2017

Markel Corporation

Annual Report & Form 10-K

THE CORPORATE PROFILE

Markel Corporation is a diverse financial holding company serving a variety of niche markets. Our principal business markets and underwrites specialty insurance products.

In each of our businesses, we seek to provide quality products and excellent customer service so that we can be a market leader.

Our financial goals are to earn consistent underwriting and operating profits and superior investment returns to build shareholder value.

THE MARKEL STYLE

Markel has a Commitment to Success. We believe in hard work and a zealous pursuit of excellence while keeping a sense of humor. Our creed is honesty and fairness in all our dealings.

The Markel way is to seek to be a market leader in each of our pursuits. We seek to know our customers' needs and to provide our customers with quality products and service.

Our pledge to our shareholders is that we will build the financial value of our Company. We respect our relationship with our suppliers and have a commitment to our communities.

We are encouraged to look for a better way to do things…to challenge management. We have the ability to make decisions or alter a course quickly. The Markel approach is one of spontaneity and flexibility. This requires a respect for authority but a disdain of bureaucracy.

At Markel, we hold the individual's right to self-determination in the highest light, providing an atmosphere in which people can reach their personal potential. Being results-oriented, we are willing to put aside individual concerns in the spirit of teamwork to achieve success.

Above all, we enjoy what we are doing. There is excitement at Markel, one that comes from innovating, creating, striving for a better way, sharing success with others…winning.

Highlights

Financial Highlights

(dollars in millions, except per share data)	**2017**	2016	2015
Gross premium volume	**$ 5,507**	$ 4,797	$ 4,633
Net written premiums	**4,418**	4,001	3,819
Earned premiums	**4,248**	3,866	3,824
U.S. GAAP combined ratio	**105%**	92%	89%
Total operating revenues	**6,062**	5,612	5,370
Net income to shareholders	**395**	456	583
Comprehensive income to shareholders	**1,175**	667	233
Total investments, cash and cash equivalents and restricted cash and cash equivalents (invested assets)	**$ 20,570**	$ 19,059	$ 18,181
Total assets	**32,805**	25,875	24,939
Senior long-term debt and other debt	**3,099**	2,575	2,239
Shareholders' equity	**9,504**	8,461	7,834
Debt to capital	**25%**	23%	22%
Per Share Data			
Common shares outstanding (at year end, in thousands)	**13,904**	13,955	13,959
Diluted net income	**$ 25.81**	$ 31.27	$ 41.74
Book value	**$ 683.55**	$ 606.30	$ 561.23
Growth in book value	**13%**	8%	3%

Operating Highlights

- Book value per share increased to $683.55, representing a compound annual growth rate of 13% and 11% over the one-year and five-year periods, respectively
- Total operating revenues surpassed $6 billion
- Strong investment performance with an increase in net unrealized gains on investments of over $1 billion
- Combined ratio of 105%, including 13 points of catastrophe losses
- Growth in our insurance operations included the acquisition of SureTec, a surety company primarily offering contract, commercial and court bonds, and State National, which added a premier fronting platform and collateral protection coverages to our operations
- Growth in our Markel Ventures operations included the acquisition of Costa Farms, a grower of house and garden plants

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2017

To Our Business Partners

At Markel, we aspire to build one of "The World's Great Companies."

Here is our annual report to you for 2017. In it, we review the year that just ended, as well as our plans and dreams for the future. We try to write everything that we would want to know about Markel if our roles were reversed.

We define a great company as one that serves its customers, associates, and shareholders, consistently and dependably over time. As we do so we grow in every dimension.

We're proud of our record over multiple decades, and we are incredibly optimistic about our ability to continue on this path in the future. The design and components of Markel are unique. Our strategy remains the same as what we stated in our initial annual report as a public company in 1986. Namely, as we said then, "our corporate strategy is one of diversification and specialization."

We serve customers anywhere and everywhere around the globe. We do so by providing them with insurance and financial backstops to protect them when unforeseen events create havoc. We help them put Humpty Dumpty back together when things fall apart. We also provide customers with an array of necessary industrial equipment, vital information services, housing, personal products, and healthcare services to help them operate their businesses and live life to its fullest.

We serve our associates by operating a "values" based company. The Markel Style describes our unchanging cultural values that we offer to associates of Markel. We provide a home that rewards and celebrates

Financial Highlights

(in millions, except per share data)	**2017**	2016	2015	2014	2013	2012	2011	2010	2009
Total operating revenues	$ **6,062**	5,612	5,370	5,134	4,323	3,000	2,630	2,225	2,069
Gross written premiums	$ **5,507**	4,797	4,633	4,806	3,920	2,514	2,291	1,982	1,906
Combined ratio	**105%**	92%	89%	95%	97%	97%	102%	97%	95%
Investment portfolio	$ **20,570**	19,059	18,181	18,638	17,612	9,333	8,728	8,224	7,849
Portfolio per share	**$1,479.45**	1,365.72	1,302.48	1,334.89	1,259.26	969.23	907.20	846.24	799.34
Net income (loss) to shareholders	$ **395**	456	583	321	281	253	142	267	202
Comprehensive income (loss) to shareholders	$ **1,175**	667	233	936	459	504	252	431	591
Shareholders' equity	$ **9,504**	8,461	7,834	7,595	6,674	3,889	3,388	3,172	2,774
Book value per share	$ **683.55**	606.30	561.23	543.96	477.16	403.85	352.10	326.36	282.55
5-Year CAGR in book value per share [1]	**11%**	11%	11%	14%	17%	9%	9%	13%	11%

[1] CAGR—compound annual growth rate

creative, hardworking, talented people motivated by the idea of service to our customers. We are explicit about our commitment to integrity and continuous improvement. Our culture is not for everyone, but it is attractive to those who seek what we offer. We've also found that it applies and works all around the world.

We serve our shareholders by producing financial results which reflect our skills at serving our customers and associates. Excellent financial results create the opportunity to grow, to do more, and offer more, over time. Without financial progress, our ability to serve customers and associates disappears.

The 2017 financial statements accompanying this letter provide you with numbers that reflect this year's economic progress towards the goal of "building one of the world's great companies." As is the case with any single year, those numbers tell only part of our story. Over the course of time though, the numbers become more robust and meaningful. They continuously reveal more chapters of the book. The numbers themselves become inseparable threads in a beautiful tapestry. That tapestry depicts the narrative of "building one of the world's great companies."

We're pleased to report to you that we continued to weave that multi decade tapestry in 2017.

Progress did not take place in a straight line in 2017. It almost never does. This report will appropriately discuss the financial impact of the record setting catastrophes that took place last year. Those financial losses should not obscure or diminish the progress we made in the rest of our insurance operations, our Markel Ventures activities, in our investment portfolio, and in the development and continuity of our management team.

At the bottom of the page in this letter we show a table that depicts 21 years of our key financial highlights. The constant and annually recurring review of decades of financial results helps us to remain focused on the long term.

We've made great progress over decades not just in narrow financial terms. Our story demonstrates personal progress and accomplishment for many

2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	**20-Year CAGR**[1]
$ 1,977	2,551	2,576	2,200	2,262	2,092	1,770	1,397	1,094	524	426	419	**14%**
$ 2,213	2,359	2,536	2,401	2,518	2,572	2,218	1,774	1,132	595	437	423	**14%**
99%	88%	87%	101%	96%	99%	103%	124%	114%	101%	98%	99%	—
$ 6,893	7,775	7,524	6,588	6,317	5,350	4,314	3,591	3,136	1,625	1,483	1,410	**14%**
$702.34	780.84	752.80	672.34	641.49	543.31	438.79	365.70	427.79	290.69	268.49	257.51	**9%**
$ (59)	406	393	148	165	123	75	(126)	(28)	41	57	50	**11%**
$ (403)	337	551	64	273	222	73	(77)	82	(40)	68	92	**14%**
$ 2,181	2,641	2,296	1,705	1,657	1,382	1,159	1,085	752	383	425	357	**18%**
$222.20	265.26	229.78	174.04	168.22	140.38	117.89	110.50	102.63	68.59	77.02	65.18	**12%**
10%	18%	16%	11%	20%	13%	13%	18%	21%	22%	23%	26%	—

people. It is a composite story of resilience, adaptability, creativity, dependability, and conservatism. And it is a story which carries the implication of continuity and replicability into the future. The story of Markel is one of excellent initial design, and thousands of subsequent actions, ideas, and iterations, which keep our story moving forward every single day.

In 1997 at the beginning of this 21 year chart we reported that we had 830 associates.

As we write this letter, there are over 15,000.

Over the last two decades, 14,000 additional people have joined the ranks of your company. We've built an organization in which our people can grow, learn new skills, take on new challenges, and fully utilize their abilities. We've also created opportunities for more and more people to join us in our quest. A virtuous cycle of serving our customers effectively and efficiently and producing sound financial results while doing so creates this dynamic. "Rinse and repeat", as it says on the shampoo bottle.

It is a joy to report this record of growth over time and we appreciate the associates, the customers, and the providers of capital, who made it possible.

2017 Review

In 2017 we produced total revenues of $6.1 billion vs $5.6 billion in 2016, up 8%. Our insurance premiums totaled $4.2 billion vs $3.9 billion, an increase of 10%. Our Markel Ventures operations produced revenues of $1.3 billion vs $1.2 billion, an increase of 10%. We earned 10% on our publicly traded investment portfolio with returns of 26% on our equity holdings and 3% on our fixed income holdings.

We produced an overall underwriting loss of $205 million in 2017 vs underwriting profits of $317 million in 2016 and Markel Ventures EBITDA was $178 million in 2017 vs $165 million last year. In total our comprehensive income was $1.2 billion in 2017 vs $667 million in 2016 and we repurchased $111 million of our own common stock during the course of the year.

When we write this letter, we look back at previous letters to give us a sense of how we've talked in years past. It is easy to see words and phrases such as "transformational", or "watershed events" in previous annual reports. If we knew then, what we know now, we might have saved those words for years like 2017. We hope by the time you finish reading this report that you'll understand why we are using those words again.

Here are the headlines from 2017:

1- 2017 broke the financial record for the highest ever total level of insured catastrophes. Hurricanes Harvey, Irma, Maria and Nate, along with wildfires in California, earthquakes in Mexico, cyclones in Asia, weather and crop damage in Europe, and other events caused record financial losses
2- We acquired SureTec and State National in our insurance operations
3- We acquired Costa Farms in our Markel Venture operations
4- We made these substantial acquisitions on our base of internal equity capital and each share of your Markel stock owns a bigger business than it did a year ago

5- We worked diligently to improve the efficiency and effectiveness of our existing and new operations
6- We earned record returns in our investment operations

In total, your company grew by roughly one quarter in total size and scale during 2017 with major acquisitions in our insurance and Markel Ventures businesses. We responded to, and served our insurance customers effectively as they experienced record natural catastrophes, and we earned record investment returns.

2017 stands as a transformational and watershed year for Markel (yet again).

Taking each one of these items in order, here is a review of the headlines.

1- CATS, CATS, CATS

We wish that we were talking about internet videos with this headline but unfortunately that is not the case. In the insurance business, catastrophic events get described with the shorthand term of CATs. 2017 set a new high water mark for the record books. Financially, the insured loss toll exceeded every other single year in human history.

Total industry losses from hurricanes Harvey, Irma and Maria along with the wildfires in California, earthquakes in Mexico, cyclones in Asia, and European weather events, currently are expected to exceed $135 billion. As such, it is not surprising that our losses from these events also set a new record. We paid out claims of $159 million in response to the catastrophic losses suffered by our customers, with total expected losses of $565 million. Across all our lines of insurance coverages we paid out $2.2 billion in 2017 to help our customers recover from difficult events.

The good news is that these payments demonstrate that our customers can count on us in their time of need. This is why people buy insurance in the first place. It also speaks to why we manage Markel in a conservative and prudent way. We do so in order to have the ability to respond quickly, and appropriately, to help our customers get back on their feet. We keep our promises.

In each and every period of heavy catastrophes, we've learned something about how to improve our operations. We've learned how to better select and accept risks, and how to price those risks more appropriately. It is important to note that despite the large dollar amount of our losses in 2017, those amounts were in line with our estimates of what we expected in the event of major catastrophes.

As we continue to offer insurance to our customers to protect them in the event of catastrophic events, we continue to iterate and adjust our prices and exposures. If events become more common and more costly, we adjust our prices accordingly, to maintain the financial resources needed to pay claims when they occur.

We also provide coverage and protect our clients more efficiently and cost effectively than they could on their own. We do so by maintaining a spread of geographically dispersed exposures. Events in one area tend not to affect other geographic areas. By collecting and managing a pool of insurance risks

and premiums from all around the world, we can effectively offer protection and insurance to individual policyholders at an efficient cost to our policyholders. The geographic spread, in and of itself, creates an efficiency that allows us to offer protection to our clients at a lower cost.

Great companies do things "for their customers" rather than "to their customers" and our ability to efficiently operate a diverse pool of catastrophic risk creates the ability to serve our customers better and more efficiently than they could do themselves.

2- SureTec and State National Acquisitions

During the course of 2017 we acquired SureTec and State National. These two additions represent new and substantial venues to continue our longstanding strategy of specialization and diversification. SureTec brings specialized knowledge of the surety market, a unique and critical insurance function, which we previously had not been able to offer to our clients in a meaningful way. State National also brings new skills and specialized insurance services with their historical knowledge of certain insurance management and program services, as well as collateral protection products.

Both companies are experts and leaders in their respective fields. By joining Markel, both companies will be able to increase the amount of business they write, add specialized knowledge to better serve our clients, and help us continue on our path of diversification. The diversification adds margins of safety to our financial strength and performance, which stands behind our promises to our clients.

Both companies contacted Markel when they considered their own futures. Our longstanding reputation and performance in helping companies flourish and grow, and our culture of integrity and continuous improvement, created the opportunity for us to engage in discussions with both firms.

In the case of SureTec, the founder John Knox, contacted us directly, as he believed that Markel would offer the best option for SureTec and its associates to grow and continue to build the value of the firm.

John and his team did a wonderful job of launching SureTec in 1998 and growing a successful surety operation. SureTec's largest markets are in their home state of Texas, along with California. While they do business in many other states as well, as part of Markel, they will immediately be able to expand the distribution and awareness of their surety products to Markel's existing nationwide client base.

We already do business with many of the agents, contractors, and current and potential customers of SureTec, and our ability to help them grow through access to our distribution channels and customer base creates a win-win situation for SureTec and Markel. John and his SureTec team win by knowing that their firm will be part of the permanent capital structure of Markel. They can grow and provide long term potential for their current and future associates with the larger and long term base of Markel capital.

We at Markel win by adding surety to our array of insurance products and services. Surety requires specialized expertise and we can serve our customers

more fulsomely by adding the surety skills that are now part of Markel.

State National also stands as a strategically valuable and important addition to Markel. The Ledbetter family built State National over two generations. They provided two primary lines of business. In one line, State National served as a "fronting" company for other property and casualty insurance companies. In the other line, they offered collateral protection insurance that works to protect credit unions and their customers.

In the fronting business, State National often works with insurers experiencing some vulnerability, or risks, to their ratings and marketplace acceptance. State National would stand in the shoes of their insurance company clients, and provide services and assurance to regulators and rating agencies, that the client insurance companies could, and would, maintain appropriate levels of service and financial stability.

In developing the skills to provide these important services, State National also developed the skills to assist the growing "Fintech" and venture capital funded entrants in the insurance industry. These new participants often have unique marketing skills, risk pricing abilities, and product packaging and design approaches. At the same time, they often do not have the array of licenses required to offer insurance products or financial strength ratings to provide comfort to potential buyers.

State National can work with those firms to solve their challenges of regulatory and financial rating agency requirements. By partnering, State National and the newer entrants into the insurance business can combine to offer new and unique insurance products that are fully and appropriately regulated, and reviewed by government and rating agency personnel.

As part of the larger Markel organization, State National can continue to expand the size and scale of their offerings and we can learn about the ways in which technology continues to change the fundamental nature of insurance pricing, marketing, and distribution. This acquisition adds additional sets of specialized skills to Markel and further diversifies the set of products we can offer our customers.

3- Costa Farms

Costa Farms is the largest grower of houseplants in the world. You can find their plants on the shelves of the leading home improvement and general merchandise retailers as well as online. The company is in its third generation of Costa family leadership and generation four is in the building.

The Costa family demonstrates everything that can be wonderful about a family business. In their words they talk about the foundation of "customers, culture, and growth." With that focus, starting from scratch, three generations built a wonderful business. They work each day to make themselves indispensable to their customers, and they keep a long term focus. All of these activities stem from, and go hand in hand with, building a business that you expect to continue into future generations. Short cuts, and short term time horizons, have no place when this mentality pervades your business.

Just as is the case at Markel, this mindset goes beyond people with the same last name or blood lines. Family becomes a matter of choice as associates join a firm and choose to live with the same long term values.

To be an associate of Markel is to be a member of the "Markel Family" in a figurative sense. We all share the same basic values and commitment to long term success. We were pleased that the Costa family saw this culture at Markel and sought us out as partners to help them to continue to build their business in the future.

Costa stands as the largest acquisition to date for Markel Ventures. They have the specialized knowledge and skills to grow more than 100 million plants per year in varied locations, and get those living, breathing products onto store shelves, or delivered to your home and office, all around the country. They are the leading firm in their industry, and we expect that they will continue to grow organically (please pardon the pun) and inorganically. We provide capital, and a time horizon, that matches the generational views of the Costa family.

The Costa acquisition represents a new level of size and scope for Markel Ventures. We are excited to continue to add specialized knowledge and skills to Markel and to provide additional margin of safety to our customers, associates, and shareholders.

4- Acquisition Financing

I'm pleased to report to you that we paid for the acquisitions of SureTec, Costa, and State National with cash. We issued no dilutive equity to fund these purchases. These deals increase the size and revenue footprint of Markel by about a quarter. This is a substantial increase in our size and scale, and we were able to pay for these purchases without additional equity financing.

At the same time as we funded these acquisitions, we began making record levels of claims payments to our policyholders from the CAT losses and normal insurance operations. We believe this combination of activities and events stands as strong evidence of our financial strength, investment excellence, and conservative financial practices. We were in a financial position to pay record claim losses and execute *three* substantial acquisitions all in the space of the same year. Additionally, our financial position enables us to fully seek and accept property insurance risks in the post CAT environment of higher pricing and prospectively better financial returns.

We work every day to build and protect our financial strength. Those daily activities over many years paid off in 2017 as demonstrated by our ability to take advantage of these opportunities to grow.

Separately, we raised $300 million of 30 year fixed rate financing at 4.30% in the fourth quarter. We believe that the ability to lock in such a long term, fixed rate debt makes prudent financial sense and is consistent with the conservative way in which we manage our financial affairs.

5- Operational Developments

Amidst the headlines about the new things that happened at Markel this year it can be easy to forget about the thousands of operational details and improvements that took place in all of our global operations.

In each and every aspect of our insurance and industrial businesses we worked diligently to improve the efficiency by which we serve our clients. We have and continue to focus on using all of the tools in the toolbox labeled "technology", to build and maintain our competitive position in the world.

In 2017 our expense ratio stood at 37% compared to 39% in the prior year. This progress shows results from our ongoing efforts to increase our internal efficiency and offer our customers the best possible value for their insurance needs.

Our overall combined ratio of 105% reflects the record amount of CAT losses. CATs in total added 13 points to our combined ratio and the change in UK government mandated discount rate applied to our run-off UK auto business added two points to the total.

We remain fully committed to the discipline of underwriting profits. Our long term record of consistency with this goal stands as evidence that we mean it and we fully expect to produce underwriting profits in 2018.

Throughout the organization we continued to increase the tools created by technological developments. We changed the way we offered renewals to existing policyholders, we streamlined internal accounting and financial processes, we adapted our claims process to reflect more granular understanding of policyholder losses, we increased the efficiency and effectiveness of our marketing efforts, and so on and so on and so on.

There are no activities within the Markel organization that are not being actively worked on to be made better. As it says in the Markel Style we look for "a better way to do things." The most important aspect of that statement is the mindset of continuous improvement that infuses the people of Markel. The tools and technology we use to make that journey change over time but the path is one we've been on for decades. We commit to remaining on that path to improvement in every facet of your company.

There are no businesses on planet earth that do not face the same challenge. Any degree of complacency or satisfaction with current processes or ways of doing business has no place in today's world. There are no elements of any aspect of Markel, in any business, in any country, that are not constantly being refined, reviewed, analyzed, changed and adapted to remain relevant in 2018 and beyond.

6- Investment Results

We earned excellent returns in 2017. We earned 26% on our publicly traded equity portfolio and 3% on our fixed income holdings. The total portfolio earned 10%. In dollar terms, we earned more than $1 billion of unrealized gains, realized gains and dividends from our public equity holdings and this represents a new record.

The double barreled win is that we also achieved this performance at a cost lower than passive index funds. We manage the vast majority of our investments internally. The total cost of our in house management stands at a single number of basis points.

We believe that we manage our investment operations with a triple play advantage of, ultra-low costs, tax efficiency, and rigorous and continuous intellectual engagement and management of our portfolio holdings. Two of those three aspects are currently popular in the investment world. Specifically, indexing and passive investing are relatively low cost and tax efficient. With our internal management, we keep our costs lower than passive indexers, we operate with tax efficiency, AND, we obsess about what we own and why we own it. We do so in order to attempt to adapt and change as the world changes.

Our multi-decade record of outperformance in our investment results speaks to the effectiveness of our approach.

As we've written every year since 1999 we maintain a four step approach to selecting and managing our equity investments.

1- We look for profitable businesses with excellent long term returns on capital and modest leverage

2- We look for management teams with equal measures of talent and integrity

3- We look for companies that can reinvest their earnings at high rates of return and/or demonstrate skill in acquisitions or other capital management activities

4- We look for these investments at reasonable prices which should produce acceptable returns over time

That approach and formula has not changed since our initial public offering in 1986 and despite the swirling pace of change in so many aspects of life, we believe the philosophy remains completely relevant and durable. We continue to find productive ways to invest our capital. In the short run, anything can and will happen and results will be volatile. In the long run, we've earned spectacular returns with this time-tested approach and we're confident in our ability to continue to do so.

In our fixed income operations we maintain the highest possible credit quality holdings we can find. We match the duration and currencies of our holdings to our expectations of our insurance liabilities. This has been our longstanding and consistent practice and it has served us well. We also believe the approach is low cost and durable in the future.

In total, our net unrealized gains from this longstanding approach stood at $3.7 billion at year end. With the change in the tax law that occurred during the fourth quarter of 2017, we reduced the deferred taxes associated with these gains and increased shareholders equity by $402 million due to the reduction in the U.S. corporate tax rate from 35% to 21%.

Next

The spectacular news about Markel is that there is always a chapter that starts with the headline NEXT.

From the very beginning of our firm, with Sam Markel's creative solution to a customer need, the entire history of this company has been figuring out what to do next.

We've done so by following the precepts of the Markel Style. As the Style says, we've worked hard. We've pursued excellence, we've kept our sense of humor, and we've adhered to a creed of honesty and fairness in all our dealings. We've done so on a daily basis for years and we will do it the next day as well.

We tested our design and fundamental strategy of specialization and diversification in 2017. While a record amount of catastrophic losses took place worldwide, our insurance operations were able to absorb those losses. At the same time, our investment and industrial operations produced excellent financial results, and we maintained overall comprehensive profitability for the company. We look forward to the next results from our varied operations as we expect them to reveal the same story of long term progress.

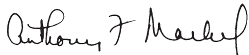
We followed our process of using our financial resources to support organic growth in our existing businesses, acquiring new companies, adding to our investment portfolio of publicly traded securities and repurchasing our own stock. We will follow those same four steps next year and the year after that.

2017 indeed stands as a transformational year in our longstanding goal to build one of "The World's Great Companies." There have been transformational and watershed years in our past and we aspire to more in the years to come.

Next.

Respectfully submitted,

Alan I. Kirshner, *Executive Chairman*


Anthony F. Markel, *Vice Chairman*

Steven A. Markel, *Vice Chairman*

Thomas S. Gayner, *Co-Chief Executive Officer*

Richard R. Whitt, III, *Co-Chief Executive Officer*

BUSINESS OVERVIEW

We are a diverse financial holding company serving a variety of niche markets. Our principal business markets and underwrites specialty insurance products. We believe that our specialty product focus and niche market strategy enable us to develop expertise and specialized market knowledge. We seek to differentiate ourselves from competitors by our expertise, service, continuity and other value-based considerations. We also own interests in various businesses that operate outside of the specialty insurance marketplace. Our financial goals are to earn consistent underwriting and operating profits and superior investment returns to build shareholder value.

Our business is comprised of the following types of operations:

- Underwriting - our underwriting operations are comprised of our risk-bearing insurance operations, which include the run-off of underwriting operations that were discontinued in conjunction with acquisitions
- Investing - our investing activities are primarily related to our underwriting operations
- Program Services - our program services business serves as a fronting platform that provides other insurance companies access to the U.S. property and casualty insurance market
- Markel CATCo - our Markel CATCo operations include an investment fund manager that offers insurance-linked securities to investors
- Markel Ventures - our Markel Ventures operations include our controlling interests in a diverse portfolio of businesses that operate outside of the specialty insurance marketplace

Underwriting

Specialty Insurance and Reinsurance

The specialty insurance market differs significantly from the standard market. In the standard market, insurance rates and forms are highly regulated, products and coverages are largely uniform with relatively predictable exposures and companies tend to compete for customers on the basis of price. In contrast, the specialty market provides coverage for hard-to-place risks that generally do not fit the underwriting criteria of standard carriers.

Competition in the specialty insurance market tends to focus less on price than in the standard insurance market and more on other value-based considerations, such as availability, service and expertise. While specialty market exposures may have higher perceived insurance risks than their standard market counterparts, we seek to manage these risks to achieve higher financial returns. To reach our financial and operational goals, we must have extensive knowledge and expertise in our chosen markets. Many of our accounts are considered on an individual basis where customized forms and tailored solutions are employed.

By focusing on the distinctive risk characteristics of our insureds, we have been able to identify a variety of niche markets where we can add value with our specialty product offerings. Examples of niche insurance markets that we have targeted include wind and earthquake-exposed commercial properties, liability coverage for highly specialized professionals, equine-related risks, workers' compensation insurance for small businesses, classic cars and marine, energy and environmental-related activities. Our market strategy in each of these areas of specialization is tailored to the unique nature of the loss exposure, coverage and services required by insureds. In each of our niche markets, we assign teams of experienced underwriters and claims specialists who provide a full range of insurance services.

We also participate in the reinsurance market in certain classes of reinsurance product offerings. In the reinsurance market, our clients are other insurance companies, or cedents. We typically write our reinsurance products in the form of treaty reinsurance contracts, which are contractual arrangements that provide for automatic reinsuring of a type or category of risk underwritten by cedents. Generally, we participate on reinsurance treaties with a number of other reinsurers, each with an allocated portion of the treaty, with the terms and conditions of the treaty being substantially the same for each participating reinsurer. With treaty reinsurance contracts, we do not separately evaluate each of the individual risks assumed under the contracts and are largely dependent on the individual underwriting decisions made by the cedent. Accordingly, we review and analyze the cedent's risk management and underwriting practices in deciding whether to provide treaty reinsurance and in pricing of treaty reinsurance contracts.

Our reinsurance products are written on both a quota share and excess of loss basis. Quota share contracts require us to share the losses and expenses in an agreed proportion with the cedent. Excess of loss contracts require us to indemnify the cedent against all or a specified portion of losses and expenses in excess of a specified dollar or percentage amount. In both types of contracts, we may provide a ceding commission to the cedent.

We distinguish ourselves in the reinsurance market by the expertise of our underwriting teams, our access to global reinsurance markets, our ability to offer large lines and our ability to customize reinsurance solutions to fit our client's needs. Our specialty reinsurance product offerings include coverage for general casualty, professional liability, property, workers' compensation and credit and surety risks.

Markets

In the United States, we write business in the excess and surplus lines (E&S) and specialty admitted insurance and reinsurance markets. In 2016, the E&S market represented $42 billion, or 7%, of the $613 billion United States property and casualty industry.[1] In 2016, we were the sixth largest E&S writer in the United States as measured by direct premium writings.[1]

Our E&S insurance operations are conducted through Evanston Insurance Company (Evanston), domiciled in Illinois. The majority of our specialty admitted insurance operations are conducted through Markel Insurance Company (MIC), domiciled in Illinois; Markel American Insurance Company (MAIC), domiciled in Virginia; FirstComp Insurance Company (FCIC), domiciled in Nebraska and Essentia Insurance Company (Essentia), domiciled in Missouri. Beginning in 2017, our specialty admitted operations also include Suretec Insurance Company (SIC), Suretec Indemnity Company (SINC), State National Insurance Company, Inc. (SNIC) and National Specialty Insurance Company (NSIC), all of which are domiciled in Texas. Our United States reinsurance operations are conducted through Markel Global Reinsurance Company (Markel Global Re), a Delaware-domiciled reinsurance company.

In Europe, we participate in the London insurance market primarily through Markel Capital Limited (Markel Capital) and Markel International Insurance Company Limited (MIICL). Markel Capital is the corporate capital provider for Markel Syndicate 3000, through which our Lloyd's of London (Lloyd's) operations are conducted. Markel Syndicate 3000 is managed by Markel Syndicate Management Limited (MSM). Markel Capital and MIICL are headquartered in London, England and have offices across the United Kingdom, Europe, Canada, Latin America, Asia Pacific and the Middle East through which we are able to offer insurance and reinsurance. The London insurance market produced approximately $62 billion of gross written premium in 2016.[2] In 2016, the United Kingdom non-life insurance market was the second largest in Europe and fifth largest in the world.[3] In 2016, gross premium written through Lloyd's syndicates generated roughly 65% of the London market's international insurance business,[2] making Lloyd's the world's largest commercial surplus lines insurer[1] and sixth largest reinsurer.[4] Corporate capital providers often provide a majority of a syndicate's capacity and also generally own or control the syndicate's managing agent. This structure permits the capital provider to exert greater influence on, and demand greater accountability for, underwriting results. In 2016, corporate capital providers accounted for approximately 90% of total underwriting capacity in Lloyd's.[5]

In Latin America, we provide reinsurance through MIICL, using our representative office in Bogota, Colombia, and our service company in Buenos Aires, Argentina; through Markel Resseguradora do Brasil S.A. (Markel Brazil Re), our reinsurance company in Rio de Janeiro, Brazil; and through Markel Syndicate 3000, using Lloyd's admitted status in Rio de Janeiro. Additionally, MIICL and Markel Syndicate 3000 are able to offer reinsurance in a number of Latin American countries through offices outside of Latin America. Beginning in 2017, we provide insurance through Markel Seguradora do Brasil S.A. (Markel Brazil), our insurance company in Rio de Janeiro, Brazil.

(1) *U.S. Surplus Lines Segment Review Special Report,* A.M. Best *(September 1, 2017).*
(2) *London Company Market Statistics Report,* International Underwriting Association *(October 2017).*
(3) *Swiss Re Sigma (March 2017).*
(4) *Global Reinsurance Segment Review Special Report,* A.M. Best *(September 5, 2017).*
(5) *Lloyd's Annual Report 2016.*

BUSINESS OVERVIEW (continued)

In Bermuda, we write business in the worldwide insurance and reinsurance markets. The Bermuda property and casualty insurance and reinsurance market produced $64 billion of gross written premium in 2015.[2] We conduct our Bermuda operations through Markel Bermuda Limited (Markel Bermuda), which is registered as a Class 4 insurer and Class C long-term insurer under the insurance laws of Bermuda.

Our reinsurance operations, which include our operations based in the United States, the United Kingdom, Latin America and Bermuda, as described above, made us the 37th largest reinsurer in 2016, as measured by worldwide gross reinsurance premium writings.[1]

In 2017, 21% of gross premium writings from our underwriting segments related to foreign risks (i.e., coverage for risks or cedents located outside of the United States), of which 34% were from the United Kingdom and 12% were from Canada. In 2016, 23% of our premium writings related to foreign risks, of which 32% were from the United Kingdom and 11% were from Canada. In 2015, 24% of our premium writings related to foreign risks, of which 37% were from the United Kingdom and 10% were from Canada. In each of these years, there was no other individual foreign country from which premium writings were material. Premium writings are attributed to individual countries based upon location of risk or cedent.

Most of our business is placed through insurance and reinsurance brokers. Some of our insurance business is also placed through managing general agents. We seek to develop and capitalize on relationships with insurance and reinsurance brokers, insurance and reinsurance companies, large global corporations and financial intermediaries to develop and underwrite business. A significant volume of premium for the property and casualty insurance and reinsurance industry is produced through a small number of large insurance and reinsurance brokers. During the years ended December 31, 2017, 2016 and 2015, the top three independent brokers accounted for 27%, 28% and 27%, respectively, of gross premiums written in our underwriting segments.

Competition

We compete with numerous domestic and international insurance companies and reinsurers, Lloyd's syndicates, risk retention groups, insurance buying groups, risk securitization programs, alternative capital sources and alternative self-insurance mechanisms. We also compete with new companies that continue to be formed to enter the insurance and reinsurance markets, particularly companies with new or "disruptive" technologies or business models. Competition may take the form of lower prices, broader coverages, greater product flexibility, higher coverage limits, higher quality services or higher ratings by independent rating agencies. In all of our markets, we compete by developing specialty products to satisfy well-defined market needs and by maintaining relationships with agents, brokers and insureds who rely on our expertise. This expertise is our principal means of competing. We offer a diverse portfolio of products, each with its own distinct competitive environment, which enables us to be responsive to changes in market conditions for individual product lines. With each of our products, we seek to compete with innovative ideas, appropriate pricing, expense control and quality service to policyholders, agents and brokers.

Few barriers exist to prevent insurers and reinsurers from entering our markets of the property and casualty industry. Market conditions and capital capacity influence the degree of competition at any point in time. Periods of intense competition, which typically include broader coverage terms, lower prices and excess underwriting capacity, are referred to as a "soft market." A favorable insurance market is commonly referred to as a "hard market" and is characterized by stricter coverage terms, higher prices and lower underwriting capacity. During soft markets, unfavorable conditions exist due in part to what many perceive as excessive amounts of capital in the industry. In an attempt to use their capital, many insurance companies seek to write additional premiums without appropriate regard for ultimate profitability, and standard insurance companies are more willing to write specialty coverages. The opposite is typically true during hard markets. Historically, the performance of the property and casualty reinsurance and insurance industries has tended to fluctuate in cyclical periods of price competition and excess

(1) *Global Reinsurance Segment Review Special Report,* A.M. Best *(September 5, 2017).*
(2) *Bermuda Monetary Authority 2016 Annual Report.*

underwriting capacity, followed by periods of high premium rates and shortages of underwriting capacity. This cyclical market pattern can be more pronounced in the specialty insurance and reinsurance markets in which we compete than the standard insurance market.

We experienced soft insurance market conditions, including price deterioration in virtually all of our product lines, starting in the mid-2000s. Beginning in 2012, prices stabilized and we generally saw low to mid-single digit favorable rate changes in many of our product lines in the following years as market conditions improved and revenues, gross receipts and payrolls of our insureds were favorably impacted by improving economic conditions. However, beginning in 2013 and continuing through the end of 2017, we experienced softening prices across most of our property product lines, as well as on our marine and energy lines. Our large account business has also been subject to more pricing pressure and competition remains strong in the reinsurance market. Following the high level of natural catastrophes that occurred in the third and fourth quarters of 2017, beginning in first quarter of 2018, we saw more favorable rates, particularly on our catastrophe exposed product lines. We are also seeing more stabilized pricing on our other product lines and continue to see pricing margins in most reinsurance lines of business. Despite stabilization of prices on certain product lines during the last several years, we still consider the overall property and casualty insurance market to be soft. We routinely review the pricing of our major product lines and will continue to pursue price increases in 2018, when possible. However, when we believe the prevailing market price will not support our underwriting profit targets, the business is not written. As a result of our underwriting discipline, gross premium volume may vary when we alter our product offerings to maintain or improve underwriting profitability.

