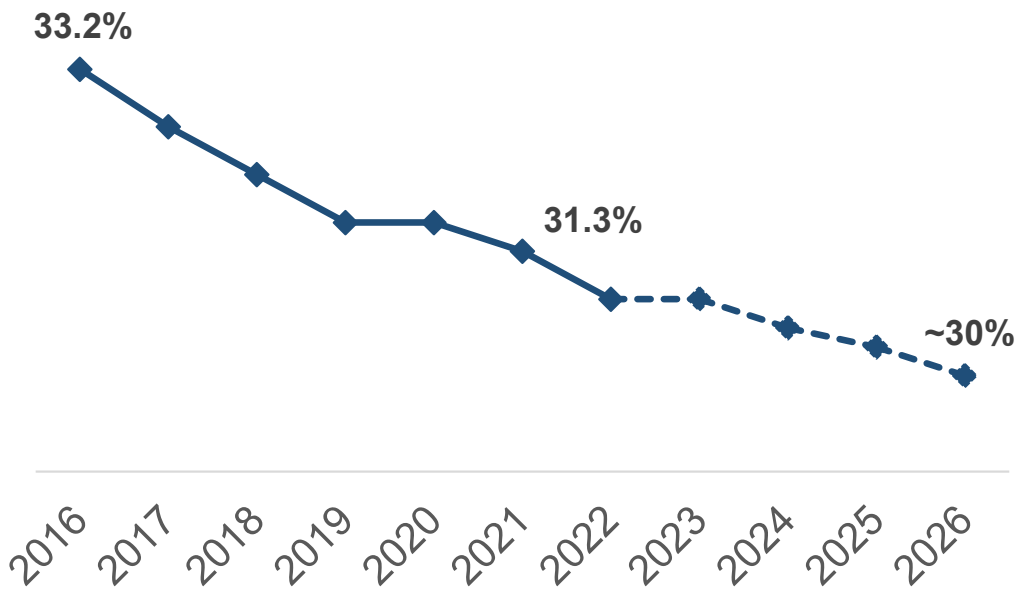
- Catastrophe losses in the second quarter were driven by 19 convective storms across multiple states
- Losses were predominately in Personal Lines, of which:
  - Approximately 50% occurred in Michigan
  - Approximately 77% were from hail damage
- Strong track record of proactively addressing and adapting to catastrophe trends leading to:
  - Lower exposure to hurricanes and coastal risks
  - Much lower concentration and vulnerability to historically exposed tornado regions
  - Significantly more diversified segment mix
- Pursuing property underwriting enhancements, pricing acceleration, and more assertive loss control and risk prevention measures
- Implementing the following home product changes where permissible to reduce future CAT vulnerability:
  - Increasing all-peril deductibles to specific minimum levels by coverage A limit
  - Implementing wind and hail deductibles in multiple states
  - Transitioning to an amortizing actual cash-value schedule for roofs as our standard offering

The Hanover Insurance Group®

For additional information regarding forward-looking statements and non-GAAP measures on this page and throughout this presentation, please refer to page 34 of this presentation.

Continued Fixed Cost Leverage From Growth is the Foundation of Improved Financial Performance Looking Forward

Expense Ratio Improvement from Fixed Cost Leverage



- Expect at least 20 basis point annual improvement via fixed cost leverage
- After significant investment in modernization of our enterprise platforms, funding becomes increasingly available to further enable business growth and innovation

Remain on track to deliver 130 basis points of expense ratio improvement on the $2 billion in premium growth by 2026

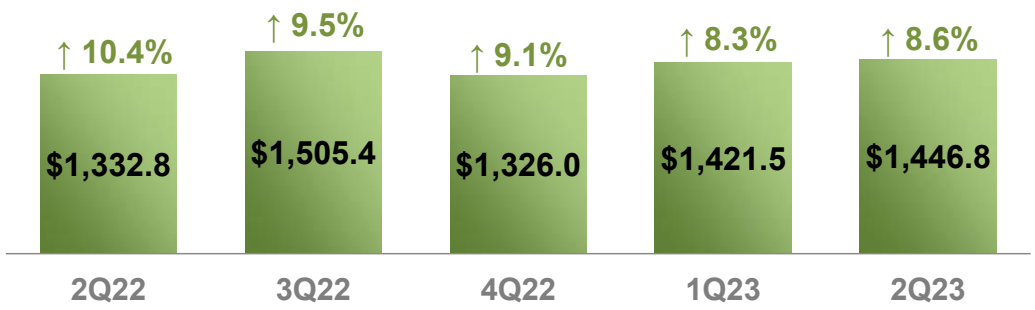
The Hanover Insurance Group®

For additional information regarding forward-looking statements and non-GAAP measures on this page and throughout this presentation, please refer to page 34 of this presentation.