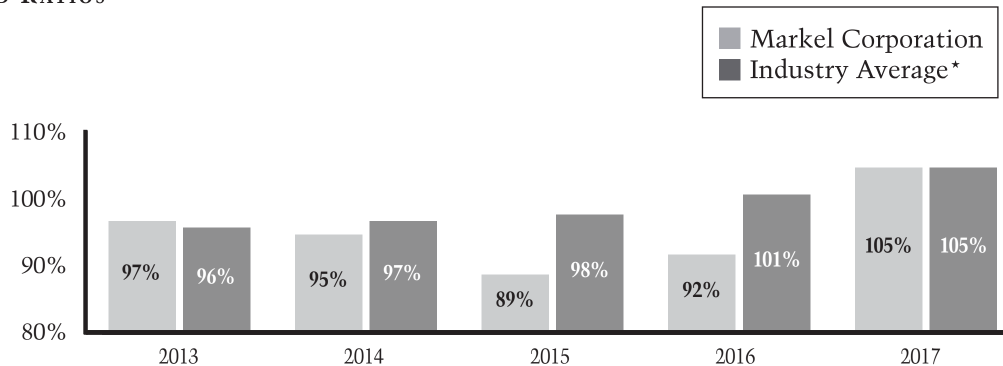
Underwriting Philosophy

By focusing on market niches where we have underwriting expertise, we seek to earn consistent underwriting profits, which are a key component of our strategy. The property and casualty insurance industry commonly defines underwriting profit or loss as earned premiums net of losses and loss adjustment expenses and underwriting, acquisition and insurance expenses. We believe that the ability to achieve consistent underwriting profits demonstrates knowledge and expertise, commitment to superior customer service and the ability to manage insurance risk. We use underwriting profit or loss as a basis for evaluating our underwriting performance. To facilitate this strategy, we have a product line leadership group that has primary responsibility for both developing and maintaining underwriting and pricing guidelines on our existing products and new product development. The product line leadership group is under the direction of our Chief Underwriting Officer.

The combined ratio is a measure of underwriting performance and represents the relationship of incurred losses, loss adjustment expenses and underwriting, acquisition and insurance expenses to earned premiums. A combined ratio less than 100% indicates an underwriting profit, while a combined ratio greater than 100% reflects an underwriting loss. In 2017, our combined ratio was 105%. See Management's Discussion & Analysis of Financial Condition and Results of Operations for further discussion of our underwriting results.

The following graph compares our combined ratio to the property and casualty industry's combined ratio for the past five years.

COMBINED RATIOS



* Source: A.M. Best Company. Industry Average is estimated for 2017.

BUSINESS OVERVIEW (continued)

Underwriting Segments

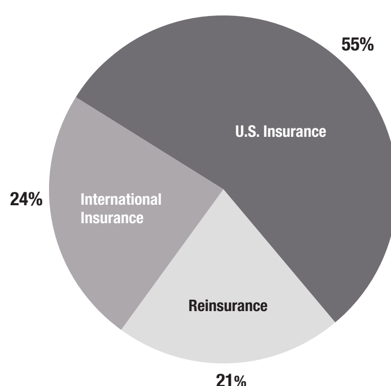
Through December 31, 2017, we monitored and reported our ongoing underwriting operations in the following three segments: U.S. Insurance, International Insurance and Reinsurance. In determining how to aggregate and monitor our underwriting results, management considered many factors, including the geographic location and regulatory environment of the insurance entity underwriting the risk, the nature of the insurance product sold, the type of account written and the type of customer served.

The U.S. Insurance segment includes all direct business and facultative placements written by our insurance subsidiaries domiciled in the United States. The International Insurance segment includes all direct business and facultative placements written by our insurance subsidiaries domiciled outside of the United States, including our syndicate at Lloyd's. The Reinsurance segment includes all treaty reinsurance written across the Company. Results for lines of business discontinued prior to, or in conjunction with, acquisitions are reported in the Other Insurance (Discontinued Lines) segment. The lines were discontinued because we believed some aspect of the product, such as risk profile or competitive environment, would not allow us to earn consistent underwriting profits. Results attributable to the run-off of life and annuity reinsurance business are included in our Other Insurance (Discontinued Lines) segment.

With the continued growth and diversification of our business, beginning in 2018, we no longer consider the geographic location of the insurance entity underwriting the risk when monitoring our underwriting operations and will monitor and report our ongoing underwriting operations on a global basis in the following two segments: Insurance and Reinsurance. The Insurance segment will include all direct business and facultative placements written across the Company, which currently are reported in our U.S. Insurance and International Insurance segments. The Reinsurance segment will remain unchanged.

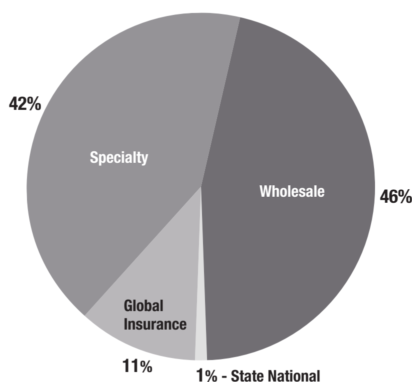
See note 20 of the notes to consolidated financial statements for additional segment reporting disclosures.

MARKEL CORPORATION
2017 GROSS PREMIUM VOLUME ($5.3 BILLION)



U.S. Insurance Segment

Our U.S. Insurance segment includes both hard-to-place risks written outside of the standard market on an excess and surplus lines basis and unique and hard-to-place risks that must be written on an admitted basis due to marketing and regulatory reasons. Business in this segment is written primarily through our Wholesale, Specialty and Global Insurance divisions. As a result of the acquisition of State National Companies, Inc. (State National), effective November 17, 2017, we created the State National division. The State National division's collateral protection underwriting business is included in the U.S. Insurance segment and the remainder is included in our program services business. Effective January 1, 2018, our Wholesale and Global Insurance divisions were combined to form the Markel Assurance division.



Wholesale Division
The Wholesale division writes commercial risks, primarily on an excess and surplus lines basis. The E&S market focuses on hard-to-place risks and loss exposures that generally cannot be written in the standard market. United States insurance regulations generally require an E&S account to be declined by admitted carriers before an E&S company may write the business. E&S eligibility allows our insurance subsidiaries to underwrite unique loss exposures with more flexible policy forms and unregulated premium rates. This typically results in coverages that are more restrictive and more expensive than coverages in the standard market.

Our E&S business is written through two distribution channels: professional surplus lines general agents who have limited quoting and binding authority and wholesale brokers. Our E&S business produced by this segment is written on a surplus lines basis through Evanston, which is authorized to write business in all 50 states and the District of Columbia, Guam, Puerto Rico and the U.S. Virgin Islands.

Specialty Division
The Specialty division writes program insurance and other specialty coverages for well-defined niche markets, primarily on an admitted basis. Our business written in the admitted market focuses on risks that, although unique and hard-to-place in the standard market, must remain with an admitted insurance company for marketing and regulatory reasons. Hard-to-place risks written in the admitted market cover insureds engaged in similar, but highly specialized, activities that require a total insurance program not otherwise available from standard insurers or insurance products that are overlooked by large admitted carriers. The admitted market is subject to more state regulation than the E&S market, particularly with regard to rate and form filing requirements, restrictions on the ability to exit lines of business, premium tax payments and membership in various state associations, such as state guaranty funds and assigned risk plans.

The majority of our business written in the Specialty division is written by retail insurance agents who have very limited or no underwriting authority although we also utilize managing general agents, who have broader underwriting authority, for certain of our product lines. Agents are carefully selected and agency business is controlled through regular audits and pre-approvals. Certain products and programs are marketed directly to consumers or distributed through wholesale producers. Personal lines coverages included in this segment are marketed directly to the consumer using direct mail, internet and telephone promotions, as well as relationships with various motorcycle and boat manufacturers, dealers and associations.

BUSINESS OVERVIEW (continued)

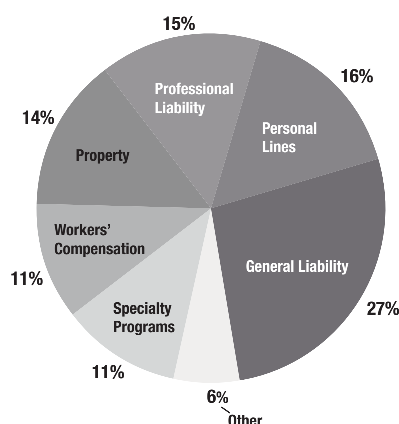
The majority of the business produced by this division is written either through MIC, MAIC, FCIC, Essentia, SIC, and SINC. MIC, MAIC and Essentia are licensed to write property and casualty insurance in all 50 states and the District of Columbia. MAIC is also licensed to write property and casualty insurance in Puerto Rico. Essentia specializes in coverage for classic cars and boats. FCIC is currently licensed in 28 states and specializes in workers' compensation coverage. SIC and SINC specialize in surety coverages. SIC is currently licensed in all 50 states and the District of Columbia. SINC is currently licensed in California and Texas.

Global Insurance Division
The Global Insurance division writes risks outside of the standard market on both an admitted and non-admitted basis. The portion of Global Insurance division business written by our U.S. insurance subsidiaries is included in this segment, and the remainder is included in the International Insurance segment. U.S. business produced by this division is primarily written on Evanston and MAIC.

State National Division
The State National division writes collateral protection insurance (CPI), which insures personal automobiles and other vehicles held as collateral for loans made by credit unions, banks and specialty finance companies through its lender services product line on both an admitted and non-admitted basis. This business is primarily written on SNIC and NSIC, which are licensed to write property and casualty insurance in all 50 states and the District of Columbia.

Our U.S. Insurance segment reported gross premium volume of $2.9 billion, earned premiums of $2.4 billion and an underwriting profit of $119.9 million in 2017.

U.S. INSURANCE SEGMENT
2017 GROSS PREMIUM VOLUME ($2.9 BILLION)



Product offerings within the U.S. Insurance segment fall within the following major product groupings:

- General Liability
- Professional Liability
- Property
- Personal Lines
- Specialty Programs
- Workers' Compensation
- Other Product Lines

General Liability product offerings include a variety of primary and excess liability coverages targeting apartments and office buildings, retail stores and contractors, as well as business in the life sciences, energy, medical, recreational and hospitality industries. Specific products include the following:

- excess and umbrella products, which provide coverage over approved underlying insurance carriers on either an occurrence or claims-made basis;
- products liability products, which provide coverage on either an occurrence or claims-made basis to manufacturers, distributors, importers and re-packagers of manufactured products;
- environmental products, which provide coverage on either an occurrence or claims-made basis and include environmental consultants' professional liability, contractors' pollution liability and site-specific environmental impairment liability coverages; and
- casualty facultative reinsurance written for individual casualty risks focusing on general liability, products liability, automobile liability and certain classes of miscellaneous professional liability and targeting classes which include low frequency, high severity general liability risks.

Professional liability coverages include unique solutions for highly specialized professions, including architects and engineers, lawyers, agents and brokers, service technicians and computer consultants. We offer claims-made medical malpractice coverage for doctors and dentists; claims-made professional liability coverage to individual healthcare providers such as therapists, pharmacists, physician assistants and nurse anesthetists; and coverages for medical facilities and other allied healthcare risks such as clinics, laboratories, medical spas, home health agencies, small hospitals, pharmacies and senior living facilities. Other professional liability coverages include errors and omissions, union liability, executive liability for financial institutions and Fortune 1000 companies and management liability. Our management liability coverages, which can be bundled with other coverages or written on a standalone basis, include employment practices liability, directors' and officers' liability and fiduciary liability coverages. Additionally, we offer cyber liability products, which provide coverage primarily for data breach and privacy liability, data breach loss to insureds and electronic media coverage.

Property coverages consist principally of fire, allied lines (including windstorm, hail and water damage) and other specialized property coverages, including catastrophe-exposed property risks such as earthquake and wind on both a primary and excess basis. Catastrophe-exposed property risks are typically larger and are lower frequency and higher severity in nature than more standard property risks. Our property risks range from small, single-location accounts to large, multi-state, multi-location accounts. Other types of property products include:

- inland marine products, which provide a number of specialty coverages for risks such as motor truck cargo coverage for damage to third party cargo while in transit, warehouseman's legal liability coverage for damage to third party goods in storage, contractor's equipment coverage for first party property damage and builder's risk coverage; and
- railroad-related products, which provide first party coverages for short-line and regional railroads, scenic and tourist railroads, commuter and light rail trains and railroad equipment.

Personal lines products provide first and third party coverages for classic cars, motorcycles and a variety of personal watercraft, including vintage boats, high performance boats and yachts and recreational vehicles, such as motorcycles, snowmobiles and ATVs. Based on the seasonal nature of much of our personal lines business, we generally will experience higher claims activity during the second and third quarters of the year. Additionally, property coverages are offered for mobile homes, dwellings and homeowners that do not qualify for standard homeowner's coverage. Other products offered include special event protection, performance bicycle coverage, pet health coverage, supplemental natural disaster coverage, renters' protection coverage and excess flood coverage.

BUSINESS OVERVIEW (continued)

Specialty programs business included in this segment is offered on a standalone or package basis and generally targets specialized commercial markets and customer groups. Targeted groups include youth and recreation oriented organizations and camps, child care operators, schools, social service organizations, museums and historic homes, performing arts organizations, senior living facilities and wineries. Other specialty programs business written in this segment includes:

- general agent programs that use managing general agents to offer single source admitted and non-admitted programs for a specific class or line of business;
- first and third party coverages for medical transport, small fishing ventures, charters, utility boats and boat rentals; and
- property and liability coverages for farms and animal boarding, breeding and training facilities.

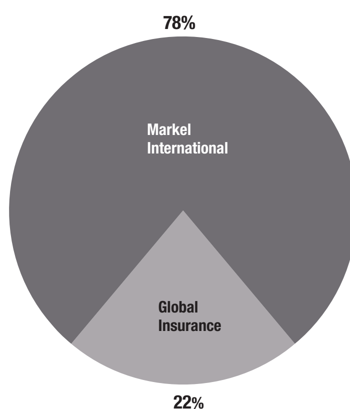
Workers' compensation products provide wage replacement and medical benefits to employees injured in the course of employment and target main-street, service and artisan contractor businesses, retail stores and restaurants.

Other product lines within the U.S. Insurance segment include:

- ocean marine products, which provide general liability, professional liability, property and cargo coverages for marine artisan contractors, boat dealers and marina owners including hull physical damage, protection and indemnity and third party property coverages for ocean cargo;
- surety products, which consist primarily of contract, commercial and court bonds;
- CPI, which provides coverage on automobiles or other vehicles held as collateral for loans made by credit unions, banks and specialty finance companies; and
- coverages for equine-related risks, such as horse mortality, theft, infertility, transit and specified perils.

International Insurance Segment

Our International Insurance segment writes risks that are characterized by either the unique nature of the exposure or the high limits of insurance coverage required by the insured. Business included in this segment is produced through our Markel International and Global Insurance divisions.



Markel International Division

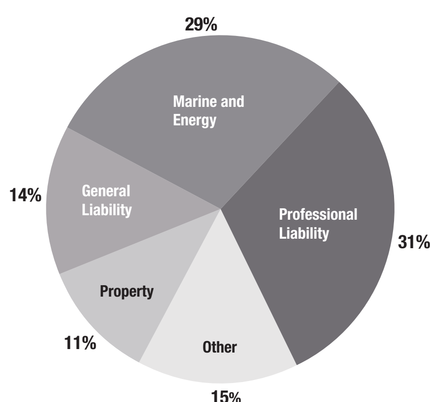
The Markel International division writes business worldwide from our London-based platform and branch offices around the world. This platform includes Markel Syndicate 3000, through which our Lloyd's operations are conducted, and MIICL. The London insurance market is known for its ability to provide innovative, tailored coverage and capacity for unique and hard-to-place risks. Hard-to-place risks in the London market are generally distinguishable from standard risks due to the complexity or significant size of the risk. It is primarily a broker market, which means that insurance brokers bring most of the business to the market. Risks written in the Markel International division are written on either a direct basis or a subscription basis, the latter of which means that loss exposures brought into the market are typically insured by more than one insurance company or Lloyd's syndicate, often due to the high limits of insurance coverage required. When we write business in the subscription market, we prefer to participate as lead underwriter in order to control underwriting terms, policy conditions and claims handling.

Global Insurance Division
Global Insurance division business written by our non-U.S. insurance subsidiaries, which primarily targets Fortune 1000 accounts, is included in the International Insurance segment. The Global Insurance division is comprised of business written through Markel Bermuda and MIICL.

In 2017, 63% of gross premium written in the International Insurance segment related to foreign risks, of which 36% was from the United Kingdom and 15% was from Canada. In 2016, 64% of gross premium written in the International Insurance segment related to foreign risks, of which 36% was from the United Kingdom and 16% was from Canada. In 2015, 66% of gross premium written in the International Insurance segment related to foreign risks, of which 40% was from the United Kingdom and 13% was from Canada. In each of these years, there was no other individual foreign country from which premium writings were material.

Our International Insurance segment reported gross premium volume of $1.3 billion, earned premiums of $949.9 million and an underwriting loss of $33.6 million in 2017.

INTERNATIONAL INSURANCE SEGMENT
2017 GROSS PREMIUM VOLUME ($1.3 BILLION)



Product offerings within the International segment fall within the following major product groupings:

- Professional Liability
- Marine and Energy
- General Liability
- Property
- Other Product Lines

Professional liability products are written on a worldwide basis and include professional indemnity, directors' and officers' liability, errors and omissions, employment practices liability, intellectual property and cyber liability. Our target industries include U.S. and international public companies, as well as large professional firms, including lawyers, financial institutions, accountants, consultants, and architects and engineers.

Marine and energy products include a portfolio of coverages for cargo, energy, hull, liability, war and terrorism risks. The cargo account is an international transit-based book covering many types of cargo. Energy coverage includes all aspects of oil and gas activities. The hull account covers physical damage to ocean-going tonnage, yachts and mortgagees' interests. Liability coverage provides for a broad range of energy liabilities, as well as traditional marine exposures including charterers, terminal operators and ship repairers. The war account covers the hulls of ships and aircraft, and other related interests, against war and associated perils. Terrorism coverage provides for property damage and business interruption related to political violence including war and civil war.

BUSINESS OVERVIEW (continued)

General liability products are written on a worldwide basis and include general and products liability coverages targeting consultants, construction professionals, financial service professionals, professional practices, social welfare organizations and medical products. We also write excess liability coverage, which includes excess product liability, excess medical malpractice and excess product recall insurance in the following industries: healthcare, pharmaceutical, medical products, life sciences, transportation, heavy industrial and energy.

Property products target a wide range of insureds, providing coverage ranging from specie risks and fire to catastrophe perils such as earthquake and windstorm. Business is written primarily on an open market basis for direct and facultative risks targeting Fortune 1000 and large, multi-national companies on a worldwide basis. We also provide property coverage for small to medium-sized commercial risks on both a stand-alone and package basis. The specie account includes coverage for fine art on exhibition and in private collections, securities, bullion, precious metals, cash in transit and jewelry.

Other product lines within the International Insurance segment include:

- crime coverage primarily targeting financial institutions and providing protection for bankers' blanket bond, computer crime and commercial fidelity;
- contingency coverage including event cancellation, non-appearance and prize indemnity;
- accident and health coverage targeting affinity groups and schemes, high value and high risks accounts and sports groups;
- coverage for equine-related risks such as horse mortality, theft, infertility, transit and specified perils;
- coverage for legal expenses including before the event products that protect commercial clients in the event of legal actions and after the event products covering a wide range of litigation;
- specialty coverages include mortality risks for farms, zoos, animal theme parks and safari parks; and
- short-term trade credit coverage for commercial risks, including insolvency and protracted default as well as political risks coverage in conjunction with commercial risks for currency inconvertibility, government action, import and export license cancellation, public buyer default and war.

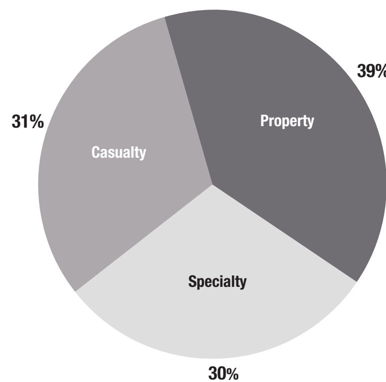
Reinsurance Segment

Our Reinsurance segment includes property and casualty treaty reinsurance products offered to other insurance and reinsurance companies globally through the broker market. Our treaty reinsurance offerings include both quota share and excess of loss reinsurance and are typically written on a participation basis, which means each reinsurer shares proportionally in the business ceded under the reinsurance treaty written. Our reinsurance products may include features such as contractual provisions that require our cedent to share in a portion of losses resulting from ceded risks, may require payment of additional premium amounts if we incur greater losses than those projected at the time of the execution of the contract, may require reinstatement premium to restore the coverage after there has been a loss occurrence or may provide for experience refunds if the losses we incur are less than those projected at the time the contract is executed. Our reinsurance product offerings are underwritten by our Global Reinsurance division and our Markel International division. The Global Reinsurance division operates from platforms in the United States and Bermuda. Business written in the Global Reinsurance division is produced through Markel Global Re and Markel Bermuda. Markel Global Re is licensed or accredited to provide reinsurance in all 50 states and the District of Columbia. Markel Bermuda conducts its reinsurance operations from Bermuda. The Markel International division conducts its reinsurance operations from its London-based platform, as described above, and from its platform in Latin America, which includes Markel Brazil.

In 2017, 27% of gross premium written in the Reinsurance segment related to foreign risks, of which 31% was from the United Kingdom. In 2016, 37% of gross premium written in the Reinsurance segment related to foreign risks, of which 25% was from the United Kingdom. In 2015, 36% of gross premium written in the Reinsurance segment related to foreign risks, of which 32% was from the United Kingdom. In each of these years, there was no other individual foreign country from which premium writings were material.

Our Reinsurance segment reported gross premium volume of $1.1 billion, earned premiums of $934.1 million and an underwriting loss of $299.2 million in 2017.

REINSURANCE SEGMENT
2017 GROSS PREMIUM VOLUME ($1.1 BILLION)



Product offerings within the Reinsurance segment fall within the following major product groupings:

- Property
- Casualty
- Specialty

Property treaty products are offered on an excess of loss and quota share basis for catastrophe, per risk and retrocessional exposures worldwide. Our catastrophe exposures are generally written on an excess of loss basis and target both personal and commercial lines of business providing coverage for losses from natural disasters, including hurricanes, wind storms and earthquakes. We also reinsure individual property risks such as buildings, structures, equipment and contents and provide coverage for both personal lines and commercial property exposures. Our retrocessional products provide coverage for all types of underlying exposures and geographic zones. A significant portion of the property treaty business covers United States exposures, with the remainder coming from international property exposures.

BUSINESS OVERVIEW (continued)

Our casualty treaty reinsurance programs are written on a quota share and excess of loss basis and include general liability, professional liability, workers' compensation, medical malpractice, environmental impairment liability and auto liability. General liability reinsurance includes umbrella and excess casualty products that are written worldwide. Our professional liability reinsurance programs are offered worldwide and consist of directors and officers liability, including publicly traded, private, and non-profit companies in both commercial and financial institution arenas; lawyers errors and omissions for small, medium and large-sized law firms; accountants errors and omissions for small and medium-sized firms; technology errors and omissions and cyber liability focusing on network security and privacy exposures. Auto reinsurance treaty products include commercial and non standard personal auto exposures predominantly in the United States. Our workers' compensation business includes catastrophe-exposed workers' compensation business. Medical malpractice reinsurance products are offered in the United States and include quota share, excess of loss and stop loss coverage for physician, surgeon, hospital and long term care medical malpractice writers. Environmental treaty reinsurance provides coverage for pollution legal liability, contractors pollution and professional liability exposures on both a nationwide and regional basis within the United States.

Specialty treaty reinsurance products offered in the Reinsurance segment include structured and whole turnover credit, political risk, mortgage and contract and commercial surety reinsurance programs covering worldwide exposures, public entity reinsurance products, aviation, whole account, accident and health catastrophe coverage, marine and agriculture reinsurance products. Our public entity reinsurance products offer customized programs for government risk solutions, including counties, municipalities, schools, public housing authorities and special districts (e.g. water, sewer, parks) located in the United States. Types of coverage for public entities include general liability, environmental impairment liability, workers' compensation and errors and omissions. Our aviation business includes commercial airline hull and liability coverage as well as general aviation for risks worldwide. Our accident and health catastrophe products cover personal accident, life, medical and workers' compensation coverage. Marine reinsurance products include offshore and onshore marine and energy risks on a worldwide basis, including hull, cargo and liability. Agriculture reinsurance covers Multi-Peril Crop Insurance, hail and related exposures, for risks located in the United States and Canada.

Ceded Reinsurance

Within our underwriting operations, we purchase reinsurance and retrocessional reinsurance to manage our net retention on individual risks and overall exposure to losses, while providing us with the ability to offer policies with sufficient limits to meet policyholder needs. In reinsurance and retrocession transactions, an insurance or reinsurance company transfers, or cedes, all or part of its exposure in return for a portion of the premium. We purchase catastrophe reinsurance coverage for our catastrophe-exposed policies to ensure that our net retained catastrophe risk is within our corporate tolerances. Net retention of gross premium volume in our underwriting segments was 84% in 2017 and 83% in 2016. We do not purchase or sell finite reinsurance products or use other structures that would have the effect of discounting loss reserves.

Our ceded reinsurance and retrocessional contracts do not legally discharge us from our primary liability for the full amount of the policies, and we will be required to pay the loss and bear collection risk if the reinsurer fails to meet its obligations under the reinsurance agreement. We attempt to minimize credit exposure to reinsurers through adherence to internal ceded reinsurance guidelines. We manage our exposures so that no exposure to any one reinsurer is material to our ongoing business. To participate in our reinsurance program, prospective companies generally must: (i) maintain an A.M. Best Company (Best) or Standard & Poor's (S&P) rating of "A" (excellent) or better; (ii) maintain minimum capital and surplus of $500 million and (iii) provide collateral for recoverables in excess of an individually established amount. In addition, certain foreign reinsurers for our United States insurance operations must provide collateral equal to 100% of recoverables, with the exception of reinsurers who have been granted certified or authorized status by an insurance company's state of domicile. Our credit exposure to Lloyd's syndicates is managed through individual and aggregate exposure thresholds.

When appropriate, we pursue reinsurance commutations that involve the termination of ceded reinsurance and retrocessional contracts. Our commutation strategy related to ceded reinsurance and retrocessional contracts is to reduce credit exposure and eliminate administrative expenses associated with the run-off of ceded reinsurance placed with certain reinsurers.

The following table displays balances recoverable from our ten largest reinsurers by group from our underwriting operations at December 31, 2017. The contractual obligations under reinsurance and retrocessional contracts are typically with individual subsidiaries of the group or syndicates at Lloyd's and are not typically guaranteed by other group members or syndicates at Lloyd's. These ten reinsurance groups represent approximately 61% of our $2.6 billion reinsurance recoverable balance attributed to our underwriting operations, before considering allowances for bad debts.

Reinsurance Group	A.M. Best Rating	Reinsurance Recoverable
		(dollars in thousands)
Fairfax Financial Group	A	$ 262,806
Munich Re Group	A+	214,441
AXIS Capital Holdings Limited	A+	184,662
Lloyd's of London	A	163,317
Alleghany Corporation	A+	151,033
RenaissanceRe Holdings Ltd	A	136,753
EXOR S.p.A	A	125,599
Liberty Mutual Holding Company	A	123,068
Swiss Re Group	A+	110,377
Everest Re Group	A+	94,306
Reinsurance recoverable on paid and unpaid losses for ten largest reinsurers		1,566,362
Total reinsurance recoverable on paid and unpaid losses		$ 2,585,823

Reinsurance recoverable balances in the preceding table are shown before consideration of balances owed to reinsurers and any potential rights of offset, any collateral held by us and allowances for bad debts.

Reinsurance and retrocessional treaties are generally purchased on an annual or biennial basis and are subject to renegotiations at renewal. In most circumstances, the reinsurer remains responsible for all business produced before termination. Treaties typically contain provisions concerning ceding commissions, required reports to reinsurers, responsibility for taxes, arbitration in the event of a dispute and provisions that allow us to demand that a reinsurer post letters of credit or assets as security if a reinsurer becomes an unauthorized reinsurer under applicable regulations or if its rating falls below an acceptable level.

See note 15 of the notes to consolidated financial statements and Management's Discussion & Analysis of Financial Condition and Results of Operations for additional information about our ceded reinsurance programs and exposures.

Investments

Our business strategy recognizes the importance of both consistent underwriting and operating profits and superior investment returns to build shareholder value. We rely on sound underwriting practices to produce investable funds while minimizing underwriting risk. The majority of our investable assets come from premiums paid by policyholders. Policyholder funds are invested predominantly in high-quality corporate, government and municipal bonds that generally match the duration of our loss reserves. The balance, comprised of shareholder funds, is available to be invested in equity securities, which over the long run, have produced higher returns relative to fixed maturity investments. When purchasing equity securities, we seek to invest in profitable companies, with honest and talented management, that exhibit reinvestment opportunities and capital discipline, at reasonable prices. We intend to hold these investments over the long term. Substantially all of our investment portfolio is managed by company employees.

BUSINESS OVERVIEW (continued)

We evaluate our investment performance by analyzing net investment income and net realized gains (losses) as well as our taxable equivalent total investment return, which is a non-GAAP financial measure. Taxable equivalent total investment return includes items that impact net income, such as coupon interest on fixed maturities, dividends on equity securities and realized investment gains or losses, as well as changes in unrealized gains or losses, which do not impact net income. Certain items that are included in net investment income have been excluded from the calculation of taxable equivalent total investment return, such as amortization and accretion of premiums and discounts on our fixed maturity portfolio, to provide a comparable basis for measuring our investment return against industry investment returns. The calculation of taxable equivalent total investment return also includes the current tax benefit associated with income on certain investments that is either taxed at a lower rate than the statutory income tax rate or is not fully included in federal taxable income. We believe the taxable equivalent total investment return is a better reflection of the economics of our decision to invest in certain asset classes. We do not lower the quality of our investment portfolio in order to enhance or maintain yields. We focus on long-term total investment return, understanding that the level of realized and unrealized investment gains or losses may vary from one period to the next.

The following table summarizes our investment performance.

	Years Ended December 31,				
(dollars in thousands)	**2017**	2016	2015	2014	2013
Net investment income	$ **405,709**	$ 373,230	$ 353,213	$ 363,230	$ 317,373
Net realized investment gains (losses)	$ **(5,303)**	$ 65,147	$ 106,480	$ 46,000	$ 63,152
Increase (decrease) in net unrealized gains on investments	**$ 1,125,440**	$ 342,111	$ (457,584)	$ 981,035	$ 261,995
Investment yield [1]	**2.6%**	2.4%	2.3%	2.4%	2.6%

[1] Investment yield reflects net investment income as a percentage of monthly average invested assets at amortized cost.

We believe our investment performance is best analyzed from the review of taxable equivalent total investment return over several years. The following table presents taxable equivalent total investment return before and after the effects of foreign currency movements.

ANNUAL TAXABLE EQUIVALENT TOTAL INVESTMENT RETURNS

	Years Ended December 31,					Five-Year Annual Return	Ten-Year Annual Return
	2017	2016	2015	2014	2013		
Equities	**25.5%**	13.5%	(2.5)%	18.6%	33.3%	**17.0%**	**10.6%**
Fixed maturities [1]	**3.4%**	2.4%	1.6%	6.5%	—%	**2.7%**	**4.1%**
Total portfolio, before foreign currency effect	**9.2%**	5.0%	0.5%	8.9%	6.9%	**6.1%**	**5.7%**
Total portfolio	**10.2%**	4.4%	(0.7)%	7.4%	6.8%	**5.5%**	**5.3%**
Invested assets, end of year (in millions)	**$20,570**	$19,059	$18,181	$18,638	$17,612		

[1] Includes short-term investments, cash and cash equivalents and restricted cash and cash equivalents.

The following table reconciles investment yield to taxable equivalent total investment return.

	Years Ended December 31,				
	2017	2016	2015	2014	2013
Investment yield[1]	**2.6%**	2.4%	2.3%	2.4%	2.6%
Adjustment of investment yield from amortized cost to fair value	**(0.5)%**	(0.4)%	(0.4)%	(0.4)%	(0.3)%
Net amortization of net premium on fixed maturities	**0.4%**	0.4%	0.5%	0.6%	0.7%
Net realized investment gains and change in net unrealized gains on investments	**5.9%**	2.3%	(2.0)%	5.9%	2.3%
Taxable equivalent effect for interest and dividends[2]	**0.4%**	0.4%	0.4%	0.4%	0.4%
Other[3]	**1.4%**	(0.7)%	(1.5)%	(1.5)%	1.1%
Taxable equivalent total investment return	**10.2%**	4.4%	(0.7)%	7.4%	6.8%

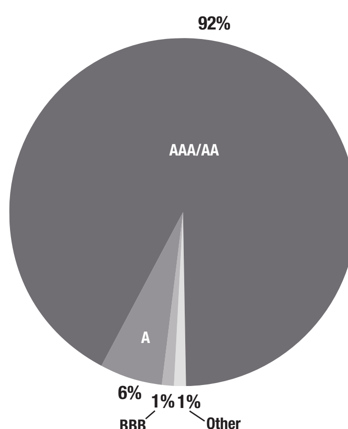
[1] Investment yield reflects net investment income as a percentage of monthly average invested assets at amortized cost.
[2] Adjustment to tax-exempt interest and dividend income to reflect a taxable equivalent basis.
[3] Adjustment to reflect the impact of changes in foreign currency exchange rates and time-weighting the inputs to the calculation of taxable equivalent total investment return.

We monitor our investment portfolio to ensure that credit risk does not exceed prudent levels. S&P and Moody's provide corporate and municipal debt ratings based on their assessments of the credit quality of an obligor with respect to a specific obligation. S&P's ratings range from "AAA" (capacity to pay interest and repay principal is extremely strong) to "D" (debt is in payment default). Securities with ratings of "BBB" or higher are referred to as investment grade securities. Debt rated "BB" and below is regarded by S&P as having predominantly speculative characteristics with respect to capacity to pay interest and repay principal. Moody's ratings range from "Aaa" to "C" with ratings of "Baa" or higher considered investment grade.

Our fixed maturity portfolio has an average rating of "AA," with 98% rated "A" or better by at least one nationally recognized rating organization. Our policy is to invest in investment grade securities and to minimize investments in fixed maturities that are unrated or rated below investment grade. At December 31, 2017, less than 1% of our fixed maturity portfolio was unrated or rated below investment grade. Our fixed maturity portfolio includes securities issued with financial guaranty insurance. We purchase fixed maturities based on our assessment of the credit quality of the underlying assets without regard to insurance.

The following chart presents our fixed maturity portfolio, at estimated fair value, by rating category at December 31, 2017.