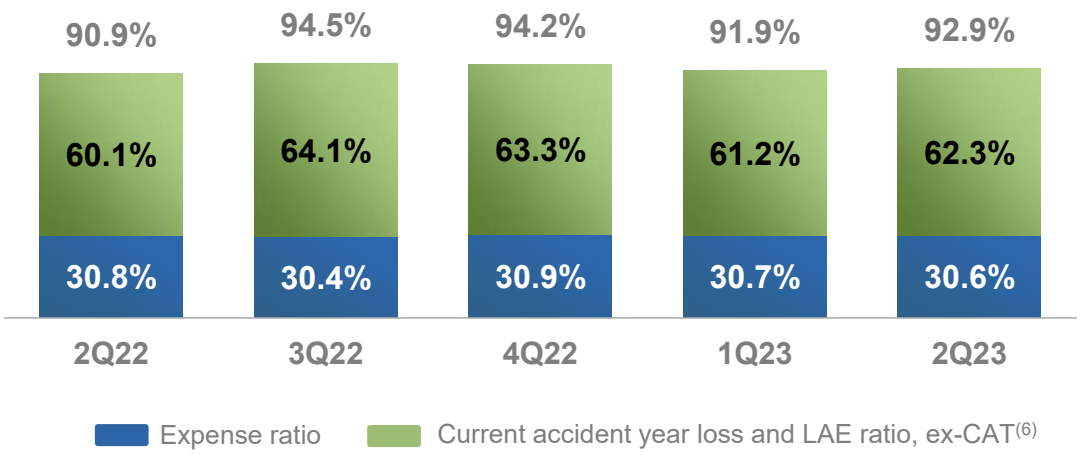
Second Quarter Underwriting Results

($ in millions)

Net Premiums Written and Growth



Current Accident Year Combined Ratio, Ex-CAT[5]



- Second quarter 2023 net loss of $69.2 million, or $(1.94) per basic share
- Operating loss[1] of $68.3 million, or $(1.91) per basic share, in the second quarter of 2023
- Second quarter 2023 combined ratio of 111.3%, increased 15.1 points from the prior-year quarter, driven by catastrophe losses stemming from 19 convective storms across multiple states
- Current accident year combined ratio, ex-CAT, increased 2.0 points from the prior-year quarter, and was slightly above the company's expectations for the second quarter of 2023
  - Core Commercial current accident year loss and LAE ratio, ex-CAT, improved 0.8 points from the prior-year quarter, primarily due to favorable property large loss trends in commercial multiple peril
  - Specialty current accident year loss and LAE ratio, ex-CAT, increased 1.7 points from the prior-year quarter, reflecting prudently increased loss selections in certain liability coverages, as well as a comparison to an unusually low level of losses in specialty property lines in the second quarter of 2022
  - Personal Lines current accident year loss and LAE ratio, ex-CAT, increased 5.2 points from the prior-year quarter, primarily driven by inflationary pressure on auto and homeowners property and, to a lesser extent, pressure on liability coverages in auto and unusually high large fire losses in homeowners

Technology Investments to Enhance Our Front-End Capabilities and Generate Efficiencies

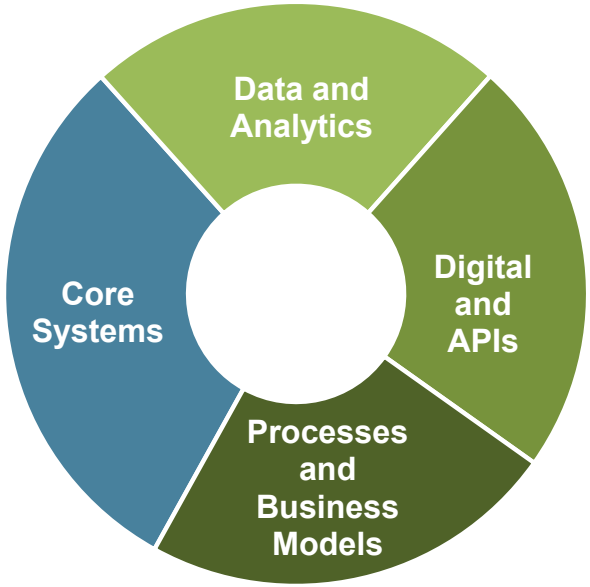
2016 – 2020
Foundation building

Invested over $200 million to upgrade or replace nearly all **core systems** within our technology stack:

- Small commercial platform
- Personal Lines platforms
- Claims
- Billing, General ledger

2021 and beyond
Customer and agent experience

Open-ended infrastructure allows for agility in future innovation and investments in R&D

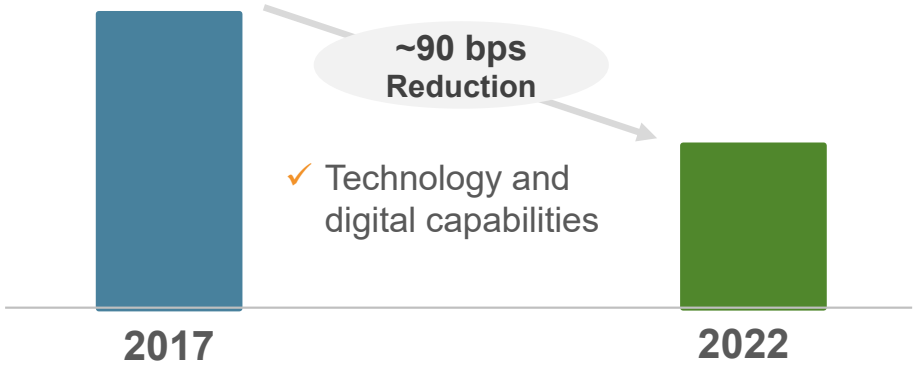


Our Claims Organization is a Strong Contributor to Earnings and Growth

Claims Strategy

- Enhance customer experience through digital and self-service
- Optimize indemnity outcomes by leveraging data and analytics
- Reduce operating costs through the integration of AI and automation

Unallocated Loss Adjustment Expense ("ULAE")



Remain on track to deliver 80 to 100 basis point reduction in the loss adjustment expense ("LAE") ratio by 2026, as a result of our claims strategy implementation