2017 Credit Quality of Fixed Maturity Portfolio ($9.9 billion)



See "Market Risk Disclosures" in Management's Discussion & Analysis of Financial Condition and Results of Operations for additional information about investments.

BUSINESS OVERVIEW (continued)

Program Services

In November 2017, we completed the acquisition of State National. Following the acquisition, our other operations expanded to include program services business, which is provided through our newly formed State National division. Our program services business generates fee income, in the form of ceding (program service) fees, by offering issuing carrier capacity to both specialty general agents and other producers (GAs), who sell, control, and administer books of insurance business that are supported by third parties that assume reinsurance risk. These reinsurers are domestic and foreign insurers and institutional risk investors (capacity providers) that want to access specific lines of U.S. property and casualty insurance business. Issuing carrier (fronting) arrangements refer to our business in which we write insurance on behalf of a capacity provider and then reinsure the risk under these policies with the capacity provider in exchange for program services fees.

Through our program services business, we write a wide variety of insurance products, principally including general liability insurance, commercial liability insurance, commercial multi-peril insurance, property insurance and workers compensation insurance. Program services business written through our State National division is separately managed from our underwriting divisions, which write similar products, in order to protect our customers and eliminate internal competition for this business. Our program services business is written through SNIC, NSIC and City National Insurance Company (CNIC), all of which are domiciled in Texas, and United Specialty Insurance Company (USIC), which is domiciled in Delaware. SNIC, NSIC and CNIC are licensed to write property and casualty insurance in all 50 states and the District of Columbia. USIC is eligible to write business in all 50 states, the District of Columbia and the U.S. Virgin Islands. Many of our programs are arranged with the assistance of brokers that are seeking to provide customized insurance solutions for specialty insurance business that requires an A.M Best "A" rated carrier. Our specialized business model relies on our GAs or capacity providers to provide the infrastructure associated with providing policy administration, claims handling, cash handling, underwriting, or other traditional insurance company services. We believe there are relatively few active competitors in the fronting business. We compete primarily on the basis of price, customer service, geographic coverage, financial strength ratings, licenses, reputation, business model and experience.

Total revenues attributed to our program services business from the acquisition date to December 31, 2017 were $15.3 million. Our program services business generated $253.9 million of gross written premium volume from the acquisition date to December 31, 2017.

In our program services business, we generally enter into a 100% quota share reinsurance agreement whereby we cede to the capacity provider (reinsurer) substantially all of our gross liability under all policies issued by and on behalf of us by the GA. The capacity provider is generally entitled to 100% of the net premiums received on policies reinsured, less the ceding fee to us, the commission paid to the GA and premium taxes on the policies. In connection with writing this business, we also enter into agency agreements with both the producer (typically GAs) and the capacity provider whereby the producer and capacity provider are generally required to deal directly with each other to develop business structures and terms to implement and maintain the ongoing contractual relationship. In a number of cases, the producer and capacity provider for a program are part of the same organization or are otherwise affiliated. As a result of our contract design, substantially all of the underwriting risk and business risk inherent in the arrangement is borne by the capacity provider. The capacity provider assumes and is liable for substantially all losses incurred in connection with the risks under the reinsurance agreement, including judgments and settlements. Our contracts with capacity providers do not legally discharge us from our primary liability for the full amount of the policies, and we will be required to pay the loss and bear collection risk if the capacity provider fails to meet its obligations under the reinsurance agreement. As a result, we remain exposed to the credit risk of capacity providers, or the risk that one of our capacity providers becomes insolvent or otherwise unable or unwilling to pay policyholder claims. We mitigate this credit risk generally by either selecting well capitalized, highly rated authorized capacity providers or requiring that the capacity provider post substantial collateral to secure the reinsured risks.

The following table displays balances recoverable from our ten largest reinsurers by group for our program services business, based on gross reinsurance recoverable balances at December 31, 2017. The contractual obligations under reinsurance and retrocessional contracts are typically with individual subsidiaries of the group or syndicates at Lloyd's and are not typically guaranteed by other group members or syndicates at Lloyd's. Reinsurance recoverable balances are shown before consideration of balances owed to reinsurers and any potential rights of offset, and allowances for bad debts. These ten reinsurance groups represent 79% of our $2.2 billion reinsurance recoverable balance attributed to our program services business, before considering allowances for bad debts.

Reinsurance Group	A.M. Best Rating	Gross Reinsurance Recoverable	Collateral Applied[1]	Net Reinsurance Recoverable
			(dollars in thousands)	
Fosun International Holdings Ltd.	B++	$ 538,227	$ 537,659	$ 568
Knight Insurance Company Ltd.	B++	397,070	397,070	—
Lloyd's of London	A	297,494	—	297,494
James River Group Holdings, Ltd.	A	139,507	139,507	—
Tokio Marine Holdings	A++	102,284	1,172	101,112
Enstar Group Limited	A-	75,289	39,349	35,940
State Automobile Mutual Insurance Company	A-	50,886	50,886	—
Greenlight Capital Re, Ltd.	A-	48,833	48,833	—
SOMPO Holdings, Inc.	A+	42,535	—	42,535
Allianz SE	A+	42,534	—	42,534
Reinsurance recoverable on paid and unpaid losses for ten largest gross reinsurers		1,734,659	1,214,476	520,183
Total reinsurance recoverable on paid and unpaid losses		$ 2,193,542	$ 1,510,671	$ 682,871

[1] Collateral is applied to each reinsurer, up to the amount of the gross recoverable, to determine the net recoverable for each reinsurer presented in this table. As of December 31, 2017, we were the beneficiary of total letters of credit, trust accounts and funds withheld in the amount of $1.5 billion collateralizing reinsurance recoverable balances from our top 10 reinsurers and $1.9 billion for our total reinsurance recoverable balance.

Markel CATCo Investment Management

Our other operations also include our Markel CATCo operations, which are conducted through Markel CATCO Investment Management Ltd. (MCIM). MCIM is a leading insurance-linked securities investment fund manager and reinsurance manager headquartered in Bermuda focused on building and managing highly diversified, collateralized retrocession and reinsurance portfolios covering global property catastrophe risks. MCIM receives management fees for its investment and insurance management services, as well as performance fees based on the annual performance of the investment funds that it manages. Total revenues attributed to MCIM for the year ended December 31, 2017 were $28.7 million. As of December 31, 2017, MCIM's total investment and insurance assets under management were $6.2 billion, which includes $6.0 billion for unconsolidated variable interest entities.

BUSINESS OVERVIEW (continued)

Markel Ventures

Through our wholly owned subsidiary Markel Ventures, Inc. (Markel Ventures), we own interests in various businesses that operate outside of the specialty insurance marketplace. These businesses are viewed by management as separate and distinct from our insurance operations. Local management teams oversee the day-to-day operations of these companies, while strategic decisions are made in conjunction with members of our executive management team.

Our strategy in making these investments is similar to our strategy for purchasing equity securities. We seek to invest in profitable companies, with honest and talented management, that exhibit reinvestment opportunities and capital discipline, at reasonable prices. We intend to own the businesses acquired for a long period of time.

Our Markel Ventures operations are comprised of a diverse portfolio of businesses. While each of the businesses is operated independently from one another, we aggregate their financial results into two industry groups: manufacturing and non-manufacturing. Our manufacturing operations are comprised of manufacturers of transportation and other industrial equipment. Our non-manufacturing operations are comprised of businesses from several industry groups, including consumer goods and services (including healthcare) and business services.

We historically monitored and assessed the performance of each of our Markel Ventures businesses separately with no single business being individually significant to the operations of the Company as a whole. Following the continued growth in our Markel Ventures operations and its aggregate significance to our financial results, beginning in 2018, we will monitor and report our Markel Ventures operations as a single operating segment, consistent with the way our chief operating decision maker now reviews and assesses Markel Ventures' performance.

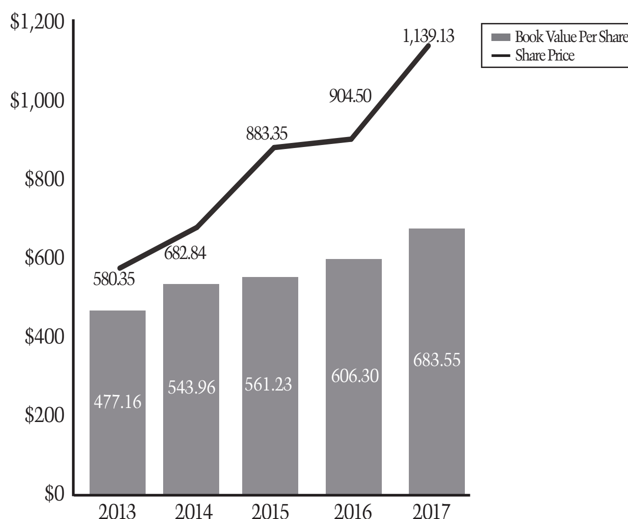
In 2017, our Markel Ventures operations reported revenues of $1.3 billion, net income to shareholders of $103.6 million and earnings before interest, income taxes, depreciation and amortization (EBITDA) of $177.6 million. We use Markel Ventures EBITDA as an operating performance measure in conjunction with revenues and net income. See "Markel Ventures Operations" in Management's Discussion & Analysis of Financial Condition and Results of Operations for more information on EBITDA.

See note 21 of the notes to consolidated financial statements and Management's Discussion & Analysis of Financial Condition and Results of Operations for additional information about our Markel Ventures operations.

Shareholder Value

Our financial goals are to earn consistent underwriting and operating profits and superior investment returns to build shareholder value. More specifically, we measure financial success by our ability to grow book value per share at a high rate of return over a long period of time. To mitigate the effects of short-term volatility, we generally use five-year time periods to measure ourselves. Growth in book value per share is an important measure of our success because it includes all underwriting, operating and investing results. For the year ended December 31, 2017, book value per share increased 13% primarily due to a $763.0 million increase in net unrealized gains on investments, net of taxes, and net income to shareholders of $395.3 million. For the year ended December 31, 2016, book value per share increased 8% primarily due to net income to shareholders of $455.7 million and a $242.2 million increase in net unrealized gains on investments, net of taxes. Over the past five years, we have grown book value per share at a compound annual rate of 11% to $683.55 per share. As we continue to expand our operations beyond underwriting and investing, we recognize that book value per share does not capture all of the economic value in our business, as a growing portion of our operations are not recorded at fair value or otherwise captured in book value. As a result, beginning in 2018, we will also measure our financial success through the growth in the market price of a share of our stock, or total shareholder return, over a long period of time. For the year ended December 31, 2017, our share price increased 26%. Over the past five years, our share price increased at a compound annual rate of 21%.

The following graph presents book value per share and share price for the past five years as of December 31.



Regulatory Environment

Our insurance subsidiaries are subject to regulation and supervision by the insurance regulatory authorities of the various jurisdictions in which they conduct business. This regulation is intended for the benefit of policyholders rather than shareholders or holders of debt securities. The jurisdictions of our principal insurance subsidiaries are the United States (U.S.), the United Kingdom (U.K.) and Bermuda. Our Markel Ventures, Markel CATCo and other businesses also are subject to regulation and supervision by regulatory authorities of the various jurisdictions in which they conduct business.

United States Insurance Regulation

Overview. Our U.S. insurance subsidiaries are subject to varying degrees of regulation and supervision in the jurisdictions in which they do business. Each state has its own regulatory authority for insurance that is generally responsible for the direct regulation of the business of insurance conducted in that state. In addition, the National Association of Insurance Commissioners (NAIC), comprised of the insurance commissioners of each U.S. jurisdiction, develops or amends model statutes and regulations that in turn most states adopt. While the U.S. federal government and its regulatory agencies generally do not directly regulate the business of insurance, there have been recent federal initiatives that impact the business of insurance.

State Insurance Regulation. In the United States, authority for the regulation, supervision and administration of the business of insurance in each state is generally delegated to a state commissioner heading a regulatory body responsible for the business of insurance. Through this authority, state regulatory authorities have broad regulatory, supervisory and administrative powers relating to solvency standards; the licensing of insurers and their agents; the approval of forms and policies used; the nature of, and limitations on, insurers' investments; the form and content of annual statements and other reports on the financial condition of insurers; and the establishment of loss reserves. Our U.S. insurance subsidiaries that operate on an admitted basis are typically subject to regulatory rate and form review, while our U.S. excess and surplus lines insurance subsidiaries generally operate free of rate and form regulation.

Holding Company Statutes. In addition to regulatory supervision of our domestic insurance subsidiaries, we are subject to state statutes governing insurance holding company systems. Typically, such statutes require that we periodically file information with the appropriate state insurance commissioner, including information concerning our capital structure, ownership, financial condition, material transactions with affiliates and general business operations. In addition, these statutes also require approval of changes in control of an insurer or an insurance holding company. Generally, control for these purposes is defined as ownership or voting power of 10% or more of a company's voting shares. Additional requirements include group-level reporting, submission of an annual enterprise risk report by a regulated insurance company's ultimate controlling person and information regarding an insurer's non-insurer affiliates.

BUSINESS OVERVIEW (continued)

Risk Based Capital Requirements. The NAIC uses a risk based capital formula that is designed to measure the capital of an insurer taking into account the company's investments and products. These requirements provide a formula which, for property and casualty insurance companies, establishes capital thresholds for four categories of risk: asset risk, insurance risk, interest rate risk and business risk. At December 31, 2017, the capital and surplus of each of our United States insurance subsidiaries was above the minimum regulatory thresholds.

Own Risk and Solvency Assessment. We must submit annually to the Illinois Department of Insurance, our lead state insurance regulator, an Own Risk and Solvency Assessment Summary Report (ORSA). The ORSA is a confidential internal assessment of the material and relevant risks associated with an insurer's current business plan and the sufficiency of capital resources to support those risks.

Excess and Surplus Lines. The regulation of our U.S. insurance subsidiaries' excess and surplus lines insurance business differs significantly from the regulation of our admitted business. Our surplus lines subsidiaries are subject to the surplus lines regulation and reporting requirements of the jurisdictions in which they are eligible to write surplus lines insurance. Although the surplus lines business is generally less regulated than admitted business, regulations apply to surplus lines placements under the laws of every state.

Dividends. The laws of the domicile states of our U.S. insurance subsidiaries govern the amount of dividends that may be paid to our holding company, Markel Corporation. Generally, statutes in the domicile states of our insurance subsidiaries require prior approval for payment of extraordinary, as opposed to ordinary, dividends. At December 31, 2017, our United States insurance subsidiaries could pay up to $436.4 million during the following 12 months under the ordinary dividend regulations.

Trade Practices. State insurance laws and regulations include numerous provisions governing trade practices and the marketplace activities of insurers, including provisions governing marketing and sales practices, data security, policyholder services, claims management, anti-fraud controls and complaint handling. State regulatory authorities generally enforce these provisions through periodic market conduct examinations.

Investment Regulation. Investments by our domestic insurance companies must comply with applicable laws and regulations that prescribe the kind, quality and concentration of investments. In general, these laws and regulations permit investments in federal, state and municipal obligations, corporate bonds, preferred and common equity securities, mortgage loans, real estate and certain other investments, subject to specified limits and certain other qualifications.

The Terrorism Risk Insurance Act. The Terrorism Risk Insurance Act of 2002, as amended (TRIA), has established a federal program that provides for a system of shared public and private compensation for certain insured losses resulting from acts of terrorism. In early 2015 the program was extended for another six years, and is now scheduled to expire in 2020. In addition, the most recent extension of TRIA (1) raised the threshold for the program to go into effect (the triggering event) from $100 million in losses to $200 million, in $20 million increments starting in January 2016 and (2) increased the amount that insurers must cover as a whole through co-payments and deductibles, which is known in the industry as the aggregate retention. Starting in 2016, the aggregate retention amount rises by $2 billion a year to $37.5 billion from $27.5 billion. TRIA is applicable to almost all commercial lines of property and casualty insurance but excludes commercial auto, burglary and theft, surety, professional liability and farm owners' multi-peril insurance. Insurers with direct commercial property and casualty insurance exposure in the United States are required to participate in the program and make available coverage for certified acts of terrorism. Federal participation will be triggered under TRIA when the Secretary of Treasury certifies an act of terrorism.

Cybersecurity. The New York Department of Financial Services (NYDFS) has issued Cybersecurity Requirements for Financial Services Companies that require certain of our insurance operations to, among other things, establish and maintain a cybersecurity policy designed to protect consumers and ensure the safety and soundness of New York State's financial services industry. The regulation went into effect on March 1, 2017 and has transition periods ranging from 180 days to two years. In addition, the NAIC recently adopted the Insurance Data Security Model Law in October 2017. The purpose of the model law is to establish standards for data security and for the investigation and notification of insurance commissioners of cybersecurity events involving unauthorized access to, or the misuse of, certain nonpublic information. It is not clear whether state legislatures will begin adopting the model law, or in what form or when they will do so.

Federal Regulation. The federal government and its regulatory agencies generally do not directly regulate the business of insurance. However, two federal government bodies, the Federal Insurance Office (FIO) and the Financial Stability Oversight Council (FSOC), each created under The Dodd Frank Wall Street Reform and Consumer Protection Act enacted in 2010, may impact the regulation of insurance. Although the FIO is prohibited from directly regulating the business of insurance, it has authority to represent the United States in international insurance matters and has limited powers to preempt certain types of state insurance laws. The FIO also can recommend to the FSOC that it designate an insurer as an entity posing risks to the United States financial stability in the event of the insurer's material financial distress or failure. We have not been so designated.

United Kingdom Insurance Regulation

Under the Financial Services and Markets Act 2000 (FSMA), it is unlawful to carry on insurance business in the United Kingdom without permission to do so from the relevant regulators, currently the Prudential Regulation Authority (PRA) and the Financial Conduct Authority (FCA). An independent Financial Policy Committee at the Bank of England supervises the financial services sector at a macro level, responding to sectoral issues that could threaten economic and financial stability.

MIICL, MSM, our Lloyd's managing agent, and E.C. Insurance Company Limited (ECIC), which we acquired in November 2017, are authorized by the PRA and regulated by both the PRA and the FCA. In addition, our United Kingdom insurance operations include FCA-authorized insurance intermediaries that produce insurance for MIICL, Syndicate 3000 and third party insurance carriers.

The PRA is a subsidiary of the Bank of England and is responsible for the prudential regulation and supervision of banks, building societies, credit unions, major investment firms and insurers, including the Society of Lloyd's and managing agents that participate in the Lloyd's market. The two primary statutory objectives of the PRA are to promote the safety and soundness of the firms it regulates and, specific to insurers, to contribute to securing an appropriate degree of protection for those who are, or may become, policyholders. A secondary objective of the PRA is to facilitate effective competition.

The FCA, which is separate from the Bank of England, is accountable to HM Treasury and ultimately the United Kingdom Parliament. The FCA supervises the day-to-day conduct of insurance firms and other authorized firms operating in the United Kingdom, including those participating in the Lloyd's market and U.K. insurance intermediaries. The overarching strategic objective of the FCA is to ensure that the relevant markets function well. The FCA also has three operational objectives: securing an appropriate degree of protection for consumers, protecting and enhancing the integrity of the U.K. financial system, and promoting effective competition in the interests of consumers.

The PRA assesses the insurance firms it regulates on a continuous cycle, requiring firms to submit sufficient data of appropriate quality to support their judgments about key risks, through meetings of directors, officers and other employees with PRA supervisors. The PRA also oversees compliance with minimum solvency and capital requirements under the Solvency II Directive (Solvency II) and imposes dividend restrictions. Both the PRA and the FCA oversee compliance with risk assessment reviews, restrictions governing the appointment of key officers, restrictions governing controlling ownership interests and various other requirements. In addition, both the PRA and FCA have arrangements with Lloyd's for cooperation on supervision and enforcement of the Lloyd's market.

MIICL and ECIC must provide advance notice to the PRA for any dividends and any transaction or proposed transaction with a connected or related person. MSM is required to satisfy the solvency requirements of Lloyd's. In addition, our United Kingdom subsidiaries must comply with the United Kingdom Companies Act of 2006, which provides that dividends may only be paid out of profits available for that purpose.

BUSINESS OVERVIEW (continued)

In addition, under Solvency II, the regulatory framework for the European insurance industry in place effective January 1, 2016, MIICL must give the PRA advance notice of any material intra-group transaction which Markel International Limited (the indirect parent of MIICL) or any of its subsidiaries intends to enter into with a group entity outside the European Economic Area and any material payment, including the payment of a dividend, other distribution or capital extraction which Markel International Limited or any of its subsidiaries intends to make to a group entity outside the European Economic Area.

MIICL, MSM and ECIC each submit, at least annually, an ORSA to the PRA and Lloyd's, respectively. The ORSA is a confidential internal assessment of the material risks associated with the current business plans for MIICL, MSM and ECIC and the sufficiency of capital resources in place to support those risks.

On June 23, 2016, the United Kingdom voted to exit the European Union (E.U.) (Brexit). For discussion regarding Brexit, see "Brexit Developments" under Management's Discussion & Analysis of Financial Condition and Results of Operations and the Risk Factor titled "The United Kingdom's vote to leave, and the eventual exit of the United Kingdom from, the European Union could adversely affect us."

Bermuda Insurance Regulation

The insurance and reinsurance industry in Bermuda is regulated by the Bermuda Monetary Authority (BMA). Markel Bermuda is regulated by the BMA as a Class 4 general business and Class C long-term business insurer under the Insurance Act 1978 of Bermuda and its related regulations (Bermuda Insurance Act). The Bermuda Insurance Act imposes on Markel Bermuda solvency and liquidity standards, restrictions on the reduction of statutory capital and auditing and reporting requirements. The Bermuda Insurance Act grants to the BMA powers to cancel insurance licenses, supervise, investigate and intervene in the affairs of Bermuda insurance and reinsurance companies and, in certain circumstances, share information with foreign regulators. Bermuda's prudential framework for the supervision of insurance and reinsurance companies and groups is deemed to be fully equivalent to the regulatory standards applied to European insurance and reinsurance companies and groups under Solvency II. As a result, Bermuda is considered by European member states as applying an equivalent statutory insurance regime in accordance with the requirements of Solvency II with respect to reinsurance, group solvency calculations and group supervision. The equivalence recognition applies to Bermuda's commercial Class 3A, 3B, 4, Class C, Class D and Class E insurers and reinsurers and groups.

Markel Bermuda is subject to enhanced capital requirements in addition to minimum solvency and liquidity requirements. The enhanced capital requirement is determined by reference to a risk-based capital model that determines a control threshold for statutory capital and surplus by taking into account the risk characteristics of different aspects of the insurer's business. At December 31, 2017, Markel Bermuda satisfied both the enhanced capital requirements and the minimum solvency and liquidity requirements.

Markel Bermuda also must submit annually to the BMA a Commercial Insurer Solvency Self-Assessment (CISSA) and a Financial Condition Report (FCR). The CISSA is a confidential internal assessment of the material and relevant risks associated with an insurer's current business plan and the sufficiency of capital resources to support those risks. The FCR is an assessment of the insurer's business and performance, governance structure, risk profile, solvency valuation and capital management, and is available to the public upon written request.

Under the Bermuda Insurance Act, Markel Bermuda is prohibited from paying or declaring dividends during a fiscal year if it is in breach of its enhanced capital requirement, solvency margin or minimum liquidity ratio or if the declaration or payment of the dividend would cause a breach of those requirements. If an insurer fails to meet its solvency margin or minimum liquidity ratio on the last day of any financial year, it is prohibited from declaring or paying any dividends during the next financial year without the approval of the BMA. Further, Markel Bermuda is prohibited from declaring or paying in any financial year dividends of more than 25% of its total statutory capital and surplus as set forth in its previous year's

statutory balance sheet unless at least seven days before payment of those dividends it files with the BMA an affidavit stating that it will continue to meet its solvency margin and minimum liquidity ratio. Markel Bermuda must obtain the BMA's prior approval for a reduction by 15% or more of the total statutory capital as set forth in its previous year's financial statements. In addition, as a Class C long-term insurer, Markel Bermuda may not declare or pay a dividend to any person other than a policyholder unless the value of the assets in its long-term business fund, as certified by Markel Bermuda's approved actuary, exceeds the liabilities of its long-term business. The amount of the dividend cannot exceed the aggregate of that excess and any other funds legally available for the payment of the dividend. At December 31, 2017, Markel Bermuda could pay up to $443.5 million in dividends during the following 12 months without making any additional filings with the BMA.

Markel CATCo Re Ltd (Markel CATCo Re) is licensed as a Bermuda Class 3 reinsurance company and is subject to regulation and supervision of the BMA. See "Regulation of Markel CATCo" under "Other Regulation" below for more information about the regulation of Markel CATCo Re.

Other Insurance Jurisdictions

The European Union implemented Solvency II effective January 1, 2016. Solvency II replaces existing insurance directives and creates a pan-European, risk based solvency regime which affects all insurers and reinsurers throughout the E.U. The Solvency II regime is based on three pillars: financial requirements; governance and risk management requirements; and disclosure requirements. The European Commission has developed detailed rules that complement the high-level principles of Solvency II.

At present the United States is not recognized as Solvency II "equivalent." Therefore, MIICL has agreed on "other methods" with the PRA which includes the provision to the PRA of certain specified information regarding Markel Corporation and its insurance companies.

In addition, as a global provider of specialty insurance and reinsurance, our insurance subsidiaries must comply with various regulatory requirements in jurisdictions where they conduct business in addition to the jurisdictions in which they are domiciled. For example, MIICL and our Lloyd's operations must comply with applicable Latin America regulatory requirements in connection with our Latin American reinsurance operations. In addition to the regulatory requirements imposed by the jurisdictions in which an insurer or reinsurer is licensed, a reinsurer's business operations are affected by regulatory requirements governing credit for reinsurance in other jurisdictions in which its ceding companies are located. In general, a ceding company that obtains reinsurance from a reinsurer that is licensed, accredited or approved by the jurisdiction in which the ceding company files statutory financial statements is permitted to reflect in its statutory financial statements a credit in an aggregate amount equal to the liability for unearned premiums and loss reserves and loss expense reserves ceded to the reinsurer. Many jurisdictions also permit ceding companies to take credit on their statutory financial statements for reinsurance obtained from unlicensed or non-admitted reinsurers if certain prescribed security arrangements are made. As an example, Markel Bermuda currently is not licensed, accredited or approved in every jurisdiction where its reinsurance customers are domiciled. As a result, Markel Bermuda may be required to provide a letter of credit or other security arrangement for its reinsurance customers domiciled in those jurisdictions. In most U.S. states Markel Bermuda has obtained approval of a trust arrangement that satisfies the credit for reinsurance requirements for Markel Bermuda's customers domiciled in those states.

The insurance and reinsurance industry in Brazil is regulated by the Conselho Nacional de Seguros Privados (CNSP) and supervised by the Superintendência de Seguros Privados (SUSEP) on behalf of the Ministry of Finance. Markel Seguradora do Brasil S.A. (Markel Brazil) and Markel Resseguradora do Brasil S.A. (Markel Brazil Re) are each authorized by SUSEP as a local Brazilian insurance company and reinsurance company, respectively. Markel Brazil and Markel Brazil Re are required to submit monthly returns, audited annual returns and annual financial statements to SUSEP.

On June 23, 2016, the United Kingdom voted to exit the European Union (Brexit). For discussion regarding Brexit, see "Brexit Developments" under Management's Discussion & Analysis of Financial Condition and Results of Operations and the Risk Factor titled "The United Kingdom's vote to leave, and the eventual exit of the United Kingdom from, the European Union could adversely affect us."

BUSINESS OVERVIEW (continued)

Global Supervisory College; Global Common Framework

The global insurance regulatory framework now also includes supervisory colleges. A supervisory college is a forum of the regulators having jurisdictional authority over an insurance holding company's worldwide insurance subsidiaries. The supervisory college meets with executive management to evaluate the insurance group on both a group-wide and legal-entity basis, particularly with respect to its financial data, business strategies, enterprise risk management and corporate governance. The Illinois Department of Insurance, our lead insurance regulator, and several other regulators conducted an initial supervisory college with management in December 2016. A regulator only meeting of our supervisory college was conducted in July 2017. The next supervisory college with management is scheduled for August 2018.

The NAIC and state insurance regulators, as well as regulators in countries where we have operations, are currently working with the International Association of Insurance Supervisors (IAIS) to develop a global common framework (ComFrame) for the supervision of internationally active insurance groups (IAIGs). If adopted, ComFrame would require the designation of a group-wide supervisor (regulator) for each IAIG and would impose a group capital requirement that would be applied to an IAIG in addition to the current legal entity capital requirements imposed by state insurance regulators. In response to ComFrame, the NAIC revised the model Insurance Holding Company System Regulatory Act to allow state insurance regulators in the U.S. to be designated as group-wide supervisors for U.S. based IAIGs. Additionally, the NAIC is developing a group capital standard that would be applied to U.S. based insurance groups.

Other Regulation

Markel Ventures. Our Markel Ventures businesses are subject to a wide variety of U.S. federal, state, and local laws and regulations, as well as foreign laws and regulations applicable to their non-U.S. operations, including:

- For our Markel Ventures manufacturing operations, and certain consumer operations, laws and regulations in the areas of safety, health, employment and environmental pollution controls, as well as U.S. and international trade and anti-corruption laws and regulations; and
- For our Markel Ventures non-manufacturing operations, laws and regulations in the areas of data privacy and security, health care, government contracting and employment.

Solicitors Regulation Authority. LHS Solicitors LLP (LHS), a wholly owned subsidiary, is a full service commercial law firm with offices in Manchester and Croydon, England. LHS employs approximately 65 lawyers who provide legal services to small and medium-sized enterprises in the United Kingdom. LHS is authorized and regulated by the Solicitors Regulation Authority (SRA). The SRA is an independent regulatory body of the Law Society of England and Wales which regulates the conduct of solicitors and law firms to protect consumers and to support the rule of law and the administration of justice. The SRA works within a statutory framework for regulation provided by the Solicitors Act 1974, the Administration of Justice Act 1985 and, primarily, by the Legal Services Act 2007.

Regulation of Markel CATCo. We conduct our Markel CATCo operations through three Bermuda companies: MCIM, Markel CATCo Reinsurance Fund Ltd. (Markel CATCo Fund) and Markel CATCo Re.

MCIM is a Bermuda exempted company with limited liability. MCIM holds investment business and insurance management licenses, issued by the BMA under the Investment Business Act 2003 and the Insurance Act 1978, respectively, and is regulated by the BMA. MCIM is not registered as an investment company under the U.S. Investment Company Act of 1940, an investment adviser under the U.S. Investment Advisers Act of 1940 or as a "commodity pool operator" or "commodity trading advisor" with the U.S. Commodity Futures Trading Commission.

Markel CATCo Fund is a mutual fund company with limited liability under the Companies Act 1981 of Bermuda and is registered as a segregated accounts company under the Bermuda Segregated Accounts Companies Act 2000.

Markel CATCo Re is also registered as a segregated accounts company under the Bermuda Segregated Accounts Companies Act 2000 and is licensed as a Bermuda Class 3 reinsurance company subject to regulation and supervision of the BMA. Under the Bermuda Insurance Act, and related regulations and policies of the BMA, Markel CATCo Re is subject to, among other things, capital, surplus and liquidity requirements, solvency standards, restrictions on dividends and distributions and certain periodic examinations of the company and its financial condition. In addition, Markel CATCo Re must obtain prior approval of ownership and transfer of shares and maintain a principal office and appoint and maintain a principal representative in Bermuda. The BMA also requires that Markel CATCo Re contract for local services, such as corporate secretary, insurance manager and registered representative, at market rates.

Ratings

Financial stability and strength are important purchase considerations of policyholders, cedents and insurance agents and brokers. Because an insurance premium paid today purchases coverage for losses that might not be paid for many years, the financial viability of the insurer is of critical concern. Various independent rating agencies provide information and assign ratings to assist buyers in their search for financially sound insurers. Rating agencies periodically re-evaluate assigned ratings based upon changes in the insurer's operating results, financial condition or other significant factors influencing the insurer's business. Changes in assigned ratings could have an adverse impact on an insurer's ability to write new business.

Best assigns financial strength ratings (FSRs) to property and casualty insurance companies based on quantitative criteria such as profitability, leverage and liquidity, as well as qualitative assessments such as the spread of risk, the adequacy and soundness of ceded reinsurance, the quality and estimated market value of assets, the adequacy of loss reserves and surplus and the competence, experience and integrity of management. Best's FSRs range from "A++" (superior) to "F" (in liquidation).

Seventeen of our nineteen insurance subsidiaries are rated by Best. All seventeen of our insurance subsidiaries rated by Best have been assigned an FSR of "A" or "A-" (excellent). Our Lloyd's syndicate is part of a group rating for the Lloyd's overall market, which has been assigned an FSR of "A" (excellent) by Best.

Nine of our nineteen insurance subsidiaries are rated by S&P. All nine of our insurance subsidiaries rated by S&P have been assigned an FSR of "A" (strong). Our Lloyd's syndicate is part of a group rating for the Lloyd's overall market, which has been assigned an FSR of "A+" (strong) by S&P.

Eight of our nineteen insurance subsidiaries are rated by Fitch Ratings (Fitch). All eight of our insurance subsidiaries rated by Fitch have been assigned an FSR of "A+" (strong). Our Lloyd's syndicate is part of a group rating for the Lloyd's overall market, which has been assigned an FSR of "AA-" (very strong) by Fitch.

Five of our nineteen insurance subsidiaries are rated by Moody's Corporation (Moody's). All five insurance subsidiaries rated by Moody's have been assigned an FSR of "A2" (good).

The various rating agencies typically charge companies fees for the rating and other services they provide. During 2017, we paid rating agencies, including Best, S&P, Fitch and Moody's, $2.0 million for their services.

BUSINESS OVERVIEW (continued)

Risk Factors

A wide range of factors could materially affect our future prospects and performance. The matters addressed under "Safe Harbor and Cautionary Statement," "Critical Accounting Estimates" and "Market Risk Disclosures" in Management's Discussion and Analysis of Financial Condition and Results of Operations and other information included or incorporated in this report describe many of the significant risks that could affect our operations and financial results. We are also subject to the following risks.

We may experience losses or disruptions from catastrophes. As a company with significant property and casualty insurance underwriting operations, we may experience losses from man-made or natural catastrophes. Catastrophes include, but are not limited to, windstorms, hurricanes, earthquakes, tornadoes, hail, severe winter weather and fires and may include events related to terrorism and political unrest. While we employ catastrophe modeling tools in our underwriting process, we cannot predict how severe a particular catastrophe will be before it occurs. The extent of losses from catastrophes is a function of the total amount of losses incurred, the number of insureds affected, the frequency and severity of the events, the effectiveness of our catastrophe risk management program and the adequacy of our reinsurance coverage. Most catastrophes occur over a small geographic area; however, some catastrophes may produce significant damage in large, heavily populated areas. In addition, catastrophes may have a material adverse effect on the investment management and performance fees earned by our insurance-linked securities (ILS) investment fund management business and returns on our investments in ILS funds. Catastrophes also may result in significant disruptions in our insurance and other operations, as well as loss of income and assets. If, as many forecast, climate change results in an increase in the frequency and severity of weather-related catastrophes, we may experience additional catastrophe-related losses or disruptions, which may be material.

Our results may be affected because actual insured or reinsured losses differ from our loss reserves. Significant periods of time often elapse between the occurrence of an insured or reinsured loss, the reporting of the loss to us and our payment of that loss. To recognize liabilities for unpaid losses, we establish reserves as balance sheet liabilities representing estimates of amounts needed to pay reported and unreported losses and the related loss adjustment expenses. The process of estimating loss reserves is a difficult and complex exercise involving many variables and subjective judgments. This process may become more difficult if we experience a period of rising inflation. As part of the reserving process, we review historical data and consider the impact of such factors as:

- trends in claim frequency and severity,
- changes in operations,
- emerging economic and social trends,
- trends in insurance rates,
- inflation or deflation, and
- changes in the regulatory and litigation environments.

This process assumes that past experience, adjusted for the effects of current developments and anticipated trends, is an appropriate basis for predicting future events. There is no precise method, however, for evaluating the impact of any specific factor on the adequacy of reserves, and actual results will differ from original estimates. As part of the reserving process, we regularly review our loss reserves and make adjustments as necessary. Future increases in loss reserves will result in additional charges to earnings, which may be material.

In addition, reinsurance reserves are subject to greater uncertainty than insurance reserves primarily because a reinsurer relies on (i) the original underwriting decisions made by ceding companies and (ii) information and data from ceding companies. As a result, we are subject to the risk that our ceding companies may not have adequately evaluated the risks reinsured by us and the premiums ceded may not adequately compensate us for the risks we assume. In addition, reinsurance reserves may be less reliable than insurance reserves because there is generally a longer lapse of time from the occurrence of the event to the reporting of the loss or benefit to the reinsurer and ultimate resolution or settlement of the loss.

Changes in the assumptions and estimates used in establishing reserves for our life and annuity reinsurance book could result in material increases in our estimated loss reserves for such business. Our run-off life and annuity reinsurance book exposes us to mortality risk, which is the risk that the level of death claims may differ from that which we assumed in establishing the reserves for our life and annuity reinsurance contracts. Some of our life and annuity reinsurance contracts expose us to longevity risk, which is the risk that an insured person will live longer than expected when the reserves were established, or morbidity risk, which is the risk that an insured person will become critically ill or disabled. Our reserving process for the life and annuity reinsurance book is designed with the objective of establishing appropriate reserves for the risks we assumed. Among other things, these processes rely heavily on analysis of mortality, longevity and morbidity trends, lapse rates, interest rates and expenses. As of December 31, 2017, our reserves for life and annuity benefits totaled $1.1 billion.

We expect mortality, morbidity, longevity, and lapse experience to fluctuate somewhat from period to period, but believe they should remain reasonably predictable over a period of many years. Mortality, longevity, morbidity or lapse experience that is less favorable than the mortality, longevity, morbidity or lapse rates that we used in establishing the reserves for a reinsurance agreement will negatively affect our net income because the reserves we originally set for the risks we assumed may not be sufficient to cover the future claims and expense payments. Furthermore, even if the total benefits paid over the life of the contract do not exceed the expected amount, unexpected increases in the incidence of deaths or illness can cause us to pay more benefits in a given reporting period than expected, adversely affecting our net income in any particular reporting period. Fluctuations in interest rates will impact the performance of our investments. If there are changes to any of the above factors to the point where a reserve deficiency exists, a charge to earnings will be recorded, which may have a material adverse impact on our results of operations and financial condition.

We are subject to regulation by insurance regulatory authorities that may affect our ability to implement and achieve our business objectives. Our insurance subsidiaries are subject to supervision and regulation by the insurance regulatory authorities in the various jurisdictions in which they conduct business. This regulation is intended for the benefit of policyholders rather than shareholders or holders of debt securities. Insurance regulatory authorities have broad regulatory, supervisory and administrative powers relating to data protection and data privacy, solvency standards, licensing, coverage requirements, policy rates and forms and the form and content of financial reports. Regulatory and legislative authorities continue to implement enhanced or new regulatory requirements intended to prevent future financial crises or otherwise assure the stability of financial institutions. Regulatory authorities also may seek to exercise their supervisory or enforcement authority in new or more aggressive ways, such as imposing increased capital requirements. Any such actions, if they occur, could affect the competitive market and the way we conduct our business and manage our capital and could result in lower revenues and higher costs. As a result, such actions could materially affect our results of operations, financial condition and liquidity.

Our ability to make payments on debt or other obligations depends on the receipt of funds from our subsidiaries. We are a holding company, and substantially all of our insurance operations are conducted through our regulated insurance subsidiaries. As a result, our cash flow and our ability to service our debt are dependent upon the earnings of our subsidiaries and on the distribution of earnings, loans or other payments by our subsidiaries to us. In addition, payment of dividends by our insurance subsidiaries may require prior regulatory notice or approval.

Our investment results may be impacted by changes in interest rates, U.S. and international monetary and fiscal policies as well as broader economic conditions. We receive premiums from customers for insuring their risks. We invest these funds until they are needed to pay policyholder claims or until they are recognized as profits. Fluctuations in the value of our investment portfolio can occur as a result of changes in interest rates and U.S. and international monetary and fiscal policies as well as broader economic conditions (including, for example, equity market conditions and significant inflation or deflation). Our investment results may be materially impacted by one or more of these factors.

Competition in the insurance and reinsurance markets could reduce our underwriting profits. Insurance and reinsurance markets are highly competitive. We compete on an international and regional basis with major U.S., Bermuda, European, and other international insurers and reinsurers and with underwriting syndicates, some of which have greater financial, marketing, and management resources than we do. Recent industry consolidation, including business combinations among insurance and other financial services companies, has resulted in larger competitors with even greater financial resources. We also compete with new companies that continue to be formed to enter the insurance and reinsurance markets, particularly companies with new or "disruptive" technologies or business models. In addition, capital market participants have created alternative products that are intended to

BUSINESS OVERVIEW (continued)

compete with reinsurance products. Increased competition could result in fewer submissions, lower premium rates, and less favorable policy terms and conditions, which could reduce our underwriting profits and have a material adverse effect on our results of operations and financial condition.

The historical cyclicality in the property and casualty insurance industry could adversely affect our ability to improve or maintain underwriting profits or to grow or maintain premium volume. The insurance and reinsurance markets have historically been cyclical, characterized by periods of intense price competition due to excessive underwriting capacity as well as periods when shortages of capacity permitted more favorable rate levels. Among our competitive strengths have been our specialty product focus and our niche market strategy. These strengths also make us vulnerable in periods of intense competition to actions by other insurance companies who seek to write additional premiums without appropriate regard for underwriting profitability. During soft markets, it is very difficult for us to grow or maintain premium volume levels without sacrificing underwriting profits. If we are not successful in maintaining rates or achieving rate increases, it may be difficult for us to improve or maintain underwriting profits or to grow or maintain premium volume levels.

We invest a significant portion of our invested assets in equity securities, which may result in significant variability in our investment results and net income and may adversely impact shareholders' equity. Additionally, our equity investment portfolio is concentrated, and declines in the value of these significant investments could adversely affect our financial results. Equity securities were 63% and 56% of our shareholders' equity at December 31, 2017 and 2016, respectively. Equity securities have historically produced higher returns than fixed maturities; however, investing in equity securities may result in significant variability in investment returns from one period to the next. In volatile financial markets, we could experience significant declines in the fair value of our equity investment portfolio, which would result in a material decrease in shareholders' equity. Our equity portfolio is concentrated in particular issuers and industries and, as a result, a decline in the fair value of these concentrated investments also could result in a material decrease in shareholders' equity. A material decrease in shareholders' equity may adversely impact our ability to carry out our business plans. Beginning in the first quarter of 2018, changes in the fair value of our equity securities will be presented in net income rather than in other comprehensive income. As a result, variability in our investment returns could also have a material adverse effect on net income.

General economic, market or industry conditions could lead to investment losses, adverse effects on our businesses and limit our access to the capital markets. General economic and market conditions and industry specific conditions, including extended economic recessions or expansions; prolonged periods of slow economic growth; inflation or deflation; fluctuations in foreign currency exchange rates, commodity and energy prices and interest rates; volatility in the credit and capital markets; and other factors, could lead to substantial realized and unrealized investment losses in future periods, declines in demand for or increased claims made under our insurance products or limited or no access to the capital markets, any of which could have a material adverse effect on our results of operations, financial condition, debt and financial strength ratings or our insurance subsidiaries' capital.

We rely on the purchase of reinsurance and bear collection risk if the reinsurer fails to meet its obligations under the reinsurance agreement. Our underwriting operations purchase reinsurance and retrocessional reinsurance to manage our net retention on individual risks and overall exposure to losses, while providing us with the ability to offer policies with sufficient limits to meet policyholder needs. Our program services business reinsures substantially all of its underwriting and operating risks in connection with its fronting arrangements.

The ceding of insurance does not legally discharge us from our primary liability for the full amount of the policies. Reliance on reinsurance may create credit risk as a result of the reinsurer's inability or unwillingness to pay reinsurance claims when due. We generally select well capitalized and highly rated reinsurers and in certain instances we require reinsurers to post substantial collateral to secure the reinsured risks. Deterioration in the credit quality of existing reinsurers or disputes over the terms of reinsurance could result in charges to earnings, which may have a material adverse impact on our results of operations and financial condition. In addition, collateral may not be sufficient to cover our liability, and we may not be able to cause the reinsurer to deliver additional collateral.

As of December 31, 2017, we were the beneficiary of letters of credit, trust accounts and funds withheld in the aggregate amount of $2.7 billion, collateralizing $4.7 billion in reinsurance recoverables. The remaining unsecured reinsurance recoverables are ceded to highly-rated, well capitalized reinsurers. Our reinsurance recoverables are based on estimates, and our actual liabilities may exceed the amount we are able to recover from our reinsurers or any collateral securing the liabilities. The failure of a reinsurer to meet its obligations to us, whether due to insolvency, dispute or other unwillingness or inability to pay, or due to our inability to access sufficient collateral to cover our liabilities, could have a material adverse effect on our results of operations and financial condition.

The availability and cost of reinsurance are determined by market conditions beyond our control. There is no guarantee that our desired amounts of reinsurance or retrocessional reinsurance will be available in the marketplace in the future.

Our information technology systems could fail or suffer a security breach, which could adversely affect our business, reputation, results of operations or financial condition or result in the loss of sensitive information. Our businesses are dependent upon the operational effectiveness and security of our enterprise systems and those maintained by third parties. Among other things, we rely on these systems to interact with producers, insureds, customers, clients, and other third parties, to perform actuarial and other modeling functions, to underwrite business, to prepare policies and process premiums, to process claims and make claims payments, to prepare internal and external financial statements and information, as well as to engage in a wide variety of other business activities. A significant failure of our enterprise systems, or those of third parties upon which we may rely, whether because of a natural disaster, network outage or a cyber-attack on our systems, could compromise our personal, confidential and proprietary information as well as that of our customers and business partners, impede or interrupt our business operations and could result in other negative consequences, including remediation costs, loss of revenue, additional regulatory scrutiny and fines, litigation and monetary and reputational damages. Although we have implemented controls and take protective actions to reduce the risk of an enterprise failure and protect against a security breach, such measures may be insufficient to prevent, or mitigate the effects of, a natural disaster, network outage or a cyber-attack on our systems that could result in liability to us, cause our data to be corrupted or stolen and cause us to commit resources, management time and money to prevent or correct those failures.

In addition, we are subject to numerous data privacy laws and regulations enacted in the jurisdictions in which we do business. A misuse or mishandling of confidential or proprietary information being sent to or received from a client, employee or third party could damage our businesses or our reputation or result in significant monetary damages, regulatory enforcement actions, fines and criminal prosecution in one or more jurisdictions. For example, under the European General Data Protection Regulation there are significant new punishments for non-compliance which could result in a penalty of up to 4% of a firm's global annual revenue. In addition, a violation of data privacy laws and regulations could result in defaults under our outstanding indebtedness or credit facilities. Those monetary damages, penalties, regulatory or legal actions or defaults, or the damage to our businesses or reputation, could have a material adverse effect on our results of operations and financial condition. Third parties to whom we outsource certain functions are also subject to these risks, and their failure to adhere to these laws and regulations also could damage our businesses or reputation, could have a material adverse effect on our results of operations and financial condition.

Further, we routinely transmit, receive and store personal, confidential and proprietary information by email and other electronic means. Although we attempt to protect this confidential and proprietary information, we may be unable to do so in all cases, especially with customers, business partners and other third parties who may not have or use appropriate controls to protect confidential information.

While we maintain cyber risk insurance providing first party and third party coverages, such insurance may not cover all costs associated with the consequences of personal and confidential and proprietary information being compromised. A material cyber security breach could have a material adverse effect on our results of operations and financial condition.

We may not find suitable acquisition candidates or new ventures. As part of our growth strategy, we continue to evaluate possible acquisition transactions on an ongoing basis, and at any given time we may be engaged in discussions with respect to possible acquisitions and new ventures. We may not be able to identify suitable acquisition targets or ventures, any such transactions may not be financed or completed on acceptable terms and our future acquisitions or ventures may not be successful.

BUSINESS OVERVIEW (continued)

The integration of acquired companies may not be as successful as we anticipate. We have recently engaged in a number of acquisitions in an effort to achieve profitable growth in our underwriting operations and to create additional value on a diversified basis in our other operations. Acquisitions present operational, strategic and financial risks, as well as risks associated with liabilities arising from the previous operations of the acquired companies. All of these risks are magnified in the case of a large acquisition. Assimilation of the operations and personnel of acquired companies may prove more difficult than anticipated, which may result in failure to achieve financial objectives associated with the acquisition or diversion of management attention. In addition, integration of formerly privately-held companies into the management and internal control and financial reporting systems of a publicly-held company presents additional risks.

Impairment in the value of our goodwill or other intangible assets could have a material adverse effect on our operating results and financial condition. As of December 31, 2017, goodwill and intangible assets totaled $3.1 billion and represented 33.0% of shareholders' equity. We record goodwill and intangible assets at fair value upon the acquisition of a business. Goodwill represents the excess of amounts paid for acquiring businesses over the fair value of the net assets acquired. Goodwill and indefinite-lived intangible assets are evaluated for impairment annually, or more frequently if conditions warrant, by comparing the carrying value of a reporting unit to its estimated fair value. Intangible assets with definite lives are reviewed for impairment when events or circumstances indicate that their carrying value may not be recoverable. Declines in operating results, divestitures, sustained market declines and other factors that impact the fair value of a reporting unit could result in an impairment of goodwill or intangible assets and, in turn, a charge to net income. Such a charge could have a material adverse effect on our results of operations or financial condition.

For example, in 2017 we recorded $1.3 billion in goodwill and intangible assets in connection with the acquisitions of SureTec, Costa Farms and State National. Developments that adversely affect the future cash flows or earnings of the acquired businesses may cause the goodwill or intangible assets recorded for the acquired businesses to be impaired.

The failure of any of the loss limitation methods we employ could have a material adverse effect on our financial condition or on our results of operations. We seek to limit our loss exposure in a variety of ways, including adhering to maximum limitations on policies written in defined geographical zones, limiting program size for each client, establishing per risk and per occurrence limitations for each event, employing coverage restrictions and following prudent underwriting guidelines for each program written. We also seek to limit our loss exposure through geographic diversification. Underwriting is a matter of judgment, involving assumptions about matters that are inherently unpredictable and beyond our control, and for which historical experience and probability analysis may not provide sufficient guidance. One or more future events could result in claims that substantially exceed our expectations, which could have a material adverse effect on our financial condition and our results of operations, possibly to the extent of eroding away our shareholders' equity. In addition, we seek to limit loss exposures by policy terms, exclusion from coverage and choice of legal forum. Disputes relating to coverage and choice of legal forum also arise. As a result, various provisions of our policies, such as choice of forum, limitations or exclusions from coverage may not be enforceable in the manner we intend and some or all of our loss limitation methods may prove ineffective.

The effects of emerging claim and coverage issues on our business are uncertain. As industry practices and legal, judicial, social and other environmental conditions change, unexpected and unintended issues related to claims and coverage may emerge. These issues may adversely affect our business by either broadening coverage beyond our underwriting intent or by increasing the number or size of claims. In some instances, these changes may not become apparent until after we have issued insurance or reinsurance contracts that are affected by the changes. As a result, the full extent of liability under our insurance or reinsurance contracts may not be known for many years after a contract is issued.

We could be adversely affected by the loss of one or more key executives or by an inability to attract and retain qualified personnel. Our success depends on our ability to retain the services of our existing key executives and to attract and retain additional qualified personnel in the future. The loss of the services of any of our key executives or the inability to hire and retain other highly qualified personnel in the future could adversely affect our ability to conduct or grow our business.

We have substantial international operations and investments, which expose us to increased political, operational and economic risks. A substantial portion of our revenues and income is derived from our operations and investments outside the U.S., including from the United Kingdom, Bermuda, Europe, Asia, South America and the Middle East. Our international operations and investments expose us to increased political, operational and economic risks. These risks include foreign currency and credit risk. Changes in the value of the U.S. dollar relative to other currencies could have an adverse effect on our results of operations and financial condition. Our investments in non-U.S. dollar-denominated securities are subject to fluctuations in non-U.S. securities and currency markets, and those markets can be volatile.

Deterioration or volatility in foreign and international financial markets or general economic and political conditions could adversely affect our operating results, financial condition and liquidity. Concerns about the economic conditions, capital markets, political and economic stability and solvency of certain countries have contributed to global market volatility. Political changes in the jurisdictions where we operate and elsewhere, some of which may be disruptive, can also interfere with our customers and our activities in a particular location. Our international operations also may be subject to a number of additional risks, particularly in emerging economies, including restrictions such as price controls, capital controls, currency exchange limits, ownership limits and other restrictive or anti-competitive governmental actions or requirements, which could have an adverse effect on our businesses.

The impact of the Tax Cuts and Jobs Act could be materially different from our current estimates and expectations. On December 22, 2017, the U.S. enacted the Tax Cuts and Jobs Act (TCJA), which made significant modifications to U.S. federal income tax law, most of which are effective January 1, 2018. As a result, we recorded a one-time tax benefit of $339.9 million in the fourth quarter of 2017, a portion of which is considered provisional. We expect that overall the TCJA will have a favorable impact on our future after-tax earnings, primarily due to the reduction of the U.S. corporate tax rate from 35% to 21% effective January 1, 2018. The overall impact of the TCJA, including the final amount of the one-time tax benefit recorded in the fourth quarter of 2017 and the TCJA's impact on our effective tax rate, is uncertain due to ambiguities in the application of certain provisions of the TCJA, the impact of future regulatory and administrative guidance, interpretations or rules issued by government agencies in applying the TCJA, statutory technical corrections that are subsequently enacted, and potential court decisions interpreting the legislation. Changes in the application or interpretation of the TCJA could have an adverse impact on our results of operation and financial condition.

We are rated by Best, S&P, Fitch and Moody's, and a downgrade or potential downgrade in one or more of these ratings could adversely affect our businesses, financial condition, results of operations, liquidity and access to capital markets. Financial strength ratings are an important factor in establishing the competitive position of insurance and reinsurance companies. Our senior debt ratings also affect the availability and cost of capital. Certain of our insurance and reinsurance company subsidiaries are rated by Best, S&P, Fitch or Moody's, and our senior debt securities, and those of certain of our subsidiaries, also are rated by Best, S&P, Fitch or Moody's. Our financial strength and debt ratings are subject to periodic review, and are subject to revision or withdrawal at any time. The financial strength ratings of our insurance subsidiaries are significantly influenced by their statutory surplus amounts and leverage and capital adequacy ratios. Rating agencies may implement changes to their internal models that have the effect of increasing or decreasing the amount of capital our insurance subsidiaries must hold in order to maintain their current ratings. For certain of our insurance subsidiaries, rating agencies may take into account in their leverage calculations the collateral provided to us by reinsurers. A change in this practice could adversely impact our ratings. In addition, rating agencies may downgrade the investments held in our portfolio, which could result in a reduction of our capital and surplus. We cannot be sure that we will be able to retain our current or any future ratings. If our ratings are reduced from their current levels by one or more rating agencies, our competitive position in our target markets within the insurance industry could suffer and it would be more difficult for us to market our products. A significant downgrade could:

- result in a substantial loss of business as policyholders and ceding company clients move to other companies with higher claims-paying and financial strength ratings; and
- trigger contract provisions that allow cedents to terminate their reinsurance contracts on terms disadvantageous to us or require us to collateralize our obligations through trusts or letters of credit.

A ratings downgrade could also adversely affect our liquidity, including the availability of our letter of credit facilities, and limit our access to capital markets, increase our cost of borrowing or issuing debt and require us to post collateral.

BUSINESS OVERVIEW (continued)

We depend on a few brokers for a large portion of our revenues and the loss of business provided by any one of them could adversely affect us. We market our insurance and reinsurance worldwide through insurance and reinsurance brokers. For the year ended December 31, 2017, our top three independent brokers represented 27% of the gross premiums written by our underwriting operations. Loss of all or a substantial portion of the business provided by one or more of these brokers could have a material adverse effect on our business.

Employee error and misconduct may be difficult to detect and prevent and may result in significant losses. There have been a number of cases involving misconduct by employees in a broad range of industries in recent years, and we run the risk that employee misconduct could occur. Instances of fraud, illegal acts, errors, failure to document transactions properly or to obtain proper internal authorization, or failure to comply with regulatory requirements or our internal policies may result in losses. It is not always possible to deter or prevent employee errors or misconduct, and the controls that we have in place to prevent and detect this activity may not be effective in all cases.

We are subject to applicable laws and regulations relating to economic and trade sanctions and bribery and corruption, the violation of which could have a material adverse effect on us. We are required to comply with the economic and trade sanctions and embargo programs administered by the United States Department of the Treasury's Office of Foreign Assets Control and similar multi-national bodies and governmental agencies worldwide, as well as applicable anti-corruption laws and regulations of the United States and other jurisdictions where we operate. A violation of a sanction, embargo program, or anti-corruption law, could subject us, and individual employees, to a regulatory enforcement action as well as significant civil and criminal penalties. In addition, a violation could result in defaults under our outstanding indebtedness or credit facilities or damage our businesses or our reputation. Those penalties or defaults, or damage to our businesses or reputation, could have a material adverse effect on our results of operations and financial condition. In some cases the requirements and limitations applicable to the global operations of U.S. companies and their affiliates are more restrictive than those applicable to non-U.S. companies and their affiliates, which also could have a material adverse effect on our results of operations and financial condition.

The legal and regulatory requirements applicable to our businesses are extensive. Failure to comply could have a material adverse effect on us. Our businesses are highly dependent on our ability to engage on a daily basis in a large number of financial and operational activities, including among others insurance underwriting, claim processing, investment activities and the management of third party capital, many of which are highly complex. These activities are subject to internal guidelines and policies, as well as legal and regulatory standards, including, among others, those related to privacy, anti-corruption, anti-bribery and global finance and insurance matters. Our continued expansion into new businesses and markets has brought about additional requirements. While we believe that we have adopted appropriate risk management and compliance programs, compliance risks will continue to exist, particularly as we become subject to new rules and regulations. Failure to comply with, or to obtain, appropriate authorizations and/or exemptions under any applicable laws and regulations could result in restrictions on our ability to do business or undertake activities that are regulated in one or more of the jurisdictions in which we conduct business and could subject us to fines, penalties, equitable relief and changes to our business practices. In addition, a failure to comply could result in defaults under our outstanding indebtedness or credit facilities or damage our businesses or our reputation. Compliance with applicable laws and regulations is time consuming and personnel-intensive, and changes in these laws and regulations could materially increase our direct and indirect compliance and other expenses of doing business, and have a material adverse effect on our results of operations and financial condition.

Regulators may challenge our use of fronting arrangements in states in which our capacity providers are not licensed. Our program services business enters into fronting arrangements with general agents and domestic and foreign insurers that want to access specific U.S. property and casualty insurance business in states in which the capacity providers are not licensed or are not authorized to write particular lines of insurance. Some state insurance regulators may object to these fronting arrangements. In certain states, an insurance commissioner has the authority to prohibit an authorized insurer from acting as an issuing carrier for an unauthorized insurer. In addition, insurance departments in states in which there is no such statutory or regulatory prohibition, could deem the assuming insurer to be transacting insurance business without a license and the issuing carrier to be aiding and abetting the unauthorized sale of insurance.

If regulators in any of the states where we conduct our fronting business were to prohibit or limit those arrangements, we would be prevented or limited from conducting that business for which a capacity provider is not authorized in those states, unless and until the capacity provider is able to obtain the necessary licenses. This could have a material adverse effect on our results of operations and financial condition.

We may be exposed to risk in connection with our management of third party capital. Some of our operating subsidiaries may owe certain legal duties and obligations to third party investors. A failure to fulfill any such duties or obligations could result in significant liabilities, penalties or other losses, and harm our businesses and results of operations. In addition, third party investors may decide not to renew their interests in the funds we manage, which could materially impact the financial condition of those funds, and could, in turn, have an adverse impact on our results of operations and financial condition. Moreover, we may not be able to raise additional third party capital for the funds we manage or for potential new funds and therefore we may forego existing or potential fee income and other income generating opportunities.

The United Kingdom's vote to leave, and the eventual exit of the United Kingdom from, the European Union could adversely affect us. On June 23, 2016, the U.K. voted to exit the E.U. (Brexit), and on March 29, 2017, the U.K. government delivered formal notice to the other E.U. member countries that it is leaving the E.U. A two-year period has now commenced during which the U.K. and the E.U. will negotiate the future terms of the U.K.'s relationship with the E.U., including the terms of trade between the U.K. and the E.U. Unless this period is extended, the U.K. will automatically exit the E.U., with or without an agreement in place, after two years. During this period the U.K. will remain a part of the E.U. After Brexit terms are agreed, Brexit could be implemented in stages over a multi-year period.

The effects of Brexit will depend in part on any agreements the U.K. makes to retain access to E.U. markets either during a transitional period or more permanently. Brexit could impair or end the ability of both MIICL and our Lloyd's syndicate to transact business in E.U. countries from our U.K. offices and MIICL's ability to maintain its current branches in E.U. member countries and in Switzerland. We have started the process to obtain regulatory approval to establish an insurance company in Germany in order to continue transacting E.U. business if U.K. access to E.U. markets ceases or is materially impaired. The Society of Lloyd's has announced that it will be setting up a new European insurance company in Brussels in order to maintain access to E.U. business for Lloyd's syndicates. Access to E.U. markets through a solution devised by the Society of Lloyd's may supplement, or serve as an alternative to, a new E.U.-based insurance carrier for business we transact in the E.U.

The eventual exit of the U.K. from the E.U., and negotiations leading up to that exit, could continue to contribute to instability in global financial markets, including foreign currency markets, and adversely affect European and worldwide economic or market conditions. In addition, no member country has previously left the E.U., and the rules for exit (contained in Article 50 of the Treaty on European Union) are brief. Accordingly, there are significant uncertainties related to the political, monetary and economic impacts of Brexit, including related tax, accounting and financial reporting implications. Brexit could also lead to legal uncertainty and potentially a large number of new and divergent national laws and regulations, including new tax rules, as the U.K. determines which E.U. laws to replace or replicate. Any of these effects of Brexit, and others we cannot anticipate, could adversely affect our business, business opportunities, results of operations, financial condition and cash flows.

Associates

At December 31, 2017, we had approximately 15,600 employees, of whom approximately 11,400 were employed within our Markel Ventures operations.

SELECTED FINANCIAL DATA *(dollars in millions, except per share data)* [1]

	2017	2016	2015
RESULTS OF OPERATIONS			
Earned premiums	**$ 4,248**	$ 3,866	$ 3,824
Net investment income	**406**	373	353
Total operating revenues	**6,062**	5,612	5,370
Net income (loss) to shareholders	**395**	456	583
Comprehensive income (loss) to shareholders	**1,175**	667	233
Diluted net income (loss) per share	**$ 25.81**	$ 31.27	$ 41.74
FINANCIAL POSITION			
Total investments, cash and cash equivalents and restricted cash and cash equivalents (invested assets)	**$ 20,570**	$ 19,059	$ 18,181
Total assets	**32,805**	25,875	24,939
Unpaid losses and loss adjustment expenses	**13,584**	10,116	10,252
Senior long-term debt and other debt	**3,099**	2,575	2,239
Shareholders' equity	**9,504**	8,461	7,834
Common shares outstanding (at year end, in thousands)	**13,904**	13,955	13,959

OPERATING PERFORMANCE MEASURES [1,2]

	2017	2016	2015
OPERATING DATA			
Book value per common share outstanding	**$ 683.55**	$ 606.30	$ 561.23
Growth (decline) in book value per share	**13%**	8%	3%
5-Year CAGR in book value per share [3]	**11%**	11%	11%
Closing stock price	**$ 1,139.13**	$ 904.50	$ 883.35
RATIO ANALYSIS			
U.S. GAAP combined ratio [4]	**105%**	92%	89%
Investment yield [5]	**3%**	2%	2%
Taxable equivalent total investment return [6]	**10%**	4%	(1)%
Investment leverage [7]	**2.2**	2.3	2.3
Debt to capital	**25%**	23%	22%

[1] Reflects the acquisition of Alterra Capital Holdings Limited effective May 1, 2013, which included the issuance of equity totaling $2.3 billion.

[2] Operating Performance Measures provide a basis for management to evaluate our performance. The method we use to compute these measures may differ from the methods used by other companies. See further discussion of management's evaluation of these measures in Management's Discussion & Analysis of Financial Condition and Results of Operations.

[3] CAGR— compound annual growth rate.

2014	2013	2012	2011	2010	2009	2008	5-Year CAGR[3]	10-Year CAGR[3]
$ 3,841	$ 3,232	$ 2,147	$ 1,979	$ 1,731	$ 1,816	$ 2,022	**15%**	**7%**
363	317	282	264	273	260	282	**8%**	**3%**
5,134	4,323	3,000	2,630	2,225	2,069	1,977	**15%**	**9%**
321	281	253	142	267	202	(59)	—	—
936	459	504	252	431	591	(403)	—	—
$ 22.27	$ 22.48	$ 25.89	$ 14.60	$ 27.27	$ 20.52	$ (5.95)	—	—
$ 18,638	$ 17,612	$ 9,333	$ 8,728	$ 8,224	$ 7,849	$ 6,893	**17%**	**10%**
25,198	23,956	12,557	11,532	10,826	10,242	9,512	**21%**	**12%**
10,404	10,262	5,371	5,399	5,398	5,427	5,492	**20%**	**9%**
2,251	2,256	1,493	1,294	1,016	964	694	—	—
7,595	6,674	3,889	3,388	3,172	2,774	2,181	**20%**	**14%**
13,962	13,986	9,629	9,621	9,718	9,819	9,814	—	—
$ 543.96	$ 477.16	$ 403.85	$ 352.10	$ 326.36	$ 282.55	$ 222.20	**11%**	**10%**
14%	18%	15%	8%	16%	27%	(16)%	—	—
14%	17%	9%	9%	13%	11%	10%	—	—
$ 682.84	$ 580.35	$ 433.42	$ 414.67	$ 378.13	$ 340.00	$ 299.00	—	—
95%	97%	97%	102%	97%	95%	99%	—	—
2%	3%	4%	4%	4%	4%	4%	—	—
7%	7%	9%	7%	8%	13%	(10)%	—	—
2.5	2.6	2.4	2.6	2.6	2.8	3.2	—	—
23%	25%	28%	28%	24%	26%	24%	—	—

(4) The U.S. GAAP combined ratio measures the relationship of incurred losses, loss adjustment expenses and underwriting, acquisition and insurance expenses to earned premiums.

(5) Investment yield reflects net investment income as a percentage of monthly average invested assets at amortized cost.

(6) See "Investing Results" in Management's Discussion & Analysis of Financial Condition and Results of Operations for detail regarding the calculation of taxable equivalent total investment return.

(7) Investment leverage represents total invested assets divided by shareholders' equity.

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rule 13a-15(f) under the Securities Exchange Act of 1934. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles.

Management does not expect that its internal control over financial reporting will prevent all error and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Internal control over financial reporting is a process that involves human diligence and compliance and is subject to lapses in judgment and breakdowns resulting from human failures. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. The design of any system of internal control over financial reporting also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions.

Under the supervision and with the participation of management, including the Principal Executive Officer and the Principal Financial Officer, we evaluated the effectiveness of our internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation, we have concluded that we maintained effective internal control over financial reporting as of December 31, 2017.

In conducting our evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2017, we excluded internal controls over financial reporting associated with Costa Farms and State National Companies, Inc., which were acquired in August 2017 and November 2017, respectively. These operations represent 15% of our consolidated assets as of December 31, 2017 and 2% of our consolidated operating revenues for the year then ended.

KPMG LLP, our independent registered public accounting firm, has issued an attestation report on the effectiveness of the Company's internal control over financial reporting as of December 31, 2017, which is included herein.

Alan I. Kirshner
Executive Chairman
(Principal Executive Officer)

Anne G. Waleski
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)

February 23, 2018

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and Board of Directors
Markel Corporation:

Opinion on Internal Control Over Financial Reporting

We have audited Markel Corporation's and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control— Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2017 and 2016, and the related consolidated statements of income and comprehensive income, changes in equity, and cash flows for each of the years in the three-year period ended December 31, 2017, and related notes, and our report dated February 23, 2018 expressed an unqualified opinion on those consolidated financial statements.

Management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2017, Costa Farms and State National Companies (State National), which were acquired in August 2017 and November 2017, respectively. These operations represent 15 percent of assets and 2 percent of operating revenues included in the consolidated financial statements of the Company as of and for the year ended December 31, 2017. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of Costa Farms and State National.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

KPMG LLP

Richmond, Virginia
February 23, 2018

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and Board of Directors
Markel Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Markel Corporation and subsidiaries (the Company) as of December 31, 2017 and 2016, the related consolidated statements of income and comprehensive income, changes in equity, and cash flows for each of the years in the three-year period ended December 31, 2017, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2017, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 23, 2018 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

KPMG LLP

We have served as the Company's auditor since 1980.

Richmond, Virginia
February 23, 2018

CONSOLIDATED BALANCE SHEETS

	December 31,	
	2017	2016
	(dollars in thousands)	
ASSETS		
Investments, available-for-sale, at estimated fair value:		
Fixed maturities (amortized cost of $9,551,153 in 2017 and $9,591,734 in 2016)	**$ 9,940,670**	$ 9,891,510
Equity securities (cost of $2,667,661 in 2017 and $2,481,448 in 2016)	**5,967,847**	4,745,841
Short-term investments (estimated fair value approximates cost)	**2,160,974**	2,336,151
Total Investments	**18,069,491**	16,973,502
Cash and cash equivalents	**2,198,459**	1,738,747
Restricted cash and cash equivalents	**302,387**	346,417
Receivables	**1,567,453**	1,282,997
Reinsurance recoverable on unpaid losses	**4,619,336**	2,006,945
Reinsurance recoverable on paid losses	**126,054**	64,892
Deferred policy acquisition costs	**465,569**	392,410
Prepaid reinsurance premiums	**1,099,757**	299,923
Goodwill	**1,777,464**	1,142,248
Intangible assets	**1,355,681**	722,542
Other assets	**1,223,365**	904,676
TOTAL ASSETS	**$ 32,805,016**	$ 25,875,299
LIABILITIES AND EQUITY		
Unpaid losses and loss adjustment expenses	**$ 13,584,281**	$ 10,115,662
Life and annuity benefits	**1,072,112**	1,049,654
Unearned premiums	**3,308,779**	2,263,838
Payables to insurance and reinsurance companies	**324,304**	231,327
Senior long-term debt and other debt (estimated fair value of $3,351,000 in 2017 and $2,721,000 in 2016)	**3,099,230**	2,574,529
Other liabilities	**1,748,460**	1,099,200
Total Liabilities	**23,137,166**	17,334,210
Redeemable noncontrolling interests	**166,269**	73,678
Commitments and contingencies		
Shareholders' equity:		
Common stock	**3,381,834**	3,368,666
Retained earnings	**3,776,743**	3,526,395
Accumulated other comprehensive income	**2,345,571**	1,565,866
Total Shareholders' Equity	**9,504,148**	8,460,927
Noncontrolling interests	**(2,567)**	6,484
Total Equity	**9,501,581**	8,467,411
TOTAL LIABILITIES AND EQUITY	**$ 32,805,016**	$ 25,875,299

See accompanying notes to consolidated financial statements.