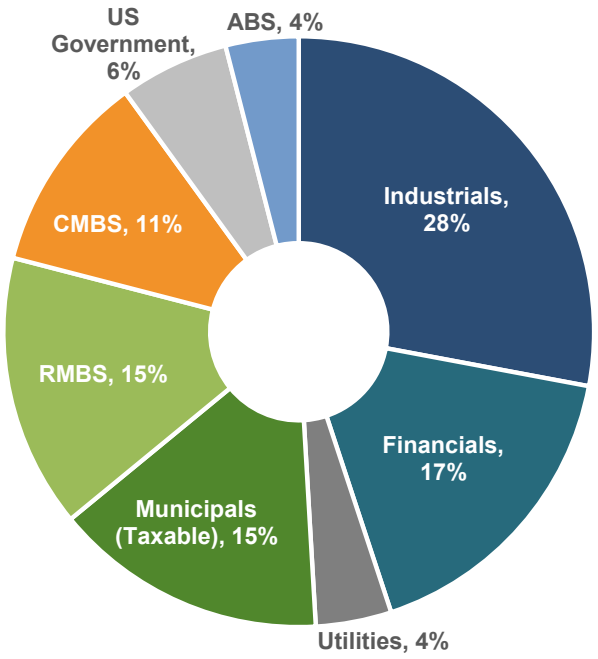
The Hanover Insurance Group®

High Quality, Diversified Investment Portfolio

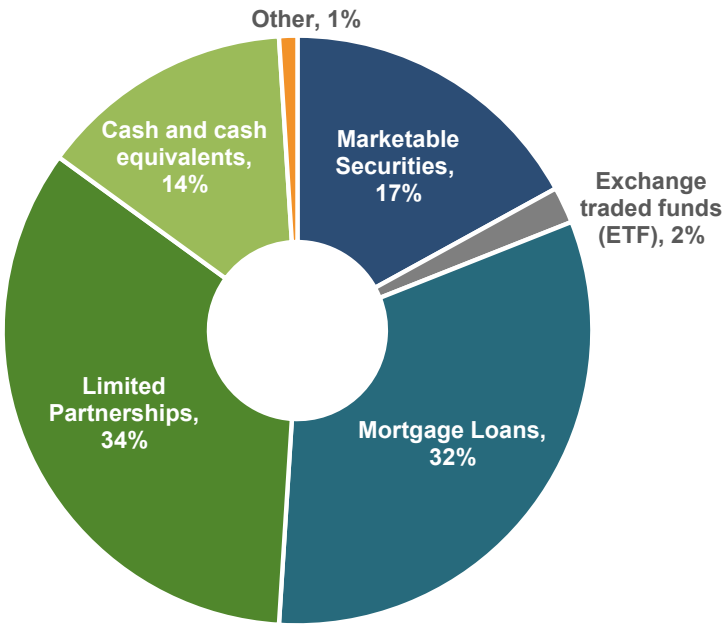
Total invested assets and capital of $8.8 billion

As of June 30, 2023

Fixed Maturities: $7.6 billion



Equities, Cash and Other: $1.2 billion



High-quality, well-laddered fixed income portfolio

- 95% of fixed maturity securities are investment grade
- Weighted average quality: A+
- Duration: 4.1 years

The Hanover Insurance Group®

Sustainability

Recent ESG updates

Process



- Embedding ESG into our business strategy
- Established Board of Directors oversight of ESG
- Established a cross disciplinary management committee, known as our **ESG Council**
- Created and following a responsible investment policy

Disclosures



- Launched Global Reporting Initiative (GRI) Index in 2019
- Created GRI disclosure that cross references to TCFD in 2021
- Signed CEO Action for Diversity and Inclusion pledge in 2019; signed Insurer's Principles of Climate Change Adaptation
- Published an inaugural sustainability report in 2023

Awards

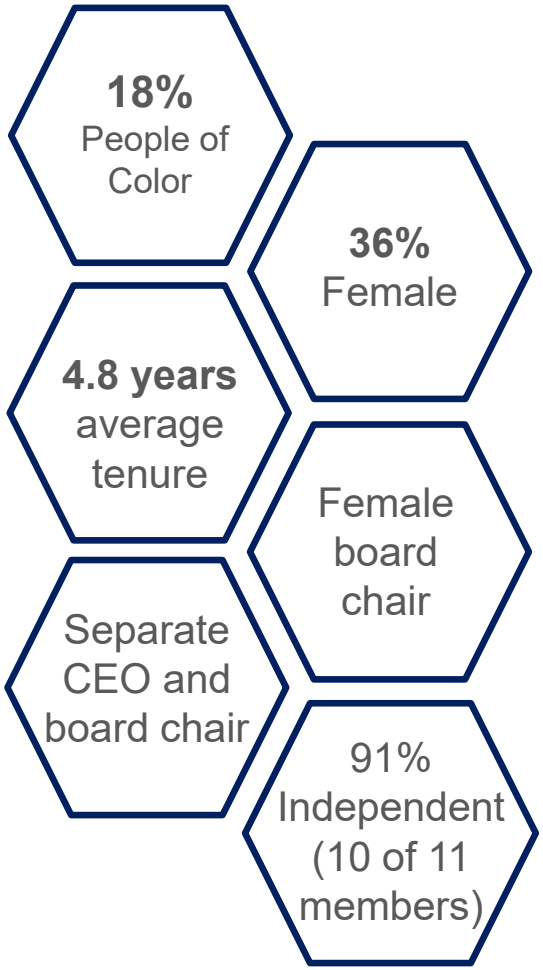


- 100% score on Human Rights Corporate Equality Index
- Recognized by Forbes as one of America's best midsize employers
- Named one of America's Most Responsible Companies by Newsweek
- Women on Boards Winning Company

The Hanover Insurance Group®

Diverse Board Focused on Delivering Sustainable, Long-Term Stakeholder Value Through Strong Governance

	Board Member	Selected Experience
	**Cynthia Egan** *Chair of the Board*	T. Rowe Price, Fidelity
	**Francisco Aristeguieta**	Citigroup, State Street
	**Kevin Bradicich**	McKinsey
	**Theodore Bunting, Jr.**	Entergy
	**Jane Carlin**	Morgan Stanley, Credit Suisse
	**J. Paul Condrin III**	Liberty Mutual, KPMG
	**Martin Hughes**	HUB
	**Kathleen Lane**	TJX, National Grid, Gillette, GE, Pepsi
	**Joseph Ramrath**	Colchester Partners, United Asset Management
	**Elizabeth Ward**	MassMutual, Babson Capital Management
	**Jack Roche** *CEO, The Hanover*	Travelers, Fireman's Fund, Atlantic Mutual



Collective Expertise

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

The Hanover Insurance Group®

About The Hanover

The Hanover Insurance Group, Inc. is the holding company for several property and casualty insurance companies, which together constitute one of the largest insurance businesses in the United States. The company provides exceptional insurance solutions through a select group of independent agents and brokers. Together with its agent partners, The Hanover offers standard and specialized insurance protection for small and mid-sized businesses, as well as for homes, automobiles, and other personal items. For more information, please visit hanover.com.

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," "expect," "may," "projects," "projections," "plan," "likely," "potential," "targeted," "forecasts," "should," "could," "continue," "outlook," "guidance," "modeling," "target profitability," "target margins," "moving forward," "confident," "will," 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 judgment, 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 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; interest rate assumptions, renewal price change, rate, and/or the effective tax rate;
- The company's ability to deliver on expectations set forth related to target margins, target returns and/or return to target profitability in total or by line of business;
- The company's ability to deliver on its long-term targets, including, but not limited to, return on equity;
- The lingering impacts of the global pandemic ("Pandemic") and general economic and sociopolitical conditions on the company's operating and financial results, including, but not limited to, the impact on the company's investment portfolio, changes in claims frequency as a result of fluctuations in economic activity, and/or severity from higher cost of repairs due to, among other things, supply chain disruptions and inflation;
- 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 liquidity and capital levels;
- Variability of catastrophe losses due to risk concentrations, changes in weather patterns including climate change, and severe weather including wildfires, hurricanes, terrorism, civil unrest, winter storms, tornados, 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;
- Changes in frequency and loss severity trends in Core Commercial, Specialty and/or Personal Lines;
- Ability to manage the impact of inflationary pressures, as a result of and following the Pandemic, global market disruptions, geopolitical events or otherwise, including, but not limited to, supply chain disruptions, labor shortages, and increases in cost of goods, services, labor, and materials;
- 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;
- Risks and uncertainties with respect to our ability to retain profitable policies in force and attract profitable policies, achieve renewal price increases, and to increase rates commensurate with, or in excess of, loss trends;
- Mix improvement, underwriting initiatives, coverage restrictions, non-renewals, and pricing segmentation, 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, inflationary pressures and corresponding governmental and/or central banking initiatives taken in response thereto, and geopolitical circumstances on new money yields and overall investment returns.

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:

- Changes in regulatory, legislative, economic, market and political conditions, particularly with respect to rates, the use of data, technology and artificial intelligence, policy terms and conditions, payment flexibility, and regions where the company has geographical concentrations;
- Heightened volatility, fluctuations in interest rates (which have a significant impact on the market value of our investment portfolio and thus our book value), inflationary pressures, default rates and other factors that affect investment returns from the investment portfolio;
- Recessionary economic periods that may inhibit the company's ability to increase pricing or renew business, or otherwise impact the company's results, and which may be accompanied by higher claims activity in certain lines;
- Data security and privacy incidents, including, but not limited to, those resulting from a malicious cyber security attack on the company or its business partners and service providers, or intrusions into the company's systems, including cloud-based data storage, or data sources;
- Adverse claims experience, including those driven by large or increased frequency and/or severity of catastrophe events, including those related to wildfires, winter storms, hurricanes, terrorism, civil unrest, riots or other severe weather;
- The limitations and assumptions used to model non-catastrophe 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;
- Changes in weather patterns and severity, whether as a result of global climate change, or otherwise, causing a higher level of losses from weather events to persist;
- Litigation and the possibility of adverse judicial decisions, including those which expand policy coverage beyond its intended scope and/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;
- Competition, particularly from competitors who have resource and capability advantages;
- The global macroeconomic environment, including actions taken in response to the Pandemic, inflation, recessionary effects, global trade disputes, war, 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 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 on or breaches of the company's systems and/or impacting our outsourcing relationships and third-party operations, 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;
- 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); and,
- Continuing risks and uncertainties associated with the impact of the Pandemic and related general economic conditions

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, except as required by law.