CONSOLIDATED STATEMENTS OF INCOME AND COMPREHENSIVE INCOME

	Years Ended December 31,		
	2017	2016	2015
	(dollars in thousands, except per share data)		
OPERATING REVENUES			
Earned premiums	**$ 4,247,978**	$ 3,865,870	$ 3,823,532
Net investment income	**405,709**	373,230	353,213
Net realized investment gains (losses):			
Other-than-temporary impairment losses	**(7,589)**	(18,355)	(44,481)
Net realized investment gains, excluding other-than-temporary impairment losses	**2,286**	83,502	150,961
Net realized investment gains (losses)	**(5,303)**	65,147	106,480
Other revenues	**1,413,275**	1,307,779	1,086,758
Total Operating Revenues	**6,061,659**	5,612,026	5,369,983
OPERATING EXPENSES			
Losses and loss adjustment expenses	**2,865,761**	2,050,744	1,938,745
Underwriting, acquisition and insurance expenses	**1,587,414**	1,498,590	1,455,080
Amortization of intangible assets	**80,758**	68,533	68,947
Other expenses	**1,307,980**	1,190,243	1,046,805
Total Operating Expenses	**5,841,913**	4,808,110	4,509,577
Operating Income	**219,746**	803,916	860,406
Interest expense	**132,451**	129,896	118,301
Loss on early extinguishment of debt	**—**	44,100	—
Income Before Income Taxes	**87,295**	629,920	742,105
Income tax expense (benefit)	**(313,463)**	169,477	152,963
Net Income	**$ 400,758**	$ 460,443	$ 589,142
Net income attributable to noncontrolling interests	**5,489**	4,754	6,370
NET INCOME TO SHAREHOLDERS	**$ 395,269**	$ 455,689	$ 582,772
OTHER COMPREHENSIVE INCOME (LOSS)			
Change in net unrealized gains on investments, net of taxes:			
Net holding gains (losses) arising during the period	**$ 787,339**	$ 275,661	$ (240,170)
Change in unrealized other-than-temporary impairment losses on fixed maturities arising during the period	**—**	35	160
Reclassification adjustments for net gains included in net income	**(24,296)**	(33,528)	(80,482)
Change in net unrealized gains on investments, net of taxes	**763,043**	242,168	(320,492)
Change in foreign currency translation adjustments, net of taxes	**10,449**	(11,704)	(29,278)
Change in net actuarial pension loss, net of taxes	**6,259**	(19,100)	(352)
Total Other Comprehensive Income (Loss)	**779,751**	211,364	(350,122)
Comprehensive Income	**$ 1,180,509**	$ 671,807	$ 239,020
Comprehensive income attributable to noncontrolling interests	**5,535**	4,760	6,297
COMPREHENSIVE INCOME TO SHAREHOLDERS	**$ 1,174,974**	$ 667,047	$ 232,723
NET INCOME PER SHARE			
Basic	**$ 25.89**	$ 31.41	$ 41.99
Diluted	**$ 25.81**	$ 31.27	$ 41.74

See accompanying notes to consolidated financial statements.

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(in thousands)	Common Shares	Common Stock	Retained Earnings	Accumulated Other Comprehensive Income	Total Shareholders' Equity	Noncontrolling Interests	Total Equity	Redeemable Noncontrolling Interests
December 31, 2014	13,962	$3,308,395	$2,581,866	$1,704,557	$7,594,818	$ 7,184	$7,602,002	$ 61,048
Net income (loss)			582,772	—	582,772	(988)	581,784	7,358
Other comprehensive income (loss)			—	(350,049)	(350,049)	—	(350,049)	(73)
Comprehensive Income (Loss)					232,723	(988)	231,735	7,285
Issuance of common stock	34	4,752	—	—	4,752	—	4,752	—
Repurchase of common stock	(37)	—	(31,491)	—	(31,491)	—	(31,491)	—
Restricted stock awards expensed	—	24,129	—	—	24,129	—	24,129	—
Acquisition of CapTech	—	—	—	—	—	—	—	13,817
Adjustment of redeemable noncontrolling interests	—	—	4,144	—	4,144	—	4,144	(4,144)
Purchase of noncontrolling interest	—	(1,447)	—	—	(1,447)	—	(1,447)	(8,224)
Other	—	6,528	(6)	—	6,522	263	6,785	(6,824)
December 31, 2015	13,959	3,342,357	3,137,285	1,354,508	7,834,150	6,459	7,840,609	62,958
Net income			455,689	—	455,689	99	455,788	4,655
Other comprehensive income			—	211,358	211,358	—	211,358	6
Comprehensive Income					667,047	99	667,146	4,661
Issuance of common stock	54	4,623	—	—	4,623	—	4,623	—
Repurchase of common stock	(58)	—	(51,142)	—	(51,142)	—	(51,142)	—
Restricted stock awards expensed	—	21,336	—	—	21,336	—	21,336	—
Adjustment of redeemable noncontrolling interests	—	—	(15,472)	—	(15,472)	—	(15,472)	15,472
Purchase of noncontrolling interest	—	350	—	—	350	—	350	(3,517)
Other	—	—	35	—	35	(74)	(39)	(5,896)
December 31, 2016	13,955	3,368,666	3,526,395	1,565,866	8,460,927	6,484	8,467,411	73,678
Net income (loss)			**395,269**	**—**	**395,269**	**(895)**	**394,374**	**6,384**
Other comprehensive income			**—**	**779,705**	**779,705**	**—**	**779,705**	**46**
Comprehensive Income (Loss)					**1,174,974**	**(895)**	**1,174,079**	**6,430**
Issuance of common stock	**58**	**552**	**—**	**—**	**552**	**—**	**552**	**—**
Repurchase of common stock	**(109)**	**—**	**(110,838)**	**—**	**(110,838)**	**—**	**(110,838)**	**—**
Restricted stock awards expensed	**—**	**15,881**	**—**	**—**	**15,881**	**—**	**15,881**	**—**
Acquisition of Costa Farms	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**66,600**
Adjustment of redeemable noncontrolling interests	**—**	**—**	**(33,738)**	**—**	**(33,738)**	**—**	**(33,738)**	**33,738**
Purchase of noncontrolling interest	**—**	**(2,955)**	**—**	**—**	**(2,955)**	**(8,330)**	**(11,285)**	**(6,179)**
Other	**—**	**(310)**	**(345)**	**—**	**(655)**	**174**	**(481)**	**(7,998)**
DECEMBER 31, 2017	**13,904**	**$3,381,834**	**$3,776,743**	**$2,345,571**	**$9,504,148**	**$ (2,567)**	**$9,501,581**	**$166,269**

See accompanying notes to consolidated financial statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years Ended December 31,		
	2017	2016	2015
	(dollars in thousands)		
OPERATING ACTIVITIES			
Net income	**$ 400,758**	$ 460,443	$ 589,142
Adjustments to reconcile net income to net cash provided by operating activities:			
Deferred income tax expense (benefit)	**(324,090)**	63,358	(9,678)
Depreciation and amortization	**203,871**	194,147	200,987
Net realized investment (gains) losses	**5,303**	(65,147)	(106,480)
Loss on early extinguishment of debt	**—**	44,100	—
Decrease (increase) in receivables	**(38,259)**	(163,123)	5,604
Increase in deferred policy acquisition costs	**(67,923)**	(41,619)	(7,360)
Increase (decrease) in unpaid losses and loss adjustment expenses, net	**619,305**	(9,429)	(91,960)
Decrease in life and annuity benefits	**(55,647)**	(54,580)	(85,257)
Increase (decrease) in unearned premiums, net	**197,706**	134,593	(4,522)
Increase (decrease) in payables to insurance and reinsurance companies	**(40,761)**	11,582	(31,829)
Increase (decrease) in income taxes payable	**(35,968)**	(16,484)	27,817
Increase (decrease) in accrued expenses	**(71,669)**	67,994	97,273
Increase (decrease) in other liabilities	**45,051**	(90,571)	(5,793)
Other	**20,852**	(641)	73,207
Net Cash Provided By Operating Activities	**858,529**	534,623	651,151
INVESTING ACTIVITIES			
Proceeds from sales of fixed maturities and equity securities	**577,650**	365,822	538,978
Proceeds from maturities, calls and prepayments of fixed maturities	**1,129,895**	963,165	1,503,616
Cost of fixed maturities and equity securities purchased	**(1,176,281)**	(2,205,939)	(1,576,254)
Net change in short-term investments	**234,743**	(689,194)	(62,124)
Proceeds from sales of equity method investments	**3,353**	8,790	23,155
Cost of equity method investments	**(13,023)**	(8,576)	(21,849)
Additions to property and equipment	**(74,652)**	(63,674)	(79,755)
Acquisitions, net of cash acquired	**(1,431,712)**	(7,527)	(261,521)
Other	**5,570**	(1,348)	(797)
Net Cash Provided (Used) By Investing Activities	**(744,457)**	(1,638,481)	63,449
FINANCING ACTIVITIES			
Additions to senior long-term debt and other debt	**664,657**	559,300	69,797
Repayment of senior long-term debt and other debt	**(259,972)**	(278,363)	(88,020)
Premiums and fees related to early extinguishment of debt	**—**	(43,691)	—
Repurchases of common stock	**(110,838)**	(51,142)	(31,491)
Issuance of common stock	**552**	4,623	4,752
Payment of contingent consideration	**(5,018)**	(14,219)	(9,263)
Purchase of noncontrolling interests	**(18,334)**	(3,167)	(12,474)
Distributions to noncontrolling interests	**(7,899)**	(5,949)	(6,287)
Other	**(6,833)**	(15,373)	(1,225)
Net Cash Provided (Used) By Financing Activities	**256,315**	152,019	(74,211)
Effect of foreign currency rate changes on cash, cash equivalents, restricted cash and restricted cash equivalents	**45,295**	(33,138)	(52,642)
Increase (decrease) in cash, cash equivalents, restricted cash and restricted cash equivalents	**415,682**	(984,977)	587,747
Cash, cash equivalents, restricted cash and restricted cash equivalents at beginning of year	**2,085,164**	3,070,141	2,482,394
CASH, CASH EQUIVALENTS, RESTRICTED CASH AND RESTRICTED CASH EQUIVALENTS AT END OF YEAR	**$ 2,500,846**	$ 2,085,164	$ 3,070,141

See accompanying notes to consolidated financial statements.

1. Summary of Significant Accounting Policies

Markel Corporation is a diverse financial holding company serving a variety of niche markets. Markel Corporation's principal business markets and underwrites specialty insurance products. Through its wholly owned subsidiary, Markel Ventures, Inc. (Markel Ventures), Markel Corporation also owns interests in various businesses that operate outside of the specialty insurance marketplace.

a) Basis of Presentation. The accompanying consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles (U.S. GAAP) and include the accounts of Markel Corporation and its consolidated subsidiaries, as well as any variable interest entities (VIEs) that meet the requirements for consolidation (the Company). All significant intercompany balances and transactions have been eliminated in consolidation. The Company consolidates the results of its Markel Ventures subsidiaries on a one-month lag. Certain prior year amounts have been reclassified to conform to the current presentation.

b) Use of Estimates. The preparation of financial statements in accordance with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses and the disclosure of contingent assets and liabilities. Management periodically reviews its estimates and assumptions. Quarterly reviews include evaluating the adequacy of reserves for unpaid losses and loss adjustment expenses, life and annuity reinsurance benefit reserves, litigation contingencies, the reinsurance allowance for doubtful accounts and income tax liabilities, as well as analyzing the recoverability of deferred tax assets, estimating reinsurance premiums written and earned and evaluating the investment portfolio for other-than-temporary declines in estimated fair value. Estimates and assumptions for goodwill and intangible assets are reviewed in conjunction with an acquisition, and goodwill and indefinite-lived intangible assets are reassessed at least annually for impairment. Actual results may differ materially from the estimates and assumptions used in preparing the consolidated financial statements.

c) Investments. Available-for-sale investments are recorded at estimated fair value. Unrealized gains and losses on investments, net of income taxes, are included in accumulated other comprehensive income in shareholders' equity. The Company completes a detailed analysis each quarter to assess whether the decline in the fair value of any investment below its cost basis is deemed other-than-temporary.

Premiums and discounts are amortized or accreted over the lives of the related fixed maturities as an adjustment to the yield using the effective interest method. Dividend and interest income are recognized when earned. Realized investment gains or losses are included in earnings. Realized gains or losses from sales of investments are derived using the first-in, first-out method.

The Company also has certain investments in equity securities that are recorded at estimated fair value with changes in unrealized gains and losses recorded in net income. These investments totaled $168.8 million as of December 31, 2017 and are included in equity securities in the consolidated balance sheets.

Investments accounted for under the equity method of accounting are recorded at cost within other assets on the consolidated balance sheets and subsequently increased or decreased by the Company's proportionate share of the net income or loss of the investee. The Company records its proportionate share of net income or loss of the investee in net investment income (loss). The Company records its proportionate share of other comprehensive income or loss of the investee as a component of other comprehensive income (loss). Dividends or other equity distributions in excess of the Company's cumulative equity in earnings of the investee are recorded as as a reduction of the investment. The Company reviews equity method investments for impairment when events or circumstances indicate that a decline in the fair value of the investment below its carrying value is other-than-temporary.

d) Cash and Cash Equivalents. The Company considers all investments with original maturities of 90 days or less to be cash equivalents. The carrying value of the Company's cash and cash equivalents and restricted cash and cash equivalents approximates fair value.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

e) Restricted Cash and Cash Equivalents. Cash and cash equivalents that are restricted as to withdrawal or use are recorded as restricted cash and cash equivalents. The carrying value of the Company's restricted cash and cash equivalents approximates fair value.

f) Receivables. Receivables include amounts receivable from agents, brokers and insureds, which represent premiums that are both currently due and amounts not yet due on insurance and reinsurance policies. Premiums for insurance policies are generally due at inception. Premiums for reinsurance policies generally become due over the period of coverage based on the policy terms. The Company monitors the credit risk associated with premiums receivable, taking into consideration the fact that in certain instances credit risk may be reduced by the Company's right to offset loss obligations or unearned premiums against premiums receivable. Amounts deemed uncollectible are charged to net income in the period they are determined. Changes in the estimate of reinsurance premiums written will result in an adjustment to premiums receivable in the period they are determined.

g) Reinsurance Recoverables. Amounts recoverable from reinsurers are estimated in a manner consistent with the claim liability associated with the reinsured business. Allowances are established for amounts deemed uncollectible and reinsurance recoverables are recorded net of these allowances. The Company evaluates the financial condition of its reinsurers and monitors concentration risk to minimize its exposure to significant losses from individual reinsurers.

h) Deferred Policy Acquisition Costs. Costs directly related to the acquisition of insurance premiums are deferred and amortized over the related policy period, generally one year. The Company only defers acquisition costs incurred that are related directly to the successful acquisition of new or renewal insurance contracts, including commissions to agents and brokers and premium taxes. Commissions received related to reinsurance premiums ceded are netted against broker commissions in determining acquisition costs eligible for deferral. To the extent that future policy revenues on existing policies are not adequate to cover related costs and expenses, deferred policy acquisition costs are charged to earnings. The Company does not consider anticipated investment income in determining whether a premium deficiency exists.

i) Goodwill and Intangible Assets. Goodwill and intangible assets are recorded as a result of business acquisitions. Goodwill represents the excess of the amount paid to acquire a business over the net fair value of assets acquired and liabilities assumed at the date of acquisition. Indefinite-lived and other intangible assets are recorded at fair value as of the acquisition date. The determination of the fair value of certain assets acquired and liabilities assumed involves significant judgment and the use of valuation models and other estimates, which require assumptions that are inherently subjective. Goodwill and indefinite-lived intangible assets are tested for impairment at least annually. The Company completes an annual test during the fourth quarter of each year based upon the results of operations through September 30. Intangible assets with definite lives are amortized using the straight-line method over their estimated useful lives, generally five to 20 years, and are reviewed for impairment when events or circumstances indicate that their carrying value may not be recoverable.

j) Property and Equipment. Property and equipment are stated at cost less accumulated depreciation and amortization. Depreciation and amortization of property and equipment are calculated using the straight-line method over the estimated useful lives (generally, the lower of the life of the lease or the estimated useful life for leasehold improvements, ten to 40 years for buildings, seven to 40 years for land improvements, three to ten years for furniture and equipment and three to 25 years for other property and equipment).

k) Redeemable Noncontrolling Interests. The Company owns controlling interests in various companies through its Markel Ventures operations. In some cases, the Company has the option to acquire the remaining equity interests, and the remaining equity interests have the option to sell their interests to the Company, in the future. The redemption value of the remaining equity interests is generally based on the respective company's earnings in specified periods preceding the redemption date. The redeemable noncontrolling interests generally become redeemable through 2022.

The Company recognizes changes in the redemption value that exceed the carrying value of redeemable noncontrolling interests to retained earnings as if the balance sheet date were also the redemption date. Changes in the redemption value also result in an adjustment to net income to shareholders in the calculation of basic and diluted net income per share. The change

in the redemption value of redeemable noncontrolling interests in 2017, 2016 and 2015 resulted in an adjustment to retained earnings of a decrease of $33.7 million, a decrease of $15.5 million, and an increase of $4.1 million, respectively.

l) Income Taxes. The Company records deferred income taxes to reflect the net tax effect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and their tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in years in which those temporary differences are expected to be recovered or settled. Deferred tax assets are reduced by a valuation allowance when management believes it is more likely than not that some, or all, of the deferred tax assets will not be realized. The Company recognizes the tax benefit from an uncertain tax position taken or expected to be taken in income tax returns only if it is more likely than not that the tax position will be sustained upon examination by tax authorities, based on the technical merits of the position. Tax positions that meet the more likely than not threshold are then measured using a probability weighted approach, whereby the largest amount of tax benefit that is greater than 50% likely of being realized upon ultimate settlement is recognized. The Company recognizes interest and penalties related to uncertain tax positions in income tax expense.

m) Unpaid Losses and Loss Adjustment Expenses. Unpaid losses and loss adjustment expenses on the Company's property and casualty insurance business are based on evaluations of reported claims and estimates for losses and loss adjustment expenses incurred but not reported. Estimates for losses and loss adjustment expenses incurred but not reported are based on reserve development studies, among other things. Recorded reserves are estimates, and the ultimate liability may be greater or less than the estimates.

n) Life and Annuity Benefits. The Company previously acquired a block of long duration reinsurance contracts for life and annuity benefits which subject the Company to mortality, longevity and morbidity risks. The assumptions used to determine policy benefit reserves are generally locked-in for the life of the contract unless an unlocking event occurs. To the extent existing policy reserves, together with the present value of future gross premiums and expected investment income earned thereon, are not adequate to cover the present value of future benefits, settlement and maintenance costs, the locked-in assumptions are revised to current best estimate assumptions and a charge to earnings for life and annuity benefits is recognized at that time. Because of the assumptions and estimates used in establishing reserves for life and annuity benefit obligations and the long-term nature of these reinsurance contracts, the ultimate liability may be greater or less than the estimates.

Results attributable to the run-off of life and annuity reinsurance business are included in other revenues and other expenses in the Company's consolidated statements of income and comprehensive income and as part of the Company's Other Insurance (Discontinued Lines) segment.

o) Revenue Recognition.

Property and Casualty Premiums

Insurance premiums are generally earned on a pro rata basis over the policy period, typically one year. The cost of reinsurance ceded is initially recorded as prepaid reinsurance premiums and is amortized over the reinsurance contract period in proportion to the amount of insurance protection provided. Premiums ceded are netted against premiums written.

Assumed reinsurance premiums are recorded at the inception of each contract based upon contract terms and information received from cedents and brokers and are earned on a pro rata basis over the coverage period, or for multi-year contracts, in proportion with the underlying risk exposure to the extent there is variability in the exposure through the coverage period. Changes in reinsurance premium estimates are expected and may result in significant adjustments in any period. These estimates change over time as additional information regarding changes in underlying exposures is obtained. Any subsequent differences arising on such estimates are recorded as premiums written in the period they are determined and are earned on a pro rata basis over the coverage period. The Company uses the periodic method to account for assumed reinsurance from foreign reinsurers. The Company's foreign reinsurers provide sufficient information to record foreign assumed business in the same manner as the Company records assumed business from United States reinsurers.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

Certain contracts that the Company writes provide for reinstatement of coverage. Reinstatement premiums are the premiums for the restoration of the insurance or reinsurance limit of a contract to its full amount after a loss occurrence by the insured or reinsured. The Company accrues for reinstatement premiums resulting from losses recorded. Such accruals are based upon contractual terms and management judgment is involved with respect to the amount of losses recorded. Changes in estimates of losses recorded on contracts with reinstatement premium features will result in changes in reinstatement premiums based on contractual terms. Reinstatement premiums are recognized at the time losses are recorded and are earned on a pro rata basis over the coverage period.

Other Revenues

Other revenues primarily relate to the Company's Markel Ventures operations and consist of revenues from the sale of manufactured products and service revenues. Revenues from manufactured products are generally recognized at the time title transfers to the customer, which typically occurs at the point of shipment or delivery to the customer, depending on the terms of the sales arrangement. Revenues from services are generally recognized as the services are performed. Services provided pursuant to a contract are recognized either over the contract period or upon completion of the elements specified in the contract, depending on the terms of the contract.

Investment management fee income is recognized over the period in which investment management services are provided and is calculated and billed monthly based on the net asset value of the accounts managed. Performance fee arrangements entitle the Company to participate, on a fixed-percentage basis, in any net income generated in excess of an agreed-upon threshold as established by the underlying investment management agreements. In general, net income is calculated at the end of each calendar year and performance fees are payable annually. Following the preferred method identified in the Accounting Standards Codification (ASC) Topic 605, *Revenue Recognition*, such performance fee income is recorded at the conclusion of the contractual performance period, when all contingencies are resolved.

Program services fees received in exchange for providing access to the U.S. property and casualty insurance market are based on the gross premiums written on behalf of general agent and capacity provider clients. Program services fees are earned in a manner consistent with the recognition of the gross premiums earned on the underlying insurance policies, generally on a pro rata basis over the terms of the underlying policies reinsured.

p) Program Services. In connection with the program services business, the Company enters into contractual agreements with both the producing general agents and the reinsurers, whereby the general agents and reinsurers are typically obligated to each other for payment of insurance amounts, including premiums, commissions and losses. To the extent these funds are not the obligation of the Company and are settled directly between the general agent and the reinsurer, no receivables or payables are recorded for these amounts. All obligations of the Company's insurance subsidiaries owed to or on behalf of their policyholders are recorded by the Company and, to the extent appropriate, offsetting reinsurance recoverables are recorded.

q) Stock-based Compensation. Stock-based compensation expense is generally recognized as part of underwriting, acquisition and insurance expenses over the requisite service period. Stock-based compensation expense, net of taxes, was $11.9 million in 2017, $14.3 million in 2016 and $16.3 million in 2015. See note 12.

r) Foreign Currency Translation. The functional currencies of the Company's foreign operations are the currencies in which the majority of their business is transacted. Assets and liabilities of foreign operations are translated into the United States Dollar using the exchange rates in effect at the balance sheet date. Revenues and expenses of foreign operations are translated using the average exchange rate for the period. Gains or losses from translating the financial statements of foreign operations denominated in a functional currency are included, net of taxes, in shareholders' equity as a component of accumulated other comprehensive income. Gains and losses arising from transactions denominated in a foreign currency other than a functional currency are included in net income.

The Company manages its exposure to foreign currency risk primarily by matching assets, other than goodwill and intangible assets, and liabilities denominated in the same currency. To the extent that assets and liabilities in foreign currencies are not matched, the Company is exposed to foreign currency risk. For functional currencies, the related exchange rate fluctuations are

reflected in other comprehensive income. The cumulative foreign currency translation adjustment, net of taxes, was a loss of $74.0 million and $84.4 million at December 31, 2017 and 2016, respectively.

s) Derivative Financial Instruments. Derivative instruments, including derivative instruments resulting from hedging activities, are measured at fair value and recognized as either assets or liabilities on the consolidated balance sheets. The changes in fair value of derivatives are recognized in earnings unless the derivative is designated as a hedge and qualifies for hedge accounting.

The Company's foreign currency forward contracts are generally designated and qualify as hedges of a net investment in a foreign operation. The effective portion of the change in fair value resulting from these hedges is reported in currency translation adjustments as part of other comprehensive income. The ineffective portion of the change in fair value is recognized in earnings.

t) Comprehensive Income. Comprehensive income represents all changes in equity that result from recognized transactions and other economic events during the period. Other comprehensive income refers to revenues, expenses, gains and losses that under U.S. GAAP are included in comprehensive income but excluded from net income, such as unrealized gains or losses on investments, foreign currency translation adjustments and changes in net actuarial pension loss.

u) Net Income Per Share. Basic net income per share is computed by dividing adjusted net income to shareholders by the weighted average number of common shares outstanding during the year. Diluted net income per share is computed by dividing adjusted net income to shareholders by the weighted average number of common shares and dilutive potential common shares outstanding during the year. See note 12(b).

v) Variable Interest Entities. The Company determines whether it has relationships with entities defined as VIEs in accordance with ASC Topic 810, *Consolidation*. Under this guidance, a VIE is consolidated by the variable interest holder that is determined to be the primary beneficiary.

An entity in which the Company holds a variable interest is a VIE if any of the following conditions exist: (a) the total equity investment at risk is not sufficient to permit the entity to finance its activities without additional subordinated financial support, (b) as a group, the holders of equity investment at risk lack either the direct or indirect ability through voting rights or similar rights to make decisions about an entity's activities that most significantly impact the entity's economic performance or the obligation to absorb the expected losses or right to receive the expected residual returns, or (c) the voting rights of some investors are disproportionate to their obligation to absorb the expected losses of the entity, their rights to receive the expected residual returns of the entity, or both and substantially all of the entity's activities either involve or are conducted on behalf of an investor with disproportionately few voting rights.

The primary beneficiary is defined as the variable interest holder that is determined to have the controlling financial interest as a result of having both (a) the power to direct the activities of a VIE that most significantly impact the economic performance of the VIE and (b) the obligation to absorb losses or right to receive benefits from the VIE that could potentially be significant to the VIE.

The Company determines whether an entity is a VIE at the inception of its variable interest in the entity and upon the occurrence of certain reconsideration events. The Company continually reassesses whether it is the primary beneficiary of VIEs in which it holds a variable interest.

w) Recent Accounting Pronouncements.

Effective January 1, 2017, the Company early adopted Accounting Standards Update (ASU) No. 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments*, which is intended to reduce diversity in practice in how certain transactions are classified in the statement of cash flows. Some of the topics covered by the ASU include the classification of debt prepayment and extinguishment costs, contingent consideration payments made after a business combination and distributions from equity method investees. Upon adoption of this ASU, the Company made an accounting policy election to use the cumulative earnings approach for presenting distributions received from equity method investees,

which is consistent with its existing approach. Under this approach, distributions up to the amount of cumulative equity in earnings recognized will be treated as returns on investment and presented in operating activities and those in excess of that amount will be treated as returns of investment and presented in financing activities. The provisions of ASU No. 2016-15 were adopted on a retrospective basis and did not impact the Company's financial position, results of operations or cash flows.

Effective January 1, 2017, the Company early adopted ASU No. 2016-18, *Statement of Cash Flows (Topic 230): Restricted Cash*. The ASU requires that amounts generally described as restricted cash and restricted cash equivalents be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The Company previously presented changes in restricted cash and restricted cash equivalents on the statements of cash flows as an investing activity. The Company generally describes amounts held in trust or on deposit to support underwriting activities as well as amounts pledged as security for letters of credit as restricted cash or restricted cash equivalents. The provisions of ASU No. 2016-18 were adopted on a retrospective basis and did not impact the Company's financial position, results of operations or total comprehensive income. As a result of adoption of this ASU, investing cash inflows of $93.4 million in 2016 and $62.3 million in 2015 were attributed to the change in restricted cash and were reclassified out of investing activities. The Company's statements of cash flows now include restricted cash and restricted cash equivalents in the beginning-of-period and end-of-period total amounts for cash, cash equivalents, restricted cash and restricted cash equivalents.

Effective January 1, 2017, the Company early adopted ASU No. 2017-04, *Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment.* The ASU eliminates Step 2 of the goodwill impairment test, which is performed by estimating the fair value of individual assets and liabilities of the reporting unit to calculate the implied fair value of goodwill. Instead, an entity will record a goodwill impairment charge based on the excess of a reporting unit's carrying value over its estimated fair value, not to exceed the carrying amount of goodwill. The provisions of ASU No. 2017-04 were adopted on a prospective basis and did not have an impact on the Company's financial position, results of operations or cash flows.

In May 2014, the Financial Accounting Standards Board (FASB) issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606),* which creates a new comprehensive revenue recognition standard that will serve as a single source of revenue guidance for all companies in all industries. The guidance applies to all companies that either enter into contracts with customers to transfer goods or services or enter into contracts for the transfer of nonfinancial assets, unless those contracts are within the scope of other standards, such as insurance contracts. ASU No. 2014-09's core principle is that a company will recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. In doing so, companies will need to use more judgment and make more estimates than under the current guidance. These may include identifying performance obligations in the contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation. Several ASUs have also been issued as amendments to ASU No. 2014-09 and will be evaluated and adopted in conjunction with ASU No. 2014-09. ASU No. 2014-09 becomes effective for the Company during the first quarter of 2018 and will be applied using the modified retrospective method, whereby the cumulative effect of adoption for ongoing contracts will be recognized as an adjustment to retained earnings at the date of initial application. The adjustment to retained earnings at January 1, 2018 will not be material. The adoption of this ASU will not impact the Company's insurance premium revenues or revenues from its investment portfolio, which totaled 77% of consolidated revenues for the year ended December 31, 2017, but will impact certain of the Company's other revenues, which are comprised of a diverse portfolio of contracts across various industries. Based on the Company's evaluation of the impacted revenue streams, which was completed in 2017, the timing of the recognition of revenue and related costs will change with respect to certain contracts with customers, none of which will have a material effect on the consolidated financial statements. For instance, revenues and costs for certain contracts will be recognized over time rather than when the product or service is delivered, as is the current practice. The Company also will provide additional disclosures in the notes to consolidated financial statements as required under the new guidance.

In January 2016, the FASB issued ASU No. 2016-01, *Financial Instruments (Topic 825): Recognition and Measurement of Financial Assets and Financial Liabilities.* The ASU significantly changes the income statement impact of equity investments and the recognition of changes in fair value of financial liabilities attributable to an entity's own credit risk when the fair value

option is elected. The ASU requires equity instruments that do not result in consolidation and are not accounted for under the equity method to be measured at fair value and to recognize any changes in fair value in net income rather than other comprehensive income. ASU No. 2016-01 becomes effective for the Company during the first quarter of 2018 and will be applied using a cumulative-effect adjustment to retained earnings as of the beginning of the fiscal year of adoption. As of December 31, 2017, accumulated other comprehensive income included $3.3 billion of net unrealized gains on equity securities, which will be reclassified to retained earnings on January 1, 2018. As of December 31, 2017, accumulated other comprehensive income was net of deferred income taxes on net unrealized gains on equity securities of $1.1 billion. The Company is still assessing the impact of ASU No. 2018-02, as discussed below, on deferred taxes included in accumulated other comprehensive income and has not determined the amount of deferred income taxes on net unrealized gains on equity securities that will be reclassified to retained earnings on January 1, 2018. The provisions related to equity investments without a readily determinable fair value will be applied prospectively to equity investments as of the adoption date. Adoption of this ASU is not expected have a material impact on the Company's financial position, cash flows, or total comprehensive income, but will have a material impact on the Company's results of operations as changes in fair value of equity instruments will be presented in net income rather than other comprehensive income. See note 3(f) for details regarding the change in net unrealized gains on equity securities included in other comprehensive income for the years ended December 31, 2017, 2016 and 2015.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842).* The ASU requires lessees to record most leases on their balance sheets as a lease liability with a corresponding right-of-use asset, but continue to recognize the related leasing expense within net income. ASU No. 2016-02 becomes effective for the Company during the first quarter of 2019 and will be applied using a modified retrospective approach for leases that exist or are entered into after the beginning of the earliest comparative period in the financial statements. See note 16 for details regarding the Company's minimum annual rental commitments payable directly by the Company for noncancelable operating leases at December 31, 2017, which will be subject to this new guidance. The calculation of the lease liability and right-of-use asset requires further analysis of the underlying leases to determine which portions of the underlying lease payments are required to be included in the calculation. Adoption of this standard will impact the Company's consolidated balance sheets but is not expected to have a material impact on the Company's results of operations or cash flows. The Company is currently evaluating ASU No. 2016-02 to determine the magnitude of the impact that adopting this standard will have on its consolidated financial statements.

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments.* The ASU replaces the current incurred loss model used to measure impairment losses with an expected loss model for trade, reinsurance, and other receivables as well as financial instruments measured at amortized cost. For available-for-sale debt securities, which are measured at fair value, the ASU requires entities to record impairments as an allowance, rather than a reduction of the amortized cost, as is currently required under the other-than-temporary impairment model. ASU No. 2016-13 becomes effective for the Company during the first quarter of 2020 and will be applied using a modified retrospective approach through a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is effective. The Company is currently evaluating ASU No. 2016-13 to determine the potential impact that adopting this standard will have on its consolidated financial statements. Application of the new expected loss model for measuring impairment losses will not impact the Company's investment portfolio, all of which is considered available-for-sale, but will impact the Company's other financial assets, including its reinsurance recoverables. Upon adoption of this ASU, any impairment losses on the Company's available-for-sale debt securities will be recorded as an allowance, subject to reversal, rather than as a reduction in amortized cost.

In February 2018, the FASB issued ASU No. 2018-02, *Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income.* The ASU provides an option to reclassify tax effects that are stranded in accumulated other comprehensive income as a result of enactment of the Tax Cuts and Jobs Act (TCJA) in December 2017, to retained earnings. U.S. GAAP currently requires the effects of changes in tax rates and laws on deferred tax balances to be recorded as a component of income tax expense in the period of enactment, even if the assets and liabilities relate to items of accumulated other comprehensive income. See note 8 for further discussion of the impact of the TCJA recorded in the fourth quarter of 2017. ASU No. 2018-02 becomes effective for the Company during the first quarter of 2019 and can be applied in the period of adoption or retrospectively to each period in which the effect of the TCJA was recognized. Early adoption is permitted. The Company is currently evaluating ASU No. 2018-02 to determine the potential impact that adopting this standard will have on its consolidated financial statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

The following ASU's relate to topics relevant to the Company's operations and were adopted effective January 1, 2017. These ASU's did not have a material impact on the Company's financial position, results of operations or cash flows:

- ASU No. 2015-11, *Inventory (Topic 330): Simplifying the Measurement of Inventory*
- ASU No. 2016-07, *Investments - Equity Method and Joint Ventures (Topic 323): Simplifying the Transition to the Equity Method of Accounting*
- ASU No. 2016-17, *Consolidation (Topic 810): Interests Held through Related Parties That Are under Common Control*
- ASU No. 2017-01, *Business Combinations (Topic 805): Clarifying the Definition of a Business*

The following ASU's relate to topics relevant to the Company's operations and are not yet effective. These ASU's are not expected to have a material impact on the Company's financial position, results of operations or cash flows:

- ASU No. 2016-16, *Income Taxes (Topic 740): Intra-entity Transfers of Assets Other Than Inventory*
- ASU No. 2017-07, *Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*
- ASU No. 2017-08, *Receivables - Nonrefundable Fees and Other Costs (Subtopic 310-20): Premium Amortization on Purchased Callable Debt Securities*
- ASU No. 2017-09, *Stock Compensation (Topic 718): Scope of Modification Accounting*

2. Acquisitions

SureTec Acquisition

In April 2017, the Company completed the acquisition of SureTec Financial Corp. (SureTec), a Texas-based privately held surety company primarily offering contract, commercial and court bonds. Results attributable to this acquisition are included in the U.S. Insurance segment.