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, 2022, the company uses non-GAAP financial measures as important measures of its operating performance, including operating income (loss), operating income (loss) before interest expense and income taxes, operating income (loss) 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 2022 Annual Report on pages 63-66.

Operating income (loss) and operating income (loss) per share are non-GAAP measures. They are defined as net income (loss) excluding the after-tax impact of net realized and unrealized investment gains (losses), gains and/or losses on the repayment of debt, other non-operating items, and results from discontinued operations. Net realized and unrealized investment gains (losses), which include changes in the fair value of equity securities still held, are excluded for purposes of presenting operating income (loss), as they are, to a certain extent, determined by interest rates, financial markets and the timing of sales. Operating income (loss) 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 (loss) is the sum of the segment income (loss) from: Core Commercial, Specialty, Personal Lines, and Other, after interest expense and income taxes. In reference to one of the company's four segments, "operating income (loss)" is the segment income (loss) before both interest expense and income taxes. The company also uses "operating income (loss) per diluted (basic) share" (which is after both interest expense and income taxes). Operating income per share is calculated by dividing operating income by the weighted average number of diluted shares of common stock. Operating loss per share is calculated by dividing operating loss by the weighted average number of basic shares of common stock due to antidilution. The company believes that metrics of operating income (loss) and operating income (loss) in relation to its four segments provide investors with a valuable measure of the performance of the company's continuing businesses because they highlight the portion of net income (loss) attributable to the core operations of the business. Income (loss) from continuing operations is the most directly comparable GAAP measure for operating income (loss) (and operating income (loss) before income taxes) and measures of operating (loss) that exclude the effects of catastrophe losses and/or prior-year reserve development should not be misconstrued as substitutes for income (loss) from continuing operations or net income (loss) determined in accordance with GAAP. A reconciliation of operating income (loss) to income (loss) from continuing operations and net income (loss) for the relevant periods is included on page 36 of this presentation.

Operating return on average 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 (loss). 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 (loss) and shareholders' equity of the entire company and without adjustments.

The company may provide measures of operating income (loss) 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, tornados, windstorms, earthquakes, hail, severe winter weather, freeze events, 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 "current 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 prior-year reserve development. The presentation of loss and combined ratios calculated excluding the effects of catastrophe losses and/or prior-year reserve development should not be misconstrued as substitutes for the loss and/or combined ratios determined in accordance with GAAP.

Forward-looking Non-GAAP Measures

The company calculates forward-looking non-GAAP financial measures based on its internal forecasts, among other factors. Forward-looking non-GAAP measures, including normalized run rate, and 2026 forecast, are not reconciled because such measures and reconciliations are not available without unreasonable effort that would require the company to make estimates or assumptions about unidentified and unknown factors during the period referenced, such as catastrophes, economic and market conditions, and competitive factors, among others. References to return on equity ("ROE") throughout this presentation reference operating ROE, which is a non-GAAP measure. The company's forecast, including, but not limited to, operating return on equity ("ROE"), net premiums written ("NPW"), operating earnings per share ("EPS"), book value per share ("BVPS") and expense ratio, are non-GAAP measures. The company's forecast represents long-term aspirational goals, which reflect the company's current expectations for future periods and could differ materially from actual results. Normalized run rate for operating ROE includes normalization for catastrophe losses, favorable prior-year development, partnership income and current accident year losses, primarily from COVID-19.

End notes

(1) Operating income (loss) and operating income (loss) per diluted (basic) share are non-GAAP measures. The following tables provide the reconciliation of operating income (loss) and operating income (loss) per diluted (basic) share to the most directly comparable GAAP measures, income (loss) from continuing operations and income (loss) from continuing operations per diluted (basic) share, respectively, which are then reconciled to net income (loss) and net income (loss) per diluted (basic) share, respectively, and is shown in the table below. Operating Return on Average Equity ("Operating ROE") is a non-GAAP measure. Operating ROE is calculated by dividing annualized operating income (loss) (after taxes for the applicable period (see under the heading in this presentation "Non-GAAP Financial Measures") by the average shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, (end note (8)). 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 is shown below.

The Hanover Insurance Group, Inc.

($ in millions, except per share data)	Year ended December 31, 2022 $ Amount	Year ended December 31, 2022 Per Share (Diluted)	Three months ended June 30, 2023 $ Amount	Three months ended June 30, 2023 Per Share*
Operating income (loss)				
Core Commercial	$ 106.9		$ 60.1	
Specialty	186.0		54.4	
Personal Lines	(8.8)		(194.1)	
Other	1.0		0.2	
Total	285.1		(79.4)	
Interest expense	(34.1)		(8.6)	
Operating income (loss) before income taxes	251.0	$ 6.95	(88.0)	$ (2.46)
Income tax benefit (expense) on operating income (loss)	(51.1)	(1.42)	19.7	0.55
Operating income (loss) after income taxes	199.9	5.53	(68.3)	(1.91)
Non-operating items:				
Net realized gains (losses) from sales and other	(26.5)	(0.73)	0.1	-
Net change in fair value of equity securities	(63.3)	(1.75)	(1.1)	(0.03)
Recoveries (impairments) on investments:				
Credit-related impairments	(1.9)	(0.05)	(1.7)	(0.05)
Losses on intent to sell securities	(14.8)	(0.41)	-	-
	(16.7)	(0.46)	(1.7)	(0.05)
Other non-operating items	(0.5)	(0.02)	-	-
Income tax expense on non-operating items	23.9	0.66	1.0	0.03
Income (loss) from continuing operations, net of taxes	116.8	3.23	(70.0)	(1.96)
Discontinued operations (net of taxes):				
Income from discontinued Chaucer business	-	-	0.8	0.02
Loss from discontinued life businesses	(0.8)	(0.02)	-	-
Net income (loss)	$ 116.0	$ 3.21	$ (69.2)	$ (1.94)
Dilutive weighted average shares outstanding		36.1		36.0
Basic weighted average shares outstanding		35.6		35.7

($ in millions)	Year ended December 31, 2022
Net Income ROE	
Net income (GAAP)	$ 116.0
Average shareholders' equity (end note (8))	2,636.3
Return on equity	4.4%
Operating Income ROE	
Operating income after income taxes	$ 199.9
Average shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax (end note (8))	3,002.0
Operating return on equity	6.7%

*Per share data is calculated using basic shares outstanding due to antidilution.

End notes continued

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

(3) Combined ratio, excluding catastrophes, is a non-GAAP measure. The combined ratio (which includes catastrophe losses and prior-year loss reserve development) is the most directly comparable GAAP measure. A reconciliation of the GAAP combined ratio to the combined ratio, excluding catastrophes, is shown below.

	Years ended										
	December 31, 2012	December 31, 2013	December 31, 2014	December 31, 2015	December 31, 2016	December 31, 2017	December 31, 2018	December 31, 2019	December 31, 2020	December 31, 2021	December 31, 2022
Total combined ratio (GAAP)	108.5%	98.9%	99.3%	98.0%	100.4%	97.3%	96.1%	95.6%	94.4%	97.0%	99.8 %
Less: Catastrophe ratio	10.0%	3.1%	5.6%	4.5%	3.1%	6.4%	5.2%	3.8%	6.3%	8.4%	7.7%
Combined ratio, excluding catastrophe losses (non-GAAP)	98.5%	95.8%	93.7%	93.5%	97.3%	90.9%	90.9%	91.8%	88.1%	88.6%	92.1%

(4) “Normalized Operating ROE” is a non-GAAP financial measure and is used for illustrative purposes only. “Normalization” is not intended to imply a forward-looking statement or future expectations but is intended to illustrate results after specific adjustments. Normalization factors for the ongoing operations of the 2022 period assumes a catastrophe loss ratio of 5.0% of net earned premiums, as compared to 7.7% actually incurred for the full year 2022. Catastrophe losses are unpredictable in timing and magnitude and past experience is not indicative of future results (see additional risks and uncertainties on page 33). The following is a reconciliation of normalized operating ROE to net income ROE.

($ in millions)	Year ended December 31, 2022
Net Income ROE	
Net income (GAAP)	$ 116.0
Average shareholders' equity (end note (8))	2,636.3
Return on equity	4.4%
Operating Income ROE	
Operating income after income taxes	$ 199.9
Average shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax (end note (8))	3,002.0
Operating return on equity	6.7%
Normalized Operating Income ROE	
Operating return on equity	6.7%
Normalization factors:	
Catastrophe losses	3.8%
Normalized operating return on equity	10.5%

The Hanover Insurance Group®

End notes continued

(5) Current accident year combined ratio, excluding catastrophes, is a non-GAAP measure. The combined ratio (which includes catastrophe losses and prior-year loss reserve development) is the most directly comparable GAAP measure. A reconciliation of the GAAP combined ratio to the current accident year combined ratio, excluding catastrophes, is shown below.