Total consideration for this acquisition was $246.9 million, which included cash consideration of $225.6 million. Total consideration also includes the estimated fair value of contingent consideration the Company expects to pay based on SureTec's earnings, as defined in the merger agreement, for the years 2017 through 2020. The purchase price was allocated to the acquired assets and liabilities of SureTec based on estimated fair values on the acquisition date. The Company recognized goodwill of $70.4 million, which is primarily attributable to synergies that are expected to result upon integration of SureTec into the Company's insurance operations. None of the goodwill recognized is expected to be deductible for income tax purposes. The Company also recognized other intangible assets of $103.0 million, which includes $92.0 million of agent relationships to be amortized over a weighted average period of 15 years.

State National Acquisition

In November 2017, the Company completed its acquisition of 100% of the issued and outstanding common stock of State National Companies, Inc. (State National), a Texas-based leading specialty provider of property and casualty insurance that includes both fronting services and collateral protection insurance coverage. Results attributable to State National's collateral protection insurance coverages are included in the U.S. Insurance segment. Results attributable to State National's program services (fronting) business are reported with the Company's other operations, which are not included in a reportable segment.

Pursuant to the terms of the merger agreement, State National stockholders received $21.00 cash for each outstanding share of State National common stock (other than certain performance-based restricted shares that did not vest in connection with the transaction). Total consideration for this acquisition was $918.8 million, all of which was cash consideration.

The purchase price was allocated to the acquired assets and liabilities of State National based on estimated fair values at the acquisition date. The Company preliminarily recognized goodwill of $370.4 million, none of which is expected to be deductible for income tax purposes. The goodwill is attributable to the Company's ability to achieve future revenue growth from new customers and the continued enhancement of State National's existing technology. Goodwill is also attributable to State National's assembled workforce and synergies that are expected to result upon integration of State National into the Company's insurance operations and investing activities.

The Company has not completed the process of determining the fair value of the assets acquired and liabilities assumed. These valuations will be completed within the measurement period, which cannot exceed 12 months from the acquisition date. As a result, the fair value recorded for these items is a provisional estimate and may be subject to adjustment. Once completed, any adjustments resulting from the valuations may impact the individual amounts recorded for assets acquired and liabilities assumed, as well as the residual goodwill.

The following table summarizes the provisional fair values of the assets acquired and liabilities assumed at the acquisition date.

(dollars in thousands)

ASSETS	
Investments	$ 395,940
Cash and cash equivalents	77,302
Restricted cash and cash equivalents	25,545
Receivables	147,256
Prepaid reinsurance premiums	808,331
Reinsurance recoverable on paid and unpaid losses	2,075,734
Other assets	83,721
LIABILITIES	
Unpaid losses and loss adjustment expenses	2,086,621
Unearned premiums	825,529
Payables to insurance and reinsurance companies	122,203
Senior long-term debt and other debt	44,500
Other liabilities	370,551
Net assets	164,425
Goodwill	370,375
Intangible assets	384,000
Acquisition date fair value	$ 918,800

Other liabilities includes a provisional increase of $64.5 million to reflect the risk premium for program services business, which is attributed to the net capital charges arising from the gross and ceded unpaid losses and loss adjustment expenses and unearned premium balances at the acquisition date. This adjustment will be amortized to other expenses over a weighted average period of three years, based on the estimated payout pattern of net unpaid losses and loss adjustment expenses as of the acquisition date. The amount of the unamortized fair value adjustment included in other liabilities as of December 31, 2017 was $57.7 million. Other liabilities also includes a provisional decrease of $28.3 million to adjust the carrying value of State National's historical deferred program services fees to fair value as of the acquisition date. The fair value of deferred program services fees is based on the cost of fulfilling the obligation plus a normal profit margin. The adjustment will be amortized to other expense over the life of the underlying business, which is a weighted average period of one year. The amount of the unamortized fair value adjustment included in other liabilities as of December 31, 2017 was $19.3 million.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

The following table summarizes the provisional intangible assets recorded in connection with the acquisition, and as of December 31, 2017.

(dollars in thousands)	Amount	Economic Useful Life
Customer relationships	$ 302,000	13 years
Trade names	23,000	13 years
Technology	27,000	Nine years
Insurance licenses	32,000	Indefinite
Intangible assets, before amortization, as of the Acquisition Date	384,000	
Amortization (from the Acquisition Date through December 31, 2017)	4,797	
Net intangible assets as of December 31, 2017	$ 379,203	

Customer relationships represent lender relationships, fronting relationships and other relationships through which State National conducted its operations. The fair value of customer relationships was estimated using the income approach. Critical inputs into the valuation model for customer relationships include estimates of expected premium and attrition rates, and discounting at a weighted average cost of capital. Technology represents intangible assets related to State National's proprietary insurance systems and was valued using the income approach.

Markel Ventures Acquisitions

In August 2017, the Company acquired 81% of Costa Farms, a Florida-based privately held grower of house and garden plants. Under the terms of the acquisition agreement, the Company has the option to acquire the remaining equity interests and the remaining equity interests have the option to sell their interests to the Company in the future. The redemption value of the remaining equity interests is generally based on Costa Farm's earnings in specified periods preceding the redemption date. Total consideration for the purchase was $417.2 million, which included cash consideration of $387.9 million. Total consideration also includes the estimated fair value of contingent consideration the Company expects to pay based on Costa Farms' earnings, as defined in the purchase agreement, annually through 2021. The purchase price was allocated to the acquired assets and liabilities of Costa Farms based on estimated fair values at the acquisition date. The Company recognized goodwill of $186.2 million, which is primarily attributable to expected future earnings and cash flow potential of Costa Farms. The majority of the goodwill recognized is expected to be deductible for income tax purposes. The Company also recognized other intangible assets of $192.0 million, which includes $161.0 million of customer relationships and $31.0 million of trade names, which are expected to be amortized over a weighted average period of 17 years and nine years, respectively. The Company also recognized redeemable non-controlling interests of $66.6 million. Results attributable to this acquisition are included with the Company's other operations, which are not included in a reportable segment.

In December 2015, the Company acquired 80% of the outstanding shares of CapTech Ventures, Inc. (CapTech), a privately held company headquartered in Richmond, Virginia. CapTech is a management and IT consulting firm, providing services and solutions to a wide array of customers. Under the terms of the acquisition agreement for CapTech, the Company has the option to acquire the remaining equity interests and the remaining equity interests have the option to sell their interests to the Company in the future. The redemption value of the remaining equity interests is generally based on CapTech's earnings in specified periods preceding the redemption date.

Total consideration for the CapTech acquisition was $60.6 million. Total consideration included the estimated fair value of contingent consideration we expected to pay based on CapTech's earnings, as defined in the stock purchase agreement, through 2018. The purchase price was preliminarily allocated to the acquired assets and liabilities based on the estimated fair values at the acquisition date. During 2016, the Company completed the process of determining the fair value of the assets and liabilities acquired with CapTech. There were no material adjustments to the provisional estimates recorded as of December 31, 2015. The Company recognized goodwill of $50.6 million related to this acquisition, none of which is expected to be deductible for

income tax purposes. The Company also recognized other intangible assets of $49.2 million, primarily related to customer relationships, and redeemable noncontrolling interests of $13.8 million. These intangible assets are expected to be amortized over a weighted average period of 14 years. Results attributable to this acquisition are included with the Company's other operations, which are not included in a reportable segment.

CATCo Investment Management Acquisition

In December 2015, the Company completed the acquisition of substantially all of the assets of CATCo Investment Management Ltd. (CATCo IM) and CATCo-Re Ltd. CATCo IM was a leading insurance-linked securities investment fund manager and reinsurance manager headquartered in Bermuda focused on building and managing highly diversified, collateralized retrocession and reinsurance portfolios covering global property catastrophe risks. Results attributable to Markel CATCo Investment Management Ltd. (MCIM), the wholly owned subsidiary formed in conjunction with this transaction, are included with the Company's other operations, which are not included in a reportable segment.

Total consideration for the acquisition was $205.7 million, all of which was cash. The purchase price was allocated to the acquired assets and liabilities based on estimated fair values at the acquisition date. The Company recognized goodwill of $91.9 million, all of which is expected to be deductible for income tax purposes. The goodwill is primarily attributable to the Company's ability to achieve continued capital growth in excess of that which can be expected for the investment funds previously managed by CATCo IM. The Company also recognized other intangible assets of $113.0 million, primarily related to its investment management agreements. These intangible assets are expected to be amortized over a weighted average period of 14 years.

In connection with the acquisition, the Company instituted performance incentive and retention arrangements for former CATCo employees, whom are now employed by MCIM. Pursuant to these agreements, the Company committed to the payment of performance bonuses derived from the results of the business in 2016 through 2018 and retention bonuses that will be paid annually over the three year period following the acquisition. The total amount expected to be paid is currently estimated to be $122 million, of which $38.1 million and $33.2 million was recognized as compensation expense for the years ended December 31, 2017 and 2016, respectively. The balance will be recognized in the consolidated financial statements as post-acquisition compensation expense over the remaining performance period and as services are provided.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

3. Investments

a) The following tables summarize the Company's available-for-sale investments. Commercial and residential mortgage-backed securities include securities issued by U.S. government-sponsored enterprises and U.S. government agencies.

(dollars in thousands)	December 31, 2017				
	Amortized Cost	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Unrealized Other-Than-Temporary Impairment Losses	Estimated Fair Value
Fixed maturities:					
U.S. Treasury securities	**$ 162,378**	**$ 54**	**$ (1,819)**	**$ —**	**$ 160,613**
U.S. government-sponsored enterprises	**352,455**	**11,883**	**(818)**	**—**	**363,520**
Obligations of states, municipalities and political subdivisions	**4,381,358**	**193,120**	**(7,916)**	**—**	**4,566,562**
Foreign governments	**1,341,628**	**150,010**	**(2,410)**	**—**	**1,489,228**
Commercial mortgage-backed securities	**1,244,777**	**6,108**	**(16,559)**	**—**	**1,234,326**
Residential mortgage-backed securities	**846,916**	**14,115**	**(4,863)**	**—**	**856,168**
Asset-backed securities	**34,942**	**8**	**(222)**	**—**	**34,728**
Corporate bonds	**1,186,699**	**51,563**	**(2,737)**	**—**	**1,235,525**
Total fixed maturities	**9,551,153**	**426,861**	**(37,344)**	**—**	**9,940,670**
Equity securities:					
Insurance, banks and other financial institutions	**899,324**	**1,209,162**	**(5,453)**	**—**	**2,103,033**
Industrial, consumer and all other	**1,768,337**	**2,110,959**	**(14,482)**	**—**	**3,864,814**
Total equity securities	**2,667,661**	**3,320,121**	**(19,935)**	**—**	**5,967,847**
Short-term investments	**2,161,017**	**26**	**(69)**	**—**	**2,160,974**
INVESTMENTS, AVAILABLE-FOR-SALE	**$ 14,379,831**	**$ 3,747,008**	**$ (57,348)**	**$ —**	**$ 18,069,491**

(dollars in thousands)	December 31, 2016				
	Amortized Cost	Gross Unrealized Holding Gains	Gross Unrealized Holding Losses	Unrealized Other-Than-Temporary Impairment Losses	Estimated Fair Value
Fixed maturities:					
U.S. Treasury securities	$ 259,379	$ 99	$ (894)	$ —	$ 258,584
U.S. government-sponsored enterprises	418,457	9,083	(4,328)	—	423,212
Obligations of states, municipalities and political subdivisions	4,324,332	145,678	(41,805)	—	4,428,205
Foreign governments	1,306,324	159,291	(2,153)	—	1,463,462
Commercial mortgage-backed securities	1,055,947	3,953	(19,544)	—	1,040,356
Residential mortgage-backed securities	779,503	18,749	(5,048)	(2,258)	790,946
Asset-backed securities	27,494	2	(158)	—	27,338
Corporate bonds	1,420,298	49,146	(9,364)	(673)	1,459,407
Total fixed maturities	9,591,734	386,001	(83,294)	(2,931)	9,891,510
Equity securities:					
Insurance, banks and other financial institutions	846,343	857,063	(5,596)	—	1,697,810
Industrial, consumer and all other	1,635,105	1,421,080	(8,154)	—	3,048,031
Total equity securities	2,481,448	2,278,143	(13,750)	—	4,745,841
Short-term investments	2,336,100	57	(6)	—	2,336,151
INVESTMENTS, AVAILABLE-FOR-SALE	$ 14,409,282	$ 2,664,201	$ (97,050)	$ (2,931)	$ 16,973,502

b) The following tables summarize gross unrealized investment losses by the length of time that securities have continuously been in an unrealized loss position.

	December 31, 2017					
	Less than 12 months		12 months or longer		Total	
(dollars in thousands)	Estimated Fair Value	Gross Unrealized Holding and Other-Than-Temporary Impairment Losses	Estimated Fair Value	Gross Unrealized Holding and Other-Than-Temporary Impairment Losses	Estimated Fair Value	Gross Unrealized Holding and Other-Than-Temporary Impairment Losses
Fixed maturities:						
U.S. Treasury securities	$ 78,756	$ (659)	$ 78,298	$ (1,160)	$ 157,054	$ (1,819)
U.S. government-sponsored enterprises	11,593	(79)	89,194	(739)	100,787	(818)
Obligations of states, municipalities and political subdivisions	80,654	(789)	404,814	(7,127)	485,468	(7,916)
Foreign governments	31,752	(452)	63,406	(1,958)	95,158	(2,410)
Commercial mortgage-backed securities	253,936	(1,980)	481,216	(14,579)	735,152	(16,559)
Residential mortgage-backed securities	157,508	(1,345)	148,960	(3,518)	306,468	(4,863)
Asset-backed securities	14,263	(123)	15,165	(99)	29,428	(222)
Corporate bonds	149,345	(863)	187,754	(1,874)	337,099	(2,737)
Total fixed maturities	777,807	(6,290)	1,468,807	(31,054)	2,246,614	(37,344)
Equity securities:						
Insurance, banks and other financial institutions	60,848	(4,843)	1,291	(610)	62,139	(5,453)
Industrial, consumer and all other	78,552	(11,798)	11,243	(2,684)	89,795	(14,482)
Total equity securities	139,400	(16,641)	12,534	(3,294)	151,934	(19,935)
Short-term investments	369,104	(69)	—	—	369,104	(69)
TOTAL	$ 1,286,311	$ (23,000)	$ 1,481,341	$ (34,348)	$ 2,767,652	$ (57,348)

At December 31, 2017, the Company held 739 securities with a total estimated fair value of $2.8 billion and gross unrealized losses of $57.3 million. Of these 739 securities, 272 securities had been in a continuous unrealized loss position for one year or longer and had a total estimated fair value of $1.5 billion and gross unrealized losses of $34.3 million. Of these securities, 258 securities were fixed maturities and 14 were equity securities. The Company does not intend to sell or believe it will be required to sell these fixed maturities before recovery of their amortized cost. The Company has the ability and intent to hold these equity securities for a period of time sufficient to allow for the anticipated recovery of their fair value.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS *(continued)*

	December 31, 2016					
	Less than 12 months		12 months or longer		Total	
(dollars in thousands)	Estimated Fair Value	Gross Unrealized Holding and Other-Than-Temporary Impairment Losses	Estimated Fair Value	Gross Unrealized Holding and Other-Than-Temporary Impairment Losses	Estimated Fair Value	Gross Unrealized Holding and Other-Than-Temporary Impairment Losses
Fixed maturities:						
U.S. Treasury securities	$ 122,950	$ (894)	$ —	$ —	$ 122,950	$ (894)
U.S. government-sponsored enterprises	220,333	(4,324)	7,618	(4)	227,951	(4,328)
Obligations of states, municipalities and political subdivisions	1,004,947	(37,685)	31,723	(4,120)	1,036,670	(41,805)
Foreign governments	68,887	(2,145)	5,005	(8)	73,892	(2,153)
Commercial mortgage-backed securities	749,889	(19,091)	29,988	(453)	779,877	(19,544)
Residential mortgage-backed securities	181,557	(4,987)	79,936	(2,319)	261,493	(7,306)
Asset-backed securities	14,501	(106)	5,869	(52)	20,370	(158)
Corporate bonds	494,573	(8,357)	93,790	(1,680)	588,363	(10,037)
Total fixed maturities	2,857,637	(77,589)	253,929	(8,636)	3,111,566	(86,225)
Equity securities:						
Insurance, banks and other financial institutions	8,808	(410)	37,973	(5,186)	46,781	(5,596)
Industrial, consumer and all other	98,406	(4,772)	29,650	(3,382)	128,056	(8,154)
Total equity securities	107,214	(5,182)	67,623	(8,568)	174,837	(13,750)
Short-term investments	504,211	(6)	—	—	504,211	(6)
TOTAL	$ 3,469,062	$ (82,777)	$ 321,552	$ (17,204)	$ 3,790,614	$ (99,981)

At December 31, 2016, the Company held 654 securities with a total estimated fair value of $3.8 billion and gross unrealized losses of $100.0 million. Of these 654 securities, 109 securities had been in a continuous unrealized loss position for one year or longer and had a total estimated fair value of $321.6 million and gross unrealized losses of $17.2 million. Of these securities, 93 securities were fixed maturities and 16 were equity securities.

The Company completes a detailed analysis each quarter to assess whether the decline in the fair value of any investment below its cost basis is deemed other-than-temporary. All securities with unrealized losses are reviewed. The Company considers many factors in completing its quarterly review of securities with unrealized losses for other-than-temporary impairment, including the length of time and the extent to which fair value has been below cost and the financial condition and near-term prospects of the issuer. For equity securities, the ability and intent to hold the security for a period of time sufficient to allow for anticipated recovery is considered. For fixed maturities, the Company considers whether it intends to sell the security or if it is more likely than not that it will be required to sell the security before recovery, the implied yield-to-maturity, the credit quality of the issuer and the ability to recover all amounts outstanding when contractually due.

For equity securities, a decline in fair value that is considered to be other-than-temporary is recognized in net income based on the fair value of the security at the time of assessment, resulting in a new cost basis for the security. For fixed maturities where the Company intends to sell the security or it is more likely than not that the Company will be required to sell the security before recovery of its amortized cost, a decline in fair value is considered to be other-than-temporary and is recognized in net income based on the fair value of the security at the time of assessment, resulting in a new cost basis for the security. If the decline in fair value of a fixed maturity below its amortized cost is considered to be other-than-temporary based upon other considerations, the Company compares the estimated present value of the cash flows expected to be collected to the amortized

cost of the security. The extent to which the estimated present value of the cash flows expected to be collected is less than the amortized cost of the security represents the credit-related portion of the other-than-temporary impairment, which is recognized in net income, resulting in a new cost basis for the security. Any remaining decline in fair value represents the non-credit portion of the other-than-temporary impairment, which is recognized in other comprehensive income (loss). The discount rate used to calculate the estimated present value of the cash flows expected to be collected is the effective interest rate implicit for the security at the date of purchase.

When assessing whether it intends to sell a fixed maturity or if it is likely to be required to sell a fixed maturity before recovery of its amortized cost, the Company evaluates facts and circumstances including decisions to reposition the investment portfolio, potential sales of investments to meet cash flow needs and, ultimately, current market prices.

c) The amortized cost and estimated fair value of fixed maturities at December 31, 2017 are shown below by contractual maturity.

(dollars in thousands)	Amortized Cost	Estimated Fair Value
Due in one year or less	**$ 288,292**	**$ 289,171**
Due after one year through five years	**1,297,635**	**1,334,823**
Due after five years through ten years	**1,671,171**	**1,744,280**
Due after ten years	**4,167,420**	**4,447,174**
	7,424,518	**7,815,448**
Commercial mortgage-backed securities	**1,244,777**	**1,234,326**
Residential mortgage-backed securities	**846,916**	**856,168**
Asset-backed securities	**34,942**	**34,728**
TOTAL FIXED MATURITIES	**$ 9,551,153**	**$ 9,940,670**

Expected maturities may differ from contractual maturities because borrowers may have the right to call or prepay obligations with or without call or prepayment penalties, and the lenders may have the right to put the securities back to the borrower. Based on expected maturities, the estimated average duration of fixed maturities at December 31, 2017 was 6.5 years.

d) The following table presents the components of net investment income.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Interest:			
Municipal bonds (tax-exempt)	**$ 87,768**	$ 88,654	$ 93,580
Municipal bonds (taxable)	**70,771**	65,749	57,550
Other taxable bonds	**145,085**	144,752	138,763
Short-term investments, including overnight deposits	**26,772**	11,177	5,223
Dividends on equity securities	**82,096**	70,577	74,705
Income (loss) from equity method investments	**11,076**	6,852	(262)
Other	**(828)**	2,676	651
	422,740	390,437	370,210
Investment expenses	**(17,031)**	(17,207)	(16,997)
NET INVESTMENT INCOME	**$ 405,709**	$ 373,230	$ 353,213

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

e) Cumulative credit losses recognized in net income on fixed maturities where other-than-temporary impairment was identified and a portion of the other-than-temporary impairment was included in other comprehensive income (loss) were $10.7 million at December 31, 2015 and 2016. There were no such losses included at December 31, 2017.

f) The following table presents net realized investment gains (losses) and the change in net unrealized gains on investments.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Realized gains:			
Sales of fixed maturities	**$ 5,525**	$ 5,160	$ 3,073
Sales of equity securities	**40,113**	70,177	156,987
Other	**6,644**	1,415	8,103
Total realized gains	**52,282**	76,752	168,163
Realized losses:			
Sales of fixed maturities	**(1,983)**	(704)	(4,598)
Sales of equity securities	**(1,830)**	(6,988)	(1,232)
Other-than-temporary impairments	**(7,589)**	(18,355)	(44,481)
Other	**(1,295)**	(2,349)	(486)
Total realized losses	**(12,697)**	(28,396)	(50,797)
Gains (losses) on securities measured at fair value through net income	**(44,888)**	16,791	(10,886)
NET REALIZED INVESTMENT GAINS (LOSSES)	**$ (5,303)**	$ 65,147	$ 106,480
Change in net unrealized gains on investments included in other comprehensive income (loss):			
Fixed maturities	**$ 89,741**	$ (56,534)	$ (137,435)
Equity securities	**1,035,793**	398,752	(320,277)
Short-term investments	**(94)**	(107)	128
NET INCREASE (DECREASE)	**$ 1,125,440**	$ 342,111	$ (457,584)

g) The following table presents other-than-temporary impairment losses recognized in net income and included in net realized investment gains (losses) by investment type.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Fixed maturities:			
Corporate bonds	**$ (328)**	$ —	$ —
Total fixed maturities	**(328)**	—	—
Equity securities:			
Insurance, banks and other financial institutions	**(604)**	(7,586)	(9,835)
Industrial, consumer and all other	**(6,657)**	(10,769)	(34,646)
Total equity securities	**(7,261)**	(18,355)	(44,481)
TOTAL	**$ (7,589)**	$ (18,355)	$ (44,481)

h) The following table presents the components of restricted assets.

(dollars in thousands)	December 31, 2017	2016
Restricted assets held in trust or on deposit to support underwriting activities	**$ 4,624,998**	$ 4,059,336
Investments and cash and cash equivalents pledged as security for letters of credit	**349,462**	355,616
TOTAL	**$ 4,974,460**	$ 4,414,952

Total restricted assets are included on the Company's consolidated balance sheets as follows.

(dollars in thousands)	December 31, 2017	2016
Investments, available-for-sale	**$ 4,672,073**	$ 4,068,535
Restricted cash and cash equivalents	**302,387**	346,417
TOTAL	**$ 4,974,460**	$ 4,414,952

i) At December 31, 2017 and 2016, investments in securities issued by the U.S. Treasury, U.S. government agencies and U.S. government-sponsored enterprises were the only investments in any one issuer that exceeded 10% of shareholders' equity.

At December 31, 2017, the Company's ten largest equity holdings represented $2.5 billion, or 41%, of the equity portfolio. Investments in the property and casualty insurance industry represented $1.1 billion, or 19%, of the equity portfolio at December 31, 2017. Investments in the property and casualty insurance industry included a $623.8 million investment in the common stock of Berkshire Hathaway Inc.

4. Receivables

The following table presents the components of receivables.

(dollars in thousands)	December 31, 2017	2016
Amounts receivable from agents, brokers and insureds	**$ 1,281,366**	$ 1,102,538
Trade accounts receivable	**181,666**	123,341
Insurance proceeds receivable	**39,196**	—
Program services fees receivable	**22,767**	—
Employee stock loans receivable (see note 12(c))	**18,499**	20,171
Investment management and performance fees receivable	**5,796**	38,735
Other	**31,938**	10,122
	1,581,228	1,294,907
Allowance for doubtful receivables	**(13,775)**	(11,910)
RECEIVABLES	**$ 1,567,453**	$ 1,282,997

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

5. Deferred Policy Acquisition Costs

The following table presents the amounts of policy acquisition costs deferred and amortized.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Balance, beginning of year	**$ 392,410**	$ 352,756	$ 353,410
Policy acquisition costs deferred	**964,755**	823,840	752,324
Amortization of policy acquisition costs	**(894,353)**	(782,221)	(744,964)
Foreign currency movements	**2,757**	(1,965)	(8,014)
DEFERRED POLICY ACQUISITION COSTS	**$ 465,569**	$ 392,410	$ 352,756

The following table presents the components of underwriting, acquisition and insurance expenses.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Amortization of policy acquisition costs	**$ 894,353**	$ 782,221	$ 744,964
Other operating expenses	**693,061**	716,369	710,116
UNDERWRITING, ACQUISITION AND INSURANCE EXPENSES	**$ 1,587,414**	$ 1,498,590	$ 1,455,080

6. Property and Equipment

The following table presents the components of property and equipment, which are included in other assets on the consolidated balance sheets.

	December 31,	
(dollars in thousands)	**2017**	2016
Land	**$ 66,885**	$ 56,783
Buildings	**119,729**	76,159
Leasehold improvements	**98,246**	95,898
Land improvements	**89,444**	74,040
Furniture and equipment	**341,450**	301,146
Other	**196,465**	162,385
	912,219	766,411
Accumulated depreciation and amortization	**(410,602)**	(354,009)
PROPERTY AND EQUIPMENT	**$ 501,617**	$ 412,402

Depreciation and amortization expense of property and equipment was $71.6 million, $64.8 million and $64.2 million for the years ended December 31, 2017, 2016 and 2015, respectively.

The Company does not own any individually material properties. The Company leases substantially all of the facilities used by its insurance operations and certain furniture and equipment under operating leases. The Company leases offices for the U.S. Insurance segment in Glen Allen, Virginia and in 34 other locations; the Company leases offices for the International Insurance segment in London, England and in 30 other locations; and the Company leases offices for the Reinsurance segment primarily in Summit, New Jersey and Hamilton, Bermuda. The Company's Markel Ventures operations own certain of their office, clinic, manufacturing, warehouse and distribution facilities and lease others. The Company believes these facilities are suitable and adequate for the Company's operations.

7. Goodwill and Intangible Assets

The following table presents the components of goodwill by reportable segment.

(dollars in thousands)	U.S. Insurance	International Insurance	Reinsurance	Other[1]	Total
January 1, 2016	$ 280,579	$ 397,993	$ 122,745	$ 366,527	$ 1,167,844
Impairment loss	—	—	—	(18,723)	(18,723)
Foreign currency movements and other adjustments	—	(5,809)	—	(1,064)	(6,873)
December 31, 2016[2]	$ 280,579	$ 392,184	$ 122,745	$ 346,740	$ 1,142,248
Acquisitions (see note 2)	**93,123**	**—**	**—**	**533,612**	**626,735**
Foreign currency movements and other adjustments	**—**	**5,935**	**—**	**2,546**	**8,481**
DECEMBER 31, 2017[2]	**$ 373,702**	**$ 398,119**	**$ 122,745**	**$ 882,898**	**$ 1,777,464**

[1] Amounts included in Other above are related to the Company's other operations, which are not included in a reportable segment.

[2] Goodwill is net of accumulated impairment losses of $47.3 million as of December 31, 2017 and 2016, included in Other.

Goodwill and indefinite-lived intangible assets are tested for impairment at least annually. The Company completes an annual test during the fourth quarter of each year based upon the results of operations through September 30. There were no impairment losses recognized during 2017.

During the fourth quarter of 2016, the Company recorded a goodwill impairment charge of $18.7 million to other expenses for one of the Markel Ventures industrial manufacturing reporting units, to reduce the carrying value of its goodwill to its implied fair value. Unfavorable market conditions, specifically declining oil prices from late 2014 through 2016 resulted in lower than expected earnings over a similar time period. The reporting unit's earnings are generally tied to infrastructure spending across global markets, a significant portion of which are influenced by the price of oil. To determine the value of the impairment loss, the Company estimated the fair value of the reporting unit primarily using an income approach based on a discounted cash flow model. While these cash flow projections yield positive cash flows and earnings in the long-term, they were insufficient to support the current carrying value of the reporting unit due to the unfavorable impact of current market conditions and recent trends on the Company's shorter-term projections. Following the impairment charge in 2016, the carrying value of the reporting unit's goodwill is zero.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

The following table presents the components of intangible assets with a net carrying amount.

	December 31,			
	2017		2016	
(dollars in thousands)	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Customer relationships	**$ 938,536**	**$ (156,725)**	$ 460,327	$ (119,376)
Broker relationships	**183,514**	**(68,273)**	183,092	(56,888)
Trade names	**163,736**	**(39,057)**	100,966	(29,745)
Investment management agreements	**98,000**	**(14,000)**	98,000	(7,000)
Agent relationships	**92,000**	**(4,042)**	—	—
Technology	**84,242**	**(35,106)**	54,408	(28,220)
Insurance licenses	**70,185**	**—**	30,185	—
Lloyd's syndicate capacity	**12,000**	**—**	12,000	—
Other	**42,959**	**(12,288)**	34,172	(9,379)
TOTAL	**$ 1,685,172**	**$ (329,491)**	$ 973,150	$ (250,608)

Amortization of intangible assets was $80.8 million, $68.5 million and $68.9 million for the years ended December 31, 2017, 2016 and 2015, respectively. Amortization of intangible assets is estimated to be $117.6 million for 2018, $110.9 million for 2019, $103.1 million for 2020, $101.4 million for 2021 and $98.2 million for 2022. Indefinite-lived intangible assets were $88.2 million at December 31, 2017 and $48.2 million at December 31, 2016.

In 2017, the Company acquired $703.8 million of intangible assets, of which $663.8 million is amortizable. The definite-lived intangible assets acquired are expected to be amortized over a weighted average period of 14 years. The definite-lived intangible assets acquired during 2017 include customer relationships, trade names, agent relationships, technology and other, which are expected to be amortized over a weighted average period of 14, 11, 15, nine and nine years, respectively.

8. Income Taxes

Income before income taxes includes the following components.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Domestic operations	**$ 337,704**	$ 288,905	$ 323,954
Foreign operations	**(250,409)**	341,015	418,151
Income Before Income Taxes	**$ 87,295**	$ 629,920	$ 742,105

Income tax expense (benefit) includes the following components.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Current:			
Domestic	**$ (19,255)**	$ 57,916	$ 44,406
Foreign	**29,882**	48,203	118,235
Total current tax expense	**10,627**	106,119	162,641
Deferred:			
Domestic	**(222,427)**	19,991	9,415
Foreign	**(101,663)**	43,367	(19,093)
Total deferred tax expense (benefit)	**(324,090)**	63,358	(9,678)
Income Tax Expense (Benefit)	**$ (313,463)**	$ 169,477	$ 152,963

Foreign income tax expense includes U.S. income tax expense on foreign operations, which includes U.S. income tax on the Company's Bermuda-based operations, certain of which have elected to be taxed as domestic corporations for U.S. tax purposes.

State income tax expense is not material to the consolidated financial statements.

The Company made income tax payments of $70.2 million, $142.2 million and $132.5 million in 2017, 2016 and 2015, respectively. Income taxes payable were $51.3 million and $46.4 million at December 31, 2017 and 2016, respectively, and were included in other liabilities on the consolidated balance sheets. Income taxes receivable were $64.3 million and $5.4 million at December 31, 2017 and 2016, respectively, and were included in other assets on the consolidated balance sheets.

On December 22, 2017, the U.S. enacted the Tax Cuts and Jobs Act (TCJA), which made significant modifications to U.S. federal income tax law, most of which are effective January 1, 2018. The TCJA, among other changes, (1) reduces the U.S. corporate tax rate from 35% to 21%, (2) imposes a one-time deemed repatriation tax on unremitted foreign earnings which were not previously subject to U.S. income tax, (3) moves the U.S. from a worldwide tax system towards a territorial tax system and (4) modifies the manner in which property and casualty insurance loss reserves are computed for federal income tax purposes. U.S. GAAP requires companies to recognize the effect of tax law changes in the period of enactment. As a result, the Company recorded a one-time tax benefit of $339.9 million in the fourth quarter of 2017, a portion of which is considered provisional.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

This one-time tax benefit from the TCJA is attributable to the remeasurement of the Company's U.S. deferred tax assets and liabilities on temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and their tax bases at the lower enacted U.S. corporate tax rate, as well as the tax on the deemed repatriation of foreign earnings, as follows:

(dollars in thousands)	Year Ended December 31, 2017
Tax rate change on net unrealized gains on investments	**$ (401,538)**
Tax rate change on other temporary differences - Markel Ventures (provisional)	**(37,129)**
Tax rate change on other temporary differences - Other operations (provisional)	**69,268**
Tax on deemed repatriation of foreign earnings (provisional)	**29,500**
TOTAL	**$ (339,899)**

The impact of the tax rate change applied to temporary differences other than those related to net unrealized gains on investments is considered provisional because all the data necessary to calculate the underlying tax basis of certain temporary differences under the new tax law is not yet available and additional analysis is required. The largest provisional deferred tax component on other temporary differences is related to the Company's unpaid losses and loss adjustment expenses. Other provisional deferred tax components are not significant. The tax on the deemed repatriation of foreign earnings is also considered provisional because a number of inputs to the calculation are incomplete, principally the earnings and profits of certain foreign subsidiaries which were not previously subject to U.S. income tax. There is also potential that authoritative clarification of technical issues associated with application of the TCJA, which are presently unclear, will be issued. The additional analysis required for provisional deferred tax components will be completed within the measurement period, which cannot exceed 12 months from the date of enactment, during preparation of the Company's 2017 tax return. Once completed, any adjustments to these provisional deferred tax components will be reflected in income tax expense.

The following table presents a reconciliation of income taxes computed using the U.S. corporate tax rate to the Company's income tax expense (benefit).

	Years Ended December 31,					
(dollars in thousands)	**2017**		2016		2015	
Income taxes at U.S. corporate tax rate	**$ 30,553**	**35%**	$ 220,472	35%	$ 259,737	35%
Increase (decrease) resulting from:						
TCJA	**(339,899)**	**(389)**	—	—	—	—
Tax-exempt investment income	**(41,565)**	**(48)**	(39,710)	(6)	(40,483)	(5)
Tax credits	**(10,236)**	**(12)**	(13,294)	(2)	(56,409)	(8)
Stock based compensation	**(9,001)**	**(10)**	(5,411)	(1)	—	—
Foreign operations	**54,920**	**63**	4,672	1	(10,766)	(1)
Other	**1,765**	**2**	2,748	—	884	—
INCOME TAX EXPENSE (BENEFIT)	**$ (313,463)**	**(359)%**	$ 169,477	27%	$ 152,963	21%

The following table presents the components of domestic and foreign deferred tax assets and liabilities.

(dollars in thousands)	December 31, **2017**	2016
Assets:		
Unpaid losses and loss adjustment expenses	**$ 144,761**	$ 181,303
Life and annuity benefits	**77,945**	135,075
Unearned premiums recognized for income tax purposes	**74,282**	121,852
Tax credit carryforwards	**48,938**	23,037
Net operating loss carryforwards	**29,252**	26,743
Accrued incentive compensation	**23,167**	67,719
Other differences between financial reporting and tax bases	**60,995**	64,177
Total gross deferred tax assets	**459,340**	619,906
Less valuation allowance	**(25,225)**	(18,781)
Total gross deferred tax assets, net of allowance	**434,115**	601,125
Liabilities:		
Investments	**603,523**	664,950
Amortization of goodwill and other intangible assets	**171,681**	102,631
Deferred policy acquisition costs	**90,826**	128,302
Other differences between financial reporting and tax bases	**73,664**	35,727
Total gross deferred tax liabilities	**939,694**	931,610
NET DEFERRED TAX LIABILITY	**$ 505,579**	$ 330,485

The net deferred tax liability at December 31, 2017 and 2016 was included in other liabilities on the consolidated balance sheets.

At December 31, 2017, the Company had tax credit carryforwards of $48.9 million. The earliest any of these credits will expire is 2024.

At December 31, 2017, the Company also had net operating losses of $15.1 million that can be used to offset other future taxable income in the U.S. The Company's ability to use these losses expires between the years 2028 and 2030. At December 31, 2017, certain branch operations in Europe and a wholly owned subsidiary in Brazil had net operating losses of $105.2 million that can be used to offset future income in their local jurisdictions. The Company's ability to use $26.9 million of these losses expires between the years 2020 and 2026. The remaining losses are not subject to expiration. As discussed below, the deferred tax assets related to losses at the Company's European branches and Brazilian subsidiary are offset by valuation allowances.

The Company believes that it is more likely than not that it will realize $434.1 million of gross deferred tax assets, including net operating losses at December 31, 2017, through generating taxable income or the reversal of existing temporary differences attributable to the gross deferred tax liabilities. As a result of cumulative net operating losses in certain jurisdictions, the Company has a valuation allowance of $25.2 million at December 31, 2017 that offsets the deferred tax assets primarily related to losses incurred at European branches of one of the Company's wholly owned United Kingdom subsidiaries and at one of the Company's Brazilian subsidiaries.

At December 31, 2017, the Company did not have any material unrecognized tax benefits. The Company does not currently anticipate any changes in unrecognized tax benefits during 2018 that would have a material impact on the Company's income tax provision.

The Company is subject to income tax in the U.S. and in foreign jurisdictions. With few exceptions, the Company is no longer subject to income tax examination by tax authorities for years ended before January 1, 2014.

Following the enactment of the TCJA and as a result of the tax on the deemed repatriation of foreign earnings, the Company's net foreign earnings have now been subjected to tax in the U.S. However, the Company continues to be indefinitely reinvested in its foreign subsidiaries, with the exception of certain Bermuda-based subsidiaries, and no provision for deferred U.S. income taxes has been recorded on the basis differences attributable to those subsidiaries. The Company's largest basis difference is attributable to net unrealized gains on investments held by the Company's foreign insurance operations, which totaled $630.0 million at December 31, 2017. This amount has not been subjected to the 21% U.S. corporate tax rate.

While the Company's tax expense for the year ended December 31, 2017 is based upon an assertion that it is indefinitely reinvested in its foreign subsidiaries, the Company's plans for its foreign operations may change upon completion of an assessment of the impact of the TCJA on capital in the Company's foreign subsidiaries. A change in the Company's indefinite reinvestment assertion for some or all of its foreign subsidiaries could result in recognition of additional income tax expense.

9. Unpaid Losses and Loss Adjustment Expenses

a) The following table presents a reconciliation of consolidated beginning and ending reserves for losses and loss adjustment expenses.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Net reserves for losses and loss adjustment expenses, beginning of year	**$ 8,108,717**	$ 8,235,288	$ 8,535,483
Foreign currency movements	**110,079**	(129,692)	(134,173)
Adjusted net reserves for losses and loss adjustment expenses, beginning of year	**8,218,796**	8,105,596	8,401,310
Incurred losses and loss adjustment expenses:			
Current accident year	**3,367,223**	2,555,902	2,566,545
Prior accident years	**(497,627)**	(493,495)	(627,800)
Total incurred losses and loss adjustment expenses	**2,869,596**	2,062,407	1,938,745
Payments:			
Current accident year	**671,112**	532,140	486,551
Prior accident years	**1,513,580**	1,529,206	1,423,286
Total payments	**2,184,692**	2,061,346	1,909,837
Effect of foreign currency rate changes	**3,752**	2,060	(17,281)
Net reserves for losses and loss adjustment expenses of acquired insurance companies	**57,493**	—	—
Reinsurance recoverable on retroactive reinsurance transactions	**—**	—	(177,649)
Net reserves for losses and loss adjustment expenses, end of year	**8,964,945**	8,108,717	8,235,288
Reinsurance recoverable on unpaid losses	**4,619,336**	2,006,945	2,016,665
GROSS RESERVES FOR LOSSES AND LOSS ADJUSTMENT EXPENSES, END OF YEAR	**$ 13,584,281**	$ 10,115,662	$ 10,251,953

In March 2015, the Company completed a retroactive reinsurance transaction to cede a portfolio of policies primarily comprised of liabilities arising from asbestos and environmental (A&E) exposures that originated before 1992 in exchange for payments totaling $89.0 million, which included cash paid at closing of $69.9 million. Effective March 31, 2017, the related reserves, which totaled $69.1 million, were formally transferred to the third party by way of a Part VII transfer pursuant to the Financial Services and Markets Act 2000 of the United Kingdom. The Part VII transfer eliminates the uncertainty regarding the potential for adverse development of estimated ultimate liabilities on the underlying policies. Upon completion of the transfer in the first quarter of 2017, the Company recognized a previously deferred gain of $3.9 million, which is included in losses and loss adjustment expenses on the consolidated statement of income (loss) and comprehensive income (loss) in 2017. This amount is excluded from the prior years' incurred losses and loss adjustment expenses for 2017 in the above table as the deferred gain was included in other liabilities on the consolidated balance sheet as of December 31, 2016, rather than unpaid losses and loss adjustment expenses.

In October 2015, the Company completed a second retroactive reinsurance transaction to cede a portfolio of policies primarily comprised of liabilities arising from A&E exposures that originated before 1987 in exchange for cash payments totaling $86.5 million. The transaction provides up to $300 million of coverage for losses in excess of a $97.0 million retention on the ceded policies and 50% coverage on an additional $100 million of losses. The transaction was effective as of January 1, 2015, at which time reserves for unpaid losses and loss adjustment expenses on the policies ceded totaled $173.4 million. After considering the Company's retention on the ceded policies, ceded reserves for unpaid losses and loss adjustment expenses totaled $76.4 million, resulting in an underwriting loss of $10.1 million on the transaction.

In 2016, incurred losses and loss adjustment expenses in the above table exclude $11.7 million of favorable development on prior years loss reserves included in losses and loss adjustment expenses on the consolidated statement of income and other comprehensive income (loss) related to the commutation of a property and casualty deposit contract, for which the underlying deposit liability was included in other liabilities on the consolidated balance sheet as of December 31, 2015, rather than unpaid losses and loss adjustment expenses.

In 2017, the Company recorded net reserves for losses and loss adjustment expenses of $57.5 million as a result of acquisitions completed during the year. All acquired net reserves were recorded at fair value as part of the Company's purchase accounting. See note 2 for a discussion of the Company's acquisitions.

In 2017, underwriting results included $565.3 million of underwriting loss from Hurricanes Harvey, Irma, Maria and Nate as well as the earthquakes in Mexico and wildfires in California (2017 Catastrophes). The underwriting loss on the 2017 Catastrophes was comprised of $585.4 million of estimated net losses and loss adjustment expenses and $20.1 million of net assumed reinstatement premiums. The estimated net losses and loss adjustment expenses on the 2017 Catastrophes for the current year were net of estimated reinsurance recoverables of $490.3 million.

In 2017, incurred losses and loss adjustment expenses included $497.6 million of favorable development on prior years' loss reserves, which included $414.1 million of favorable development on the Company's general liability, professional liability, and workers' compensation product lines as well as personal lines business within the U.S. Insurance segment, professional liability, general liability and marine and energy product lines within the International Insurance segment, and property product lines within the Reinsurance segment. Favorable development in 2017 was partially offset by $85.0 million of adverse development resulting from a decrease in the discount rate, known as the Ogden Rate, used to calculate lump sum awards in United Kingdom (U.K.) bodily injury cases. Effective March 20, 2017, the Ogden Rate decreased from plus 2.5% to minus 0.75%, which represents the first rate change since 2001. The effect of the rate change is most impactful to the Company's U.K. auto casualty exposures through reinsurance contracts written in the Reinsurance segment. In late 2014, the Company ceased writing auto reinsurance in the U.K. The reduction in the Ogden Rate increased the expected claims payments on these exposures, and management increased loss reserves accordingly. The Company's estimate of the ultimate cost of settling these claims is based on many factors, and is subject to increase or decrease as the effect of changes in these factors becomes known over time.

In 2016, incurred losses and loss adjustment expenses included $493.5 million of favorable development on prior years' loss reserves, which was due in part to $418.0 million of favorable development on the Company's long-tail casualty lines within the U.S. Insurance and International Insurance segments, marine and energy product lines within the International Insurance segment, and property product lines in the U.S. Insurance and Reinsurance segments, as actual claims reporting and

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

development patterns on prior accident years have been more favorable than the Company's actuarial analyses initially anticipated. Favorable development in 2016 was partially offset by $71.2 million of adverse development on the Company's specified medical and medical malpractice product lines within the U.S. Insurance segment.

In 2015, incurred losses and loss adjustment expenses included $627.8 million of favorable development on prior years' loss reserves, which was due in part to $375.8 million of favorable development on the Company's general liability, workers' compensation, inland marine and brokerage property product lines within the U.S. Insurance segment and on general liability, professional liability and marine and energy product lines within the International Insurance segment, as actual claims reporting patterns on prior accident years have been more favorable than the Company's actuarial analyses initially anticipated.

In 2015, incurred losses and loss adjustment expenses also included $82.7 million of favorable development on prior years' loss reserves attributable to a decrease in the estimated volatility of the Company's consolidated net reserves for unpaid losses and loss adjustment expenses as a result of ceding a significant portion of the Company's A&E exposures to a third party during 2015, as described above. As a result of this decrease in estimated volatility, the level of confidence in the Company's net reserves for unpaid losses and loss adjustment expenses increased. Therefore, management reduced prior years' loss reserves by $82.7 million in order to maintain a consolidated confidence level in a range consistent with the Company's historic levels. This reduction in prior years' loss reserves occurred across all three of the Company's ongoing underwriting segments.

The favorable development on prior years' loss reserves in 2015 was partially offset by $25.4 million of adverse development on prior years' loss reserves for A&E exposures, of which $7.1 million is attributable to the underwriting loss on the retroactive reinsurance transaction described above. Following the October 2015 retroactive reinsurance transaction, the Company's actuaries increased their estimate of the ultimate losses on the remaining A&E claims and management increased prior years' loss reserves by $15.0 million. Without the diversification of a larger portfolio of loss reserves, there is greater uncertainty around the potential outcomes of the remaining claims, and management strengthened reserves accordingly.

The Company uses a variety of techniques to establish the liabilities for unpaid losses and loss adjustment expenses based upon estimates of the ultimate amounts payable. The Company maintains reserves for specific claims incurred and reported (case reserves) and reserves for claims incurred but not reported (IBNR reserves), which include expected development on reported claims. The Company does not discount its reserves for losses and loss adjustment expenses to reflect estimated present value, except for reserves assumed in connection with an acquisition, which are recorded at fair value at the acquisition date, and reserves held for a runoff book of U.K. motor business. The fair value adjustment includes an adjustment to reflect the acquired reserves for losses and loss adjustment expenses at present value plus a risk premium, the net of which is amortized to losses and loss adjustment expenses within the consolidated statements of income.

As of any balance sheet date, all claims have not yet been reported, and some claims may not be reported for many years. As a result, the liability for unpaid losses and loss adjustment expenses includes significant estimates for incurred but not reported claims.

There is normally a time lag between when a loss event occurs and when it is actually reported to the Company. The actuarial methods that the Company uses to estimate losses have been designed to address the lag in loss reporting as well as the delay in obtaining information that would allow the Company to more accurately estimate future payments. There is also a time lag between cedents establishing case reserves and re-estimating their reserves, and notifying the Company of the new or revised case reserves. As a result, the reporting lag is more pronounced in reinsurance contracts than in the insurance contracts due to the reliance on ceding companies to report their claims. On reinsurance transactions, the reporting lag will generally be 60 to 90 days after the end of a reporting period, but can be longer in some cases. Based on the experience of the Company's actuaries and management, loss development factors and trending techniques are selected to mitigate the difficulties caused by reporting lags. The loss development and trending factor selections are evaluated at least annually and updated using cedent specific and industry data.

IBNR reserves are based on the estimated ultimate cost of settling claims, including the effects of inflation and other social and economic factors, using past experience adjusted for current trends and any other factors that would modify past experience. IBNR reserves, which include expected development on reported claims, are generally calculated by subtracting paid losses and loss adjustment expenses and case reserves from estimated ultimate losses and loss adjustment expenses. IBNR reserves were 64% of total unpaid losses and loss adjustment expenses at December 31, 2017 compared to 67% at December 31, 2016.

In establishing liabilities for unpaid losses and loss adjustment expenses, the Company's actuaries estimate an ultimate loss ratio, by accident year or policy year, for each product line with input from underwriting and claims associates. For product lines in which loss reserves are established on a policy year basis, the Company has developed a methodology to convert from policy year to accident year for financial reporting purposes. In estimating an ultimate loss ratio for a particular line of business, the actuaries may use one or more actuarial reserving methods and select from these a single point estimate. To varying degrees, these methods include detailed statistical analysis of past claim reporting, settlement activity, claim frequency and severity, policyholder loss experience, industry loss experience and changes in market conditions, policy forms and exposures. Greater judgment may be required when new product lines are introduced or when there have been changes in claims handling practices, as the statistical data available may be insufficient. These estimates also reflect implicit and explicit assumptions regarding the potential effects of external factors, including economic and social inflation, judicial decisions, changes in law, general economic conditions and recent trends in these factors. Management believes the process of evaluating past experience, adjusted for the effects of current developments and anticipated trends, is an appropriate basis for predicting future events.

Loss reserves are established at management's best estimate, which is generally higher than the corresponding actuarially calculated point estimate. The actuarial point estimate represents the actuaries' estimate of the most likely amount that will ultimately be paid to settle the loss reserves that are recorded at a particular point in time; however, there is inherent uncertainty in the point estimate as it is the expected value in a range of possible reserve estimates. In some cases, actuarial analyses, which are based on statistical analysis, cannot fully incorporate all of the subjective factors that affect development of losses. In other cases, management's perspective of these more subjective factors may differ from the actuarial perspective. Subjective factors where management's perspective may differ from that of the actuaries include: the credibility and timeliness of claims information received from third parties, economic and social inflation, judicial decisions, changes in law, changes in underwriting or claims handling practices, general economic conditions, the risk of moral hazard and other current and developing trends within the insurance and reinsurance markets, including the effects of competition. As a result, the actuarially calculated point estimates for each of line of business represents starting points for management's quarterly review of loss reserves.

Inherent in the Company's reserving practices is the desire to establish loss reserves that are more likely redundant than deficient. As such, the Company seeks to establish loss reserves that will ultimately prove to be adequate. As part of the Company's acquisition of insurance operations, to the extent the reserving philosophy of the acquired business differs from the Company's reserving philosophy, the post-acquisition loss reserves will be strengthened until total loss reserves are consistent with the Company's target level of confidence. Furthermore, the Company's philosophy is to price its insurance products to make an underwriting profit. Management continually attempts to improve its loss estimation process by refining its ability to analyze loss development patterns, claim payments and other information, but uncertainty remains regarding the potential for adverse development of estimated ultimate liabilities.

Management currently believes the Company's gross and net reserves are adequate. However, there is no precise method for evaluating the impact of any significant factor on the adequacy of reserves, and actual results will differ from original estimates.

b) The following tables present loss development information, by accident year, for the Company's U.S. Insurance, International Insurance and Reinsurance segments, including cumulative incurred and paid losses and allocated loss adjustment expenses, net of reinsurance, as well as the corresponding amount of IBNR reserves as of December 31, 2017. This level of disaggregation is consistent with how the Company analyzes loss reserves for both internal and external reporting purposes. The loss development information for the years ended December 31, 2012 through 2016 is presented as supplementary information. For the Company's U.S. Insurance segment, the years presented in the tables comprise the majority of the period for which incurred losses typically remain outstanding. Incurred losses in the Company's International Insurance and Reinsurance segments, which generally include a larger proportion of long-tail business than the U.S. Insurance segment, generally remain outstanding more than six years; however, data prior to 2012 is not practically available by segment as a result of a change in the Company's reportable segments in 2014, which was most impactful on these two segments. Additionally, reserves for the Company's international operations within these two segments are determined on a policy year basis and historical data prior to 2012 does not exist by accident year. All amounts included in the tables below related to transactions denominated in a foreign currency have been translated into United States Dollars using the exchange rates in effect at December 31, 2017.

The tables below also include claim frequency information, by accident year, for each of the segments presented. The Company defines a claim as a single claim incident, per policy, which may include multiple claimants and multiple coverages on a single policy. Claim counts include claims closed without a payment as well as claims where the Company is monitoring to determine if an exposure exists, even if a reserve has not been established.

In 2013, the Company completed the acquisition of Alterra, the results of which are included in each of the Company's reportable segments. Ultimate incurred losses and loss adjustment expenses, net of reinsurance for the year ended December 31, 2013 include outstanding liabilities for losses and loss adjustment expenses of Alterra as of the acquisition date, by accident year and not in any prior periods. Pre-acquisition data is not available by segment and accident year as a result of changes to the historical Alterra product line reporting structure that impacted each of the Company's reportable segments and the impact of significant intercompany reinsurance contracts. Additionally, Alterra reserves were historically determined on a policy year basis and pre-acquisition data does not exist in a format that can be used to determine accident year and segment. Following the acquisition, ongoing business attributable to Alterra was integrated with the Company's other insurance operations and is not separately tracked.

U.S. Insurance Segment

	Ultimate Incurred Losses and Allocated Loss Adjustment Expenses, Net of Reinsurance							
	Unaudited							
(in thousands)	Years Ended December 31,					Year Ended December 31,	**Total of Incurred-but-Not-Reported Liabilities, Net of Reinsurance**	**Cumulative Number of Reported Claims**
Accident Year	2012	2013	2014	2015	2016	**2017**	**December 31, 2017**	
2012	$ 949,141	$ 985,721	$ 924,138	$ 924,621	$ 909,237	**$ 891,641**	**$ 88,973**	**107**
2013		1,130,681	1,105,927	1,042,100	1,009,438	**996,204**	**124,412**	**66**
2014			1,278,116	1,140,685	1,116,093	**1,088,667**	**193,049**	**57**
2015				1,285,411	1,211,389	**1,136,033**	**305,158**	**57**
2016					1,319,731	**1,224,207**	**476,971**	**59**
2017						**1,572,585**	**911,675**	**67**
Total						**$ 6,909,337**		

	Cumulative Paid Losses and Allocated Loss Adjustment Expenses, Net of Reinsurance					
	Unaudited					
	Years Ended December 31,					Year Ended December 31,
Accident Year	2012	2013	2014	2015	2016	**2017**
2012	$ 193,708	$ 401,773	$ 546,635	$ 644,658	$ 728,802	**$ 763,455**
2013		222,890	443,392	594,558	725,782	**799,385**
2014			264,697	487,068	650,118	**770,490**
2015				260,121	514,497	**660,699**
2016					278,650	**523,226**
2017						**336,553**
Total						**$ 3,853,808**
All outstanding liabilities for unpaid losses and loss adjustment expenses before 2012, net of reinsurance						**289,191**
Total liabilities for unpaid losses and loss adjustment expenses, net of reinsurance						**$ 3,344,720**

Ultimate incurred losses and allocated loss adjustment expenses and cumulative paid losses and allocated loss adjustment expenses for the year ended December 31, 2017 for the U.S. Insurance segment include amounts attributable to acquisitions completed in 2017 which are not material to the segment. Ultimate incurred losses and allocated loss adjustment expenses for the year ended December 31, 2013 for the U.S. Insurance segment include $97.4 million and $149.9 million of losses and loss adjustment expenses on the 2012 and 2013 accident years, respectively, attributable to Alterra. Cumulative paid losses and allocated loss adjustment expenses for the year ended December 31, 2013 include $22.6 million and $23.2 million of paid losses and allocated loss adjustment expenses on the 2012 and 2013 accident years, respectively, attributable to the acquired Alterra reserves and post-acquisition Alterra business. Cumulative paid losses and allocated loss adjustment expenses and cumulative reported claims for the 2012 and 2013 accident years exclude any claims paid or closed prior to the acquisition.

Cumulative reported claims for the 2012, 2013 and 2017 accident years include 66 thousand, 17 thousand and 10 thousand, respectively, of claim counts associated with a personal lines product with high claim frequency and low claim severity. The Company did not write this business from 2014 to 2016. The related net incurred losses and allocated loss adjustment expenses are not material to the U.S. Insurance segment.

International Insurance Segment

	Ultimate Incurred Losses and Allocated Loss Adjustment Expenses, Net of Reinsurance							
	Unaudited						**Total of Incurred-but-Not-Reported Liabilities, Net of Reinsurance**	**Cumulative Number of Reported Claims**
(in thousands)	Years Ended December 31,					Year Ended December 31,		
Accident Year	2012	2013	2014	2015	2016	**2017**	**December 31, 2017**	
2012	$ 428,711	$ 633,511	$ 573,945	$ 511,144	$ 493,563	**$ 477,855**	**$ 58,151**	**19**
2013		614,829	598,638	492,290	460,978	**439,992**	**128,109**	**18**
2014			594,055	566,049	522,778	**491,882**	**117,588**	**18**
2015				508,159	510,035	**460,851**	**119,232**	**22**
2016					562,190	**573,593**	**142,890**	**22**
2017						**765,959**	**427,823**	**21**
Total						**$ 3,210,132**		

	Cumulative Paid Losses and Allocated Loss Adjustment Expenses, Net of Reinsurance					
	Unaudited					
	Years Ended December 31,					Year Ended December 31,
Accident Year	2012	2013	2014	2015	2016	**2017**
2012	$ 40,545	$ 168,322	$ 237,084	$ 297,752	$ 329,766	**$ 360,164**
2013		49,426	130,088	187,671	227,922	**243,043**
2014			68,464	174,294	249,408	**297,887**
2015				63,564	153,418	**219,574**
2016					94,926	**232,921**
2017						**103,780**
Total						**$ 1,457,369**
All outstanding liabilities for unpaid losses and loss adjustment expenses before 2012, net of reinsurance						**482,546**
Total liabilities for unpaid losses and loss adjustment expenses, net of reinsurance						**$ 2,235,309**

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

Ultimate incurred losses and allocated loss adjustment expenses for the year ended December 31, 2013 for the International Insurance segment include $159.9 million and $163.9 million of losses and loss adjustment expenses on the 2012 and 2013 accident years, respectively, attributable to Alterra. Cumulative paid losses and allocated loss adjustment expenses for the year ended December 31, 2013 include $14.2 million and $6.3 million of paid losses and allocated loss adjustment expenses on the 2012 and 2013 accident years, respectively, attributable to the acquired Alterra reserves and post-acquisition Alterra business. Cumulative paid losses and allocated loss adjustment expenses and cumulative reported claims for the 2012 and 2013 accident years exclude any claims paid or closed prior to the acquisition.

Business contained within the Company's International Insurance segment includes business managed by other managing agents, coverholders and third party administrators, for which the Company is unable to obtain access to the underlying claim counts. As such, the claim count information for this business has been excluded from the total claim counts reported above. This business represents 5% of the cumulative incurred losses and allocated loss adjustment expenses, net of reinsurance, on the 2012 through 2017 accident years detailed above.

Reinsurance Segment

	Ultimate Incurred Losses and Allocated Loss Adjustment Expenses, Net of Reinsurance						
	Unaudited						Total of Incurred-but-Not-Reported Liabilities, Net of Reinsurance
(in thousands)	Years Ended December 31,					Year Ended December 31,	
Accident Year	2012	2013	2014	2015	2016	**2017**	**December 31, 2017**
2012	$ 73,177	$ 553,865	$ 511,264	$ 489,767	$ 460,002	**$ 458,643**	**$ 82,453**
2013		591,730	583,775	553,046	538,223	**549,500**	**129,940**
2014			580,964	571,056	541,967	**587,525**	**159,911**
2015				530,245	516,568	**535,936**	**247,838**
2016					531,083	**541,645**	**285,157**
2017						**910,948**	**563,757**
Total						**$ 3,584,197**	

	Cumulative Paid Losses and Allocated Loss Adjustment Expenses, Net of Reinsurance					
	Unaudited					
	Years Ended December 31,					Year Ended December 31,
Accident Year	2012	2013	2014	2015	2016	**2017**
2012	$ 4,127	$ 64,982	$ 129,633	$ 185,315	$ 233,284	**$ 265,833**
2013		71,983	156,903	212,106	271,598	**304,797**
2014			98,241	159,221	229,572	**278,786**
2015				64,130	135,132	**210,289**
2016					80,026	**171,547**
2017						**158,420**
Total						**$ 1,389,672**
All outstanding liabilities for unpaid losses and loss adjustment expenses before 2012, net of reinsurance						**757,569**
Total liabilities for unpaid losses and loss adjustment expenses, net of reinsurance						**$ 2,952,094**

Ultimate incurred losses and allocated loss adjustment expenses for the year ended December 31, 2013 for the Reinsurance segment include $478.3 million and $540.9 million of losses and loss adjustment expenses on the 2012 and 2013 accident years, respectively, attributable to Alterra. Cumulative paid losses and allocated loss adjustment expenses for the year ended December 31, 2013 include $53.1 million and $69.3 million of paid losses and allocated loss adjustment expenses on the 2012 and 2013 accident years, respectively, attributable to the acquired Alterra reserves and post-acquisition Alterra business. Cumulative paid losses and allocated loss adjustment expenses for the 2012 and 2013 accident years exclude any claims paid prior to the acquisition.

All of the business contained within the Company's Reinsurance segment represents treaty business that is assumed from other insurance or reinsurance companies, for which the Company does not have access to the underlying claim counts. Further, this business includes both quota share and excess of loss treaty reinsurance, through which only a portion of each reported claim results in losses to the Company. As such, the Company has excluded claim count information from the Reinsurance segment disclosures.

The following table presents supplementary information about average historical claims duration as of December 31, 2017 based on the cumulative incurred and paid losses and allocated loss adjustment expenses presented above.

	Average Annual Percentage Payout of Incurred Losses by Age (in Years), Net of Reinsurance					
Unaudited	1	2	3	4	5	6
U.S. Insurance	22.6%	21.7%	14.8%	11.7%	8.4%	3.9%
International Insurance	12.9%	22.2%	14.3%	10.6%	5.1%	6.4%
Reinsurance	12.5%	13.8%	12.5%	10.4%	8.3%	7.1%

The following table reconciles the net incurred and paid loss development tables, by segment, to the liability for losses and loss adjustment expenses in the consolidated balance sheet.

(dollars in thousands)	**December 31, 2017**
Net outstanding liabilities	
U.S. Insurance	**$ 3,344,720**
International Insurance	**2,235,309**
Reinsurance	**2,952,094**
Other Insurance (Discontinued Lines)	**246,365**
Program Services	**2,441**
Liabilities for unpaid losses and loss adjustment expenses, net of reinsurance	**8,780,929**
Reinsurance recoverable on unpaid losses	
U.S. Insurance	**827,113**
International Insurance	**1,091,785**
Reinsurance	**341,168**
Other Insurance (Discontinued Lines)	**166,281**
Program Services	**2,192,989**
Total reinsurance recoverable on unpaid losses	**4,619,336**
Unallocated loss adjustment expenses	**230,016**
Unamortized fair value adjustments	**(46,000)**
	184,016
TOTAL GROSS LIABILITY FOR UNPAID LOSSES AND LOSS ADJUSTMENT EXPENSES	**$ 13,584,281**

c) The Company's exposure to A&E claims results from policies written by acquired insurance operations before their acquisition by the Company. The Company's exposure to A&E claims originated from umbrella, excess and commercial general liability (CGL) insurance policies and assumed reinsurance contracts that were written on an occurrence basis from the 1970s to mid-1980s. Exposure also originated from claims-made policies that were designed to cover environmental risks provided that all other terms and conditions of the policy were met.

A&E claims include property damage and clean-up costs related to pollution, as well as personal injury allegedly arising from exposure to hazardous materials. After 1986, the Company began underwriting CGL coverage with pollution exclusions, and in some lines of business the Company began using a claims-made form. These changes significantly reduced the Company's exposure to future A&E claims on post-1986 business.

The following table provides a reconciliation of beginning and ending A&E reserves for losses and loss adjustment expenses, which are a component of consolidated unpaid losses and loss adjustment expenses. Amounts included in the following table are presented before consideration of reinsurance allowances.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Net reserves for A&E losses and loss adjustment expenses, beginning of year	**$ 111,604**	$ 132,869	$ 287,723
Commutations and other	**6,827**	—	—
Adjusted net reserves for A&E losses and loss adjustment expenses, beginning of year	**118,431**	132,869	287,723
Incurred losses and loss adjustment expenses	**659**	(5,277)	25,415
Payments	**(14,429)**	(15,988)	(20,628)
Reinsurance recoverable on retroactive reinsurance transactions	**—**	—	(159,641)
Net reserves for A&E losses and loss adjustment expenses, end of year	**104,661**	111,604	132,869
Reinsurance recoverable on unpaid losses	**169,866**	212,300	253,756
GROSS RESERVES FOR A&E LOSSES AND LOSS ADJUSTMENT EXPENSES, END OF YEAR	**$ 274,527**	$ 323,904	$ 386,625

At December 31, 2017, asbestos-related reserves were $210.7 million and $84.4 million on a gross and net basis, respectively. Net reserves for reported claims for A&E exposures were $92.0 million at December 31, 2017. Net incurred but not reported reserves for A&E exposures were $12.7 million at December 31, 2017. Inception-to-date net paid losses and loss adjustment expenses for A&E related exposures totaled $626.4 million at December 31, 2017, which includes $159.6 million of payments for two retroactive reinsurance transactions completed in 2015 and $96.2 million of litigation-related expense. As previously described, during 2015, the Company completed two retroactive reinsurance transactions to cede two portfolios of policies primarily comprised of liabilities arising from A&E exposures. At the time of the transactions, the reinsurance recoverable for the retroactive reinsurance coverages totaled $177.6 million, of which $159.6 million was attributable to A&E exposures.

The Company's reserves for losses and loss adjustment expenses related to A&E exposures represent management's best estimate of ultimate settlement values. A&E reserves are monitored by management, and the Company's statistical analysis of these reserves is reviewed by the Company's independent actuaries. A&E exposures are subject to significant uncertainty due to potential loss severity and frequency resulting from the uncertain and unfavorable legal climate. A&E reserves could be subject to increases in the future; however, management believes the Company's gross and net A&E reserves at December 31, 2017 are adequate.

10. Life and Annuity Benefits

The following table presents life and annuity benefits.

	December 31,	
(dollars in thousands)	**2017**	2016
Life	**$ 127,208**	$ 131,768
Annuities	**885,984**	849,226
Accident and health	**58,920**	68,660
TOTAL	**$ 1,072,112**	$ 1,049,654

Life and annuity benefits are compiled on a reinsurance contract-by-contract basis and are discounted using standard actuarial techniques and cash flow models. Since the development of the life and annuity reinsurance reserves is based upon cash flow projection models, the Company must make estimates and assumptions based on cedent experience, industry mortality tables, and expense and investment experience, including a provision for adverse deviation. The assumptions used to determine policy benefit reserves are generally locked-in for the life of the contract unless an unlocking event occurs. Loss recognition testing is performed to determine if existing policy benefit reserves, together with the present value of future gross premiums and expected investment income earned thereon, are adequate to cover the present value of future benefits, settlement and maintenance costs. If the existing policy benefit reserves are not sufficient, the locked-in assumptions are revised to current best estimate assumptions and a charge to earnings for life and annuity benefits is recognized at that time.

Because of the assumptions and estimates used in establishing the Company's reserves for life and annuity benefit obligations and the long-term nature of these reinsurance contracts, the ultimate liability may be greater or less than the estimates. The average discount rate for the life and annuity benefit reserves was 2.3% as of December 31, 2017.

As of December 31, 2017, the largest life and annuity benefits reserve for a single contract was 33.8% of the total.

No annuities included in life and annuity benefits in the consolidated balance sheet are subject to discretionary withdrawal.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

11. Senior Long-Term Debt and Other Debt

The following table summarizes the Company's senior long-term debt and other debt.

	December 31,	
(dollars in thousands)	**2017**	2016
7.20% unsecured senior notes, due April 14, 2017, interest payable semi-annually, net of unamortized premium of $0 in 2017 and $417 in 2016	**$ —**	$ 91,046
7.125% unsecured senior notes, due September 30, 2019, interest payable semi-annually, net of unamortized discount of $332 in 2017 and $522 in 2016	**234,411**	234,183
6.25% unsecured senior notes, due September 30, 2020, interest payable semi-annually, net of unamortized premium of $26,618 in 2017 and $35,717 in 2016	**376,616**	385,714
5.35% unsecured senior notes, due June 1, 2021, interest payable semi-annually, net of unamortized discount of $706 in 2017 and $912 in 2016	**249,176**	248,957
4.90% unsecured senior notes, due July 1, 2022, interest payable semi-annually, net of unamortized discount of $1,257 in 2017 and $1,536 in 2016	**348,540**	348,215
3.625% unsecured senior notes, due March 30, 2023, interest payable semi-annually, net of unamortized discount of $1,056 in 2017 and $1,257 in 2016	**248,749**	248,508
3.50% unsecured senior notes, due November 1, 2027, interest payable semi-annually, net of unamortized discount of $2,558 in 2017	**296,728**	—
7.35% unsecured senior notes, due August 15, 2034, interest payable semi-annually, net of unamortized discount of $1,143 in 2017 and $1,212 in 2016	**128,642**	128,570
5.0% unsecured senior notes, due March 30, 2043, interest payable semi-annually, net of unamortized discount of $5,655 in 2017 and $5,879 in 2016	**244,033**	243,796
5.0% unsecured senior notes, due April 5, 2046, interest payable semi-annually, net of unamortized discount of $6,909 in 2017 and $7,154 in 2016	**492,219**	491,943
4.30% unsecured senior notes, due November 1, 2047, interest payable semi-annually, net of unamortized discount of $4,451 in 2017	**294,834**	—
Other debt, at various interest rates ranging from 1.7% to 6.1%	**185,282**	153,597
SENIOR LONG-TERM DEBT AND OTHER DEBT	**$ 3,099,230**	$ 2,574,529

The Company's 6.25% unsecured senior notes and the 7.20% unsecured senior notes were issued by Alterra Finance LLC and Alterra USA Holdings Limited, respectively, which are wholly owned indirect subsidiaries of the Company, and are guaranteed by Markel Corporation. All of the Company's other unsecured senior notes were issued by Markel Corporation. In April 2017, the Company repaid its 7.20% unsecured senior notes due April 14, 2017 ($90.6 million principal outstanding at December 31, 2016). Also in 2017, the Company repaid $84.3 million of debt assumed in connection with acquisitions.

In November 2017, the Company issued $300 million of 3.50% unsecured notes due November 1, 2027 and $300 million of 4.30% unsecured notes due November 1, 2047. Net proceeds to the Company were $297.4 million and $295.5 million, respectively, to be used for general corporate purposes.

In the second quarter of 2016, the Company issued $500 million of 5.0% unsecured senior notes due April 5, 2046. Net proceeds to the Company were $493.1 million. The Company used a portion of these proceeds to purchase $70.2 million of principal on its 7.35% unsecured senior notes due 2034 and $108.8 million of principal on its 7.125% unsecured senior notes due 2019 through a tender offer at a total purchase price of $95.0 million and $126.4 million, respectively. In connection with the purchase, the Company recognized a loss on early extinguishment of debt of $44.1 million during the year ended December 31, 2016.

The Company's 7.35% unsecured senior notes due August 15, 2034 are not redeemable. The Company's other unsecured senior notes are redeemable by the Company at any time, subject to payment of a make-whole premium to the noteholders. None of the Company's senior long-term debt is subject to any sinking fund requirements.

The Company's other debt is primarily associated with its subsidiaries and includes $78.3 million associated with its Markel Ventures subsidiaries. The Markel Ventures debt is non-recourse to the holding company and generally is secured by the assets of those subsidiaries. ParkLand, a subsidiary of the Company, has formed subsidiaries for the purpose of acquiring and financing real estate (the real estate subsidiaries). The assets of certain real estate subsidiaries, which are not material to the Company, are consolidated in accordance with U.S. GAAP but are not available to satisfy the debt and other obligations of the Company or any affiliates other than those real estate subsidiaries. Other debt also includes a $62.5 million note payable delivered as part of the consideration provided for the investment held by the Markel Diversified Fund, as discussed in note 17. In January 2018, the Company repaid $37.5 million of the outstanding note payable.

The estimated fair value of the Company's senior long-term debt and other debt was $3.4 billion and $2.7 billion at December 31, 2017 and 2016, respectively.

The following table summarizes the future principal payments due at maturity on senior long-term debt and other debt as of December 31, 2017.

Years Ending December 31,	*(dollars in thousands)*
2018	**$ 86,312**
2019	**239,765**
2020	**355,074**
2021	**277,072**
2022	**357,245**
2023 and thereafter	**1,785,340**
Total principal payments	**$ 3,100,808**
Net unamortized premium	**2,552**
Net unamortized debt issuance costs	**(4,130)**
Senior Long-Term Debt and Other Debt	**$ 3,099,230**

The Company maintains a revolving credit facility which provides $300 million of capacity for future acquisitions, investments, repurchases of capital stock of the Company and for general corporate purposes. At the Company's discretion, $200 million of the total capacity may be used for secured letters of credit. The Company may increase the capacity of the facility to $500 million subject to certain terms and conditions. The Company pays interest on balances outstanding under the facility and a utilization fee for letters of credit issued under the facility. The Company also pays a commitment fee (0.25% at December 31, 2017) on the unused portion of the facility based on the Company's debt to equity leverage ratio as calculated under the credit agreement. Markel Corporation, along with Alterra Finance LLC and Alterra USA Holdings Limited, guaranteed the Company's obligations under the facility. As a result, the Company's revolving credit facility ranks equally with the 6.25% unsecured senior notes. At December 31, 2017 and 2016, the Company had no borrowings outstanding under this revolving credit facility. This facility expires in August 2019.

At December 31, 2017, the Company was in compliance with all covenants contained in its revolving credit facility. To the extent that the Company is not in compliance with its covenants, the Company's access to the revolving credit facility could be restricted.

The Company paid $141.3 million, $135.4 million and $127.0 million in interest on its senior long-term debt and other debt during the years ended December 31, 2017, 2016 and 2015, respectively.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

12. Shareholders' Equity

a) The Company had 50,000,000 shares of no par value common stock authorized of which 13,903,526 shares and 13,954,931 shares were issued and outstanding at December 31, 2017 and 2016, respectively. The Company also has 10,000,000 shares of no par value preferred stock authorized, none of which was issued or outstanding at December 31, 2017 or 2016.

The Company's Board of Directors has approved the repurchase of up to $300 million of common stock under a share repurchase program (the Program). Under the Program, the Company may repurchase outstanding shares of common stock from time to time, primarily through open-market transactions. The Program has no expiration date but may be terminated by the Board of Directors at any time. As of December 31, 2017, the Company had repurchased 183,735 shares of common stock at a cost of $158.0 million under the Program.

b) Net income per share was determined by dividing adjusted net income to shareholders by the applicable weighted average shares outstanding. Basic shares outstanding include restricted stock units that are no longer subject to any contingencies for issuance, but for which the corresponding shares have not been issued. Diluted net income per share is computed by dividing adjusted net income to shareholders by the weighted average number of common shares and dilutive potential common shares outstanding during the year. Average closing common stock market prices are used to calculate the dilutive effect attributable to restricted stock.

	Years Ended December 31,		
(in thousands, except per share amounts)	**2017**	2016	2015
Net income to shareholders	**$ 395,269**	$ 455,689	$ 582,772
Adjustment of redeemable noncontrolling interests	**(33,738)**	(15,472)	4,144
Adjusted net income to shareholders	**$ 361,531**	$ 440,217	$ 586,916
Basic common shares outstanding	**13,964**	14,013	13,978
Dilutive potential common shares from conversion of options	**1**	4	9
Dilutive potential common shares from conversion of restricted stock	**41**	61	74
Diluted shares outstanding	**14,006**	14,078	14,061
Basic net income per share	**$ 25.89**	$ 31.41	$ 41.99
Diluted net income per share	**$ 25.81**	$ 31.27	$ 41.74

c) The Company's Employee Stock Purchase and Bonus Plan provides a method for employees and directors to purchase shares of the Company's common stock on the open market. The plan encourages share ownership by providing for the award of bonus shares to participants equal to 10% of the net increase in the number of shares owned under the plan in a given year, excluding shares acquired through the plan's loan program component. Under the loan program, the Company offers subsidized unsecured loans so participants may purchase shares and awards bonus shares equal to 5% of the shares purchased with a loan. In May 2016, the Company adopted the Markel Corporation 2016 Employee Stock Purchase and Bonus Plan which replaced the Company's prior Employee Stock Purchase and Bonus Plan. No shares have been issued under the prior Employee Stock Purchase and Bonus Plan since the effective date of the 2016 Employee Stock Purchase and Bonus Plan. The Company authorized 125,000 shares for purchase under the 2016 Employee Stock Purchase and Bonus Plan, of which 113,690 and 118,692 shares were available for purchase as of December 31, 2017 and 2016, respectively. At December 31, 2017 and 2016, loans outstanding under the plans, which are included in receivables on the consolidated balance sheets, totaled $18.5 million and $20.2 million, respectively.

d) In May 2016, the Company adopted the 2016 Equity Incentive Compensation Plan (2016 Compensation Plan), which replaced the 2012 Equity Incentive Compensation Plan (2012 Compensation Plan). The 2016 Compensation Plan provides for grants and awards of restricted stock, restricted stock units, performance grants, and other stock based awards to employees and non-employee directors and is administered by the Compensation Committee of the Company's Board of Directors (Compensation Committee). No share-based awards have been issued under the 2012 Compensation Plan after the effective date of the 2016 Compensation Plan. At December 31, 2017, there were 235,137 shares available for future awards under the 2016 Compensation Plan.

Restricted stock units are awarded to certain associates and executive officers based upon meeting performance conditions determined by the Compensation Committee. These awards generally vest at the end of the third year following the year for which the Compensation Committee determines performance conditions have been met. At the end of the vesting period, recipients are entitled to receive one share of the Company's common stock for each vested restricted stock unit. During 2017, the Company awarded 11,339 restricted stock units to associates and executive officers based on performance conditions being met.

Restricted stock units also are awarded to associates to assist the Company in securing or retaining the services of key employees. During 2017, the Company awarded 499 restricted stock units to associates as a hiring or retention incentive. The restricted stock units had a grant-date fair value of $0.5 million. These awards generally vest over a three-year period and entitle the recipient to receive one share of the Company's common stock for each vested restricted stock unit.

During 2017, the Company awarded 1,050 shares of restricted stock to its non-employee directors. The shares awarded to non-employee directors will vest in 2018, except for 105 shares that vested in 2017.

The following table summarizes nonvested share-based awards.

	Number of Awards	Weighted Average Grant-Date Fair Value
Nonvested awards at January 1, 2017	**65,618**	**$ 634.71**
Granted	**12,888**	**979.23**
Vested	**(46,988)**	**612.54**
Nonvested awards at December 31, 2017	**31,518**	**$ 808.63**

The fair value of the Company's share-based awards granted under the 2012 Compensation Plan and 2016 Compensation Plan was determined based on the closing price of the Company's common shares on the grant date. The fair value of the Company's share-based awards issued under the Markel Corporation Omnibus Incentive Plan, which preceded the 2012 Compensation Plan, was determined based on the average price of the Company's common shares on the grant date. The weighted average grant-date fair value of the Company's share-based awards granted in 2017, 2016 and 2015 was $979.23, $878.03 and $740.80, respectively. As of December 31, 2017, unrecognized compensation cost related to nonvested share-based awards was $7.8 million, which is expected to be recognized over a weighted average period of 1.5 years. The fair value of the Company's share-based awards that vested during 2017, 2016 and 2015 was $28.8 million, $29.8 million and $15.8 million, respectively.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

13. Other Comprehensive Income (Loss)

Other comprehensive income (loss) includes net holding gains (losses) arising during the period, changes in unrealized other-than-temporary impairment losses on fixed maturities arising during the period and reclassification adjustments for net gains included in net income. Other comprehensive income (loss) also includes changes in foreign currency translation adjustments and changes in net actuarial pension loss.

The following table presents the change in accumulated other comprehensive income by component, net of taxes and noncontrolling interests.

(dollars in thousands)	Unrealized Holding Gains on Available-for-Sale Securities	Foreign Currency	Net Actuarial Pension Loss	Total
December 31, 2014	$ 1,793,254	$ (43,491)	$ (45,206)	$ 1,704,557
Other comprehensive loss before reclassifications	(240,010)	(29,205)	(2,482)	(271,697)
Amounts reclassified from accumulated other comprehensive income	(80,482)	—	2,130	(78,352)
Total other comprehensive loss	(320,492)	(29,205)	(352)	(350,049)
December 31, 2015	$ 1,472,762	$ (72,696)	$ (45,558)	$ 1,354,508
Other comprehensive income (loss) before reclassifications	275,696	(11,710)	(20,700)	243,286
Amounts reclassified from accumulated other comprehensive income	(33,528)	—	1,600	(31,928)
Total other comprehensive income (loss)	242,168	(11,710)	(19,100)	211,358
December 31, 2016	$ 1,714,930	$ (84,406)	$ (64,658)	$ 1,565,866
Other comprehensive income before reclassifications	**787,339**	**10,403**	**3,092**	**800,834**
Amounts reclassified from accumulated other comprehensive income	**(24,296)**	**—**	**3,167**	**(21,129)**
Total other comprehensive income	**763,043**	**10,403**	**6,259**	**779,705**
December 31, 2017	**$ 2,477,973**	**$ (74,003)**	**$ (58,399)**	**$ 2,345,571**

The following table summarizes the tax expense (benefit) associated with each component of other comprehensive income (loss).

(dollars in thousands)	Years Ended December 31, **2017**	2016	2015
Change in net unrealized gains on investments:			
Net holding gains (losses) arising during the period	**$ 372,469**	$ 112,399	$ (107,860)
Change in unrealized other-than-temporary impairment losses on fixed maturities arising during the period	**—**	6	35
Reclassification adjustments for net gains included in net income	**(10,072)**	(12,462)	(29,267)
Change in net unrealized gains (losses) on investments	**362,397**	99,943	(137,092)
Change in foreign currency translation adjustments	**28**	1,037	408
Change in net actuarial pension loss	**1,284**	(4,192)	(88)
TOTAL	**$ 363,709**	$ 96,788	$ (136,772)

The following table presents the details of amounts reclassified from accumulated other comprehensive income into income, by component.

(dollars in thousands)	Years Ended December 31, **2017**	2016	2015
Unrealized holding gains on available-for-sale securities:			
Other-than-temporary impairment losses	**$ (7,589)**	$ (18,355)	$ (44,481)
Net realized investment gains, excluding other-than-temporary impairment losses	**41,957**	64,345	154,230
Total before taxes	**34,368**	45,990	109,749
Income taxes	**(10,072)**	(12,462)	(29,267)
Reclassification of unrealized holding gains, net of taxes	**$ 24,296**	$ 33,528	$ 80,482
Net actuarial pension loss:			
Underwriting, acquisition and insurance expenses	**$ (3,815)**	$ (1,951)	$ (2,662)
Income taxes	**648**	351	532
Reclassification of net actuarial pension loss, net of taxes	**$ (3,167)**	$ (1,600)	$ (2,130)

14. Fair Value Measurements

FASB ASC 820-10, *Fair Value Measurements and Disclosures*, establishes a three-level hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The fair value hierarchy gives the highest priority to quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). If the inputs used to measure the assets or liabilities fall within different levels of the hierarchy, the classification is based on the lowest level input that is significant to the fair value measurement of the asset or liability.

Classification of assets and liabilities within the hierarchy considers the markets in which the assets and liabilities are traded and the reliability and transparency of the assumptions used to determine fair value. The hierarchy requires the use of observable market data when available. The levels of the hierarchy are defined as follows:

Level 1 - Inputs to the valuation methodology are quoted prices (unadjusted) for identical assets or liabilities traded in active markets.

Level 2 - Inputs to the valuation methodology include quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable for the asset or liability and market-corroborated inputs.

Level 3 - Inputs to the valuation methodology are unobservable for the asset or liability and are significant to the fair value measurement.

In accordance with FASB ASC 820, the Company determines fair value based on the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In determining fair value, the Company uses various methods, including the market, income and cost approaches. The Company uses valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs. The following section describes the valuation methodologies used by the Company to measure assets and liabilities at fair value, including an indication of the level within the fair value hierarchy in which each asset or liability is generally classified.

Investments available-for-sale. Investments available-for-sale are recorded at fair value on a recurring basis and include fixed maturities, equity securities and short-term investments. Short-term investments include certificates of deposit, commercial paper, discount notes and treasury bills with original maturities of one year or less. Fair value for investments available-for-sale is determined by the Company after considering various sources of information, including information provided by a third party pricing service. The pricing service provides prices for substantially all of the Company's fixed maturities and equity securities. In determining fair value, the Company generally does not adjust the prices obtained from the pricing service. The Company obtains an understanding of the pricing service's valuation methodologies and related inputs, which include, but are not limited to, reported trades, benchmark yields, issuer spreads, bids, offers, duration, credit ratings, estimated cash flows and prepayment speeds. The Company validates prices provided by the pricing service by reviewing prices from other pricing sources and analyzing pricing data in certain instances.

The Company has evaluated the various types of securities in its investment portfolio to determine an appropriate fair value hierarchy level based upon trading activity and the observability of market inputs. Level 1 investments include those traded on an active exchange, such as the New York Stock Exchange. Level 2 investments include U.S. Treasury securities, U.S. government-sponsored enterprises, municipal bonds, foreign government bonds, commercial mortgage-backed securities, residential mortgage-backed securities, asset-backed securities and corporate debt securities. Level 3 investments include the Company's investments in insurance-linked securities funds (the ILS Funds), as further described in note 17, that are not traded on an active exchange and are valued using unobservable inputs.

Fair value for investments available-for-sale is measured based upon quoted prices in active markets, if available. Due to variations in trading volumes and the lack of quoted market prices, fixed maturities are classified as Level 2 investments. The fair value of fixed maturities is normally derived through recent reported trades for identical or similar securities, making adjustments through the reporting date based upon available market observable data described above. If there are no recent reported trades, the fair value of fixed maturities may be derived through the use of matrix pricing or model processes, where future cash flow expectations are developed based upon collateral performance and discounted at an estimated market rate. Significant inputs used to determine the fair value of obligations of states, municipalities and political subdivisions, corporate bonds and obligations of foreign governments include reported trades, benchmark yields, issuer spreads, bids, offers, credit information and estimated cash flows. Significant inputs used to determine the fair value of commercial mortgage-backed securities, residential mortgage-backed securities and asset-backed securities include the type of underlying assets, benchmark yields, prepayment speeds, collateral information, tranche type and volatility, estimated cash flows, credit information, default rates, recovery rates, issuer spreads and the year of issue.

Due to the significance of unobservable inputs required in measuring the fair value of the Company's investments in the ILS Funds, these investments are classified as Level 3 within the fair value hierarchy. Changes in fair value of the ILS Funds are included in net realized gains (losses) in net income. The fair value of the securities are derived using their reported net asset value (NAV) as the primary input, as well as other observable and unobservable inputs as deemed necessary by management. Management has obtained an understanding of the inputs, assumptions, process, and controls used to determine NAV, which is calculated by an independent third party. Unobservable inputs to the NAV calculations include assumptions around premium earnings patterns and loss reserve estimates for the underlying securitized reinsurance contracts in which the ILS Funds invest. Significant unobservable inputs used in the valuation of these investments include an adjustment to include the fair value of the equity that was issued by one of the ILS Funds in exchange for notes receivable, rather than cash, which is excluded from NAV. The Company's investments in the ILS Funds are redeemable annually as of January 1st of each calendar year.

The Company's valuation policies and procedures for Level 3 investments are determined by management. Fair value measurements are analyzed quarterly to ensure the change in fair value from prior periods is reasonable relative to management's understanding of the underlying investments, recent market trends and external market data, which includes the price of a comparable security and an insurance-linked security index.

Senior long-term debt and other debt. Senior long-term debt and other debt is carried at amortized cost with the estimated fair value disclosed on the consolidated balance sheets. Senior long-term debt and other debt is classified as Level 2 within the fair value hierarchy due to variations in trading volumes and the lack of quoted market prices. Fair value for senior long-term debt and other debt is generally derived through recent reported trades for identical securities, making adjustments through the

reporting date, if necessary, based upon available market observable data including U.S. Treasury securities and implied credit spreads. Significant inputs used to determine the fair value of senior long-term debt and other debt include reported trades, benchmark yields, issuer spreads, bids and offers.

The following tables present the balances of assets measured at fair value on a recurring basis by level within the fair value hierarchy.

	December 31, 2017			
(dollars in thousands)	Level 1	Level 2	Level 3	Total
Assets:				
Investments available-for-sale:				
Fixed maturities:				
U.S. Treasury securities	$ —	$ **160,613**	$ —	$ **160,613**
U.S. government-sponsored enterprises	—	**363,520**	—	**363,520**
Obligations of states, municipalities and political subdivisions	—	**4,566,562**	—	**4,566,562**
Foreign governments	—	**1,489,228**	—	**1,489,228**
Commercial mortgage-backed securities	—	**1,234,326**	—	**1,234,326**
Residential mortgage-backed securities	—	**856,168**	—	**856,168**
Asset-backed securities	—	**34,728**	—	**34,728**
Corporate bonds	—	**1,235,525**	—	**1,235,525**
Total fixed maturities	—	**9,940,670**	—	**9,940,670**
Equity securities:				
Insurance, banks and other financial institutions	**1,934,224**	—	**168,809**	**2,103,033**
Industrial, consumer and all other	**3,864,814**	—	—	**3,864,814**
Total equity securities	**5,799,038**	—	**168,809**	**5,967,847**
Short-term investments	**2,065,749**	**95,225**	—	**2,160,974**
Total investments available-for-sale	**$ 7,864,787**	**$ 10,035,895**	**$ 168,809**	**$ 18,069,491**

	December 31, 2016			
(dollars in thousands)	Level 1	Level 2	Level 3	Total
Assets:				
Investments available-for-sale:				
Fixed maturities:				
U.S. Treasury securities	$ —	$ 258,584	$ —	$ 258,584
U.S. government-sponsored enterprises	—	423,212	—	423,212
Obligations of states, municipalities and political subdivisions	—	4,428,205	—	4,428,205
Foreign governments	—	1,463,462	—	1,463,462
Commercial mortgage-backed securities	—	1,040,356	—	1,040,356
Residential mortgage-backed securities	—	790,946	—	790,946
Asset-backed securities	—	27,338	—	27,338
Corporate bonds	—	1,459,407	—	1,459,407
Total fixed maturities	—	9,891,510	—	9,891,510
Equity securities:				
Insurance, banks and other financial institutions	1,506,607	—	191,203	1,697,810
Industrial, consumer and all other	3,048,031	—	—	3,048,031
Total equity securities	4,554,638	—	191,203	4,745,841
Short-term investments	2,255,898	80,253	—	2,336,151
Total investments available-for-sale	$ 6,810,536	$ 9,971,763	$ 191,203	$ 16,973,502

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

The following table summarizes changes in Level 3 investments at fair value on a recurring basis.

(dollars in thousands)	**2017**	2016
Equity securities, beginning of period	**$ 191,203**	$ —
Purchases	**56,250**	195,250
Sales	**(26,674)**	(25,000)
Total gains (losses) included in:		
Net income (loss)	**(51,970)**	20,953
Other comprehensive income	**—**	—
Transfers into Level 3	**—**	—
Transfers out of Level 3	**—**	—
Equity securities, end of period	**$ 168,809**	$ 191,203
Net unrealized gains (losses) included in net income relating to assets held at December 31, 2017 and 2016[1]	**$ (51,970)**	$ 20,953

[1] Included in net realized investment gains (losses) in the consolidated statements of income and comprehensive income.

Net realized investment losses for the year ended December 31, 2017 included losses of $52.0 million on the Company's investment in the ILS Funds as a result of a decrease in the NAV of the ILS Funds.

There were no transfers into or out of Level 1 and Level 2 during 2017 or 2016.

Except as disclosed in note 2, the Company did not have any assets or liabilities measured at fair value on a non-recurring basis during the years ended December 31, 2017 and 2016.

15. Reinsurance

In reinsurance and retrocession transactions, an insurance or reinsurance company transfers, or cedes, all or part of its exposure in return for a portion of the premium. The ceding of insurance does not legally discharge the Company from its primary liability for the full amount of the policies, and the Company will be required to pay the loss and bear collection risk if the reinsurer fails to meet its obligations under the reinsurance or retrocessional agreement. A credit risk exists with ceded reinsurance to the extent that any reinsurer is unable to meet the obligations assumed under the reinsurance or retrocessional contracts. Allowances are established for amounts deemed uncollectible.

Within its underwriting operations, the Company uses reinsurance and retrocessional reinsurance to manage its net retention on individual risks and overall exposure to losses while providing it with the ability to offer policies with sufficient limits to meet policyholder needs. The Company evaluates the financial condition of its reinsurers and monitors concentration of credit risk arising from its exposure to individual reinsurers. To further reduce credit exposure to reinsurance recoverable balances, the Company has received collateral, including letters of credit and trust accounts, from certain reinsurers. Collateral related to these reinsurance agreements is available, without restriction, when the Company pays losses covered by the reinsurance agreements.

Within the Company's underwriting operations, at December 31, 2017 and 2016, balances recoverable from the ten largest reinsurers, by group, represented 61% and 67%, respectively, of the reinsurance recoverable on paid and unpaid losses, before considering reinsurance allowances and collateral. At December 31, 2017, the largest reinsurance balance was due from Fairfax Financial Group and represented 10% of the reinsurance recoverable on paid and unpaid losses, before considering reinsurance allowances and collateral.

Within the Company's program services business, acquired as a part of the State National acquisition in November 2017, the Company generally enters into 100% quota share reinsurance agreements whereby the Company cedes to the capacity provider (reinsurer) substantially all of its gross liability under all policies issued by and on behalf of the Company by the GA. The Company remains exposed to the credit risk of the reinsurer, or the risk that one of its reinsurers becomes insolvent or otherwise unable or unwilling to pay policyholder claims. This credit risk is generally mitigated by either selecting well capitalized, highly rated authorized capacity providers or requiring that the capacity provider post substantial collateral to secure the reinsured risks.

Within the Company's program services business, at December 31, 2017, balances recoverable from the ten largest reinsurers, by group, represented 79% of the reinsurance recoverable on paid and unpaid losses, before considering reinsurance allowances and collateral. At December 31, 2017, the largest reinsurance balance was due from Fosun International Holdings, Ltd and represented 25% of the reinsurance recoverable on paid and unpaid losses, before considering reinsurance allowances and collateral.

The following table summarizes the Company's reinsurance allowance for doubtful accounts, all of which is attributable to the Company's underwriting operations.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Reinsurance allowance, beginning of year	**$ 36,770**	$ 59,350	$ 59,813
Additions	**2,669**	980	5,897
Deductions	**(5,464)**	(23,560)	(6,360)
Reinsurance allowance, end of year	**$ 33,975**	$ 36,770	$ 59,350

Management believes the Company's reinsurance allowance for doubtful accounts is adequate at December 31, 2017; however, the deterioration in the credit quality of existing reinsurers or disputes over reinsurance and retrocessional contracts could result in additional charges.

The following table summarizes the effect of reinsurance and retrocessional reinsurance on consolidated premiums written and earned.

	Years Ended December 31,					
(dollars in thousands)	**2017**		2016		2015	
	Written	Earned	Written	Earned	Written	Earned
Direct[1]	**$ 4,172,467**	**$ 4,068,622**	$ 3,560,635	$ 3,506,687	$ 3,474,510	$ 3,480,297
Assumed[1]	**1,334,493**	**1,287,395**	1,236,010	1,176,205	1,158,402	1,194,772
Ceded[1]	**(1,089,173)**	**(1,108,039)**	(795,625)	(817,022)	(813,619)	(851,537)
NET PREMIUMS	**$ 4,417,787**	**$ 4,247,978**	$ 4,001,020	$ 3,865,870	$ 3,819,293	$ 3,823,532

(1) Written premium includes $252.9 million, $1.0 million and $253.9 million of direct, assumed and ceded premium, respectively, in the Company's program services business in 2017. Earned premium includes $291.3 million, $1.4 million and $292.7 million of direct, assumed and ceded premium, respectively, in the Company's program services business in 2017.

All of the premium written and earned in the Company's program services business for the year-ended December 31, 2017 was ceded to third parties. The percentage of ceded earned premiums to gross earned premiums was 21%, 17% and 18% for the years ended December 31, 2017, 2016 and 2015, respectively. The percentage of assumed earned premiums to net earned premiums was 30%, 30% and 31% for the years ended December 31, 2017, 2016 and 2015, respectively.

All of the incurred losses and loss adjustment expenses in the Company's program services business, which totaled $286.1 million were ceded to third parties. Incurred losses and loss adjustment expenses for the Company's underwriting operations were net of ceded incurred losses and loss adjustment expenses of $856.8 million, $362.0 million and $330.7 million for the years ended December 31, 2017, 2016 and 2015, respectively. Ceded incurred losses and loss adjustment expenses in 2017 included ceded losses on the 2017 Catastrophes of $490.3 million.

See note 9 for information regarding two retroactive reinsurance transactions completed during 2015 to cede portfolios of policies primarily comprised of liabilities arising from A&E exposures.

16. Commitments and Contingencies

a) The Company leases substantially all of its facilities and certain furniture and equipment under noncancelable operating leases with remaining terms up to 17 years.

The following table summarizes the Company's minimum annual rental commitments, excluding taxes, insurance and other operating costs payable directly by the Company, for noncancelable operating leases at December 31, 2017.

Years Ending December 31,	*(dollars in thousands)*
2018	**$ 53,398**
2019	**44,820**
2020	**37,166**
2021	**33,567**
2022	**30,356**
2023 and thereafter	**112,415**
TOTAL	**$ 311,722**

Rental expense was $44.6 million, $40.2 million and $44.3 million for the years ended December 31, 2017, 2016 and 2015, respectively.

b) In October 2010, the Company completed its acquisition of Aspen Holdings, Inc. (Aspen). As part of the consideration for that acquisition, Aspen shareholders received contingent value rights (CVRs), which are currently expected to result in the payment of additional cash consideration to CVR holders. Absent the litigation described below, the final amount to be paid to CVR holders would be determined after December 31, 2017, the CVR maturity date, based on, among other things, adjustments for the development of pre-acquisition loss reserves and loss sensitive profit commissions.

The CVR holder representative, Thomas Yeransian, has disputed the Company's estimation of the value of the CVRs. On September 15, 2016, Mr. Yeransian filed a suit alleging, among other things, that the Company is in default under the CVR agreement. The holder representative seeks: $47.3 million in damages, which represents the unadjusted value of the CVRs; plus interest ($11.6 million through December 31, 2017) and default interest (up to an additional $10.1 million through December 31, 2017, depending on the date any default occurred); and an unspecified amount of punitive damages, costs, and attorneys' fees.

At the initial hearing held February 21, 2017, the court stayed the proceedings and ordered the parties to discuss resolving the dispute pursuant to the independent CVR valuation procedure under the CVR agreement. The parties met on April 5, 2017, but were unsuccessful in reaching agreement on a process for resolving the dispute. The Company subsequently filed a motion to stay the litigation and compel arbitration, and, on July 31, 2017, the court issued an order granting that motion. Mr. Yeransian has filed a motion requesting that the court reconsider that order.

Management believes the holder representative's suit to be without merit and will vigorously defend against it. Further, management believes that any material loss resulting from the holder representative's suit to be remote and that the contractual contingent consideration payments related to the CVRs will not have a material impact on the Company's liquidity.

In addition, contingencies arise in the normal course of the Company's operations and are not expected to have a material impact on the Company's financial condition or results of operations.

17. Variable Interest Entities

In December 2015, the Company formed MCIM, a wholly owned consolidated subsidiary. MCIM is an insurance-linked securities investment fund manager and insurance manager headquartered in Bermuda. Results attributable to MCIM are included with the Company's other operations, which are not included in a reportable segment.

In December 2015, the Company also formed a mutual fund company and reinsurance company, both of which were organized under Bermuda law and are managed by MCIM. The mutual fund company issues multiple classes of nonvoting, redeemable preference shares to investors through its funds (the Funds) and the Funds are primarily invested in nonvoting shares of the reinsurance company. The underwriting results of the reinsurance company are attributed to the Funds through the issuance of nonvoting preference shares.

The Funds and the reinsurance company are considered VIEs, as their preference shareholders have no voting rights. MCIM has the power to direct the activities that most significantly impact the economic performance of these entities, but does not have a variable interest in any of the entities. Except as described below, the Company is not the primary beneficiary of the Funds or the reinsurance company, as the Company's involvement is generally limited to that of an investment or insurance manager, receiving fees that are at market and commensurate with the level of effort required. Investment management fees earned by the Company from unconsolidated Funds were $28.7 million and $56.5 million for the years ended December 31, 2017 and 2016, respectively. The Company is the sole investor in one of the Funds, the Markel Diversified Fund, and consolidates that fund as its primary beneficiary.

As of December 31, 2017, total assets of the Markel Diversified Fund were $170.3 million and total liabilities were $62.7 million. As of December 31, 2016, total assets of the Markel Diversified Fund were $166.8 million and total liabilities were $64.6 million. The assets of the Markel Diversified Fund are available for use only by the Markel Diversified Fund, and are not available for use by the Company. Total assets of the Markel Diversified Fund include an investment in one of the unconsolidated Funds totaling $168.2 million as of December 31, 2017 and $165.1 million as of December 31, 2016, which represents 7% of the outstanding preference shares of that fund as of December 31, 2017 and 6% as of December 31, 2016. This investment is included in equity securities (available-for-sale) on the Company's consolidated balance sheet. Total liabilities of the Markel Diversified Fund for both periods includes a $62.5 million note payable delivered as part of the consideration provided for its investment. This note payable is included in senior long-term debt and other debt on the Company's consolidated balance sheet. Other than the note payable, any liabilities held by the Markel Diversified Fund have no recourse to the Company's general credit.

The Company also holds an investment in CATCo Reinsurance Opportunities Fund Ltd. (CROF), a limited liability closed-end fund listed on the London and Bermuda Stock Exchanges, which is not a VIE. This investment is included in equity securities (available-for-sale) on the Company's consolidated balance sheet. CROF is managed by MCIM and invests substantially all of its assets in one of the unconsolidated Funds. At December 31, 2017 and 2016, the fair value of the Company's investment in CROF was $20.5 million and $26.3 million, respectively.

The Company's exposure to risk from the unconsolidated Funds and reinsurance company is generally limited to its investment and any earned but uncollected fees. The Company has not issued any investment performance guarantees to these VIEs or their investors. As of December 31, 2017, total investment and insurance assets under management of MCIM for unconsolidated VIEs were $6.0 billion, which includes funds held that will be used to settle claims for incurred losses.

18. Related Party Transactions

The Company engages in certain related party transactions in the normal course of business. These transactions are at arm's length and are not material to the Company's consolidated financial statements. See note 17 for a discussion of the Company's related party transactions with unconsolidated VIEs.

19. Statutory Financial Information

a) Statutory capital and surplus and statutory net income (loss) for the Company's insurance subsidiaries as of December 31, 2017 and 2016 and for the years ended December 31, 2017, 2016 and 2015, respectively, is summarized below.

	Statutory Capital and Surplus	
(dollars in thousands)	**2017**	2016
United States	**$ 3,334,303**	$ 2,761,454
United Kingdom	**$ 642,418**	$ 670,030
Bermuda	**$ 1,774,012**	$ 2,189,649
Other	**$ 24,544**	$ 24,726

As of December 31, 2017, the amount of statutory capital and surplus necessary to satisfy regulatory requirements is not significant in relation to actual statutory capital and surplus.

	Statutory Net Income (Loss)		
	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
United States	**$ 312,828**	$ 249,176	$ 291,783
United Kingdom	**$ (25,785)**	$ 78,033	$ 74,330
Bermuda	**$ (83,445)**	$ 132,442	$ 185,289
Other	**$ 127**	$ (965)	$ (3,181)

The Solvency II Directive that governs the calculation of statutory capital and surplus for the Company's United Kingdom insurance subsidiary does not provide requirements for the calculation of net income. Amounts presented in the table above have been calculated in accordance with United Kingdom GAAP.

United States

The laws of the domicile states of the Company's U.S. insurance subsidiaries govern the amount of dividends that may be paid to the Company. Generally, statutes in the domicile states of the Company's U.S. insurance subsidiaries require prior approval for payment of extraordinary, as opposed to ordinary, dividends. At December 31, 2017, the Company's U.S. insurance