	Three months ended June 30, 2023			
	Core Commercial	Specialty	Personal Lines	Total
Total combined ratio (GAAP)	95.8%	88.4%	138.0%	111.3%
Less: Catastrophe ratio	6.5%	2.8%	38.0%	18.5%
Combined ratio, excluding catastrophe losses (non-GAAP)	89.3%	85.6%	100.0%	92.8%
Less: Prior-year reserve development ratio	0.1 %	(3.7)%	1.6 %	(0.1)%
Current accident year combined ratio, excluding catastrophe losses (non-GAAP)	89.2%	89.3%	98.4%	92.9%
	June 30, 2022			
Total combined ratio (GAAP)	92.6%	89.4%	103.2%	96.2%
Less: Catastrophe ratio	3.7%	2.2%	10.2%	6.0%
Combined ratio, excluding catastrophe losses (non-GAAP)	88.9%	87.2%	93.0%	90.2%
Less: Prior-year reserve development ratio	(0.6)%	(0.4)%	(1.0)%	(0.7)%
Current accident year combined ratio, excluding catastrophe losses (non-GAAP)	89.5%	87.6%	94.0%	90.9%

(6) 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. A reconciliation of the GAAP loss ratio to the current accident year loss and LAE ratio, excluding catastrophe losses is shown below.

	Three months ended June 30, 2023					
	Core Commercial	Specialty	Personal Auto	Home & Other	Personal Lines	Total
Total loss and LAE ratio (GAAP)	62.8 %	53.1 %	84.3 %	151.6 %	112.1 %	80.7 %
Less:						
Prior-year reserve development ratio	0.1 %	(3.7)%	1.5 %	1.8 %	1.6 %	(0.1)%
Catastrophe ratio	6.5 %	2.8 %	3.7 %	87.0 %	38.0 %	18.5 %
Current accident year loss and LAE ratio, excluding catastrophes (non-GAAP)	56.2 %	54.0 %	79.1 %	62.8 %	72.5 %	62.3 %
	June 30, 2022					
Total loss and LAE ratio (GAAP)	60.1 %	54.1 %	72.0 %	83.4 %	76.5 %	65.4 %
Less:						
Prior-year reserve development ratio	(0.6)%	(0.4)%	(0.9)%	(1.2)%	(1.0)%	(0.7)%
Catastrophe ratio	3.7 %	2.2 %	0.9 %	24.4 %	10.2 %	6.0 %
Current accident year loss and LAE ratio, excluding catastrophes (non-GAAP)	57.0 %	52.3 %	72.0 %	60.2 %	67.3 %	60.1 %

End notes continued

(7) Renewal price change in Personal Lines represents the average change in premium on policies available to renew caused by the net effects of filed rate, inflation adjustments or other changes in policy level exposure or insured risks, regardless of whether or not the policies are retained for the duration of their contractual terms. Rate change 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, rate changes do not represent actual increases or decreases realized by the company. Personal Lines rate changes do not include inflation or changes in policy level exposure or insured risks.

(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. For the calculation of operating ROE, the average of beginning and each included quarter's ending shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax, is used for the period as shown and reconciled in the table below:

	Period Ended				
($ in millions)	December 31 2021	March 31 2022	June 30 2022	September 30 2022	December 31 2022
Total shareholders' equity (GAAP)	$ 3,136.0	$ 2,830.9	$ 2,576.2	$ 2,304.9	$ 2,333.7
Less: net unrealized appreciation (depreciation) on fixed maturity investments, net of tax	171.9	(201.1)	(459.3)	(702.3)	(637.4)
Total shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax	$ 2,964.1	$ 3,032.0	$ 3,035.5	$ 3,007.2	$ 2,971.1
Quarter Averages					
Average shareholders' equity (GAAP)					$ 2,319.3
Average shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax					$ 2,989.2
Year-to-date Averages					
Average shareholders' equity (GAAP)					$ 2,636.3
Average shareholders' equity, excluding net unrealized appreciation (depreciation) on fixed maturity investments, net of tax					$ 3,002.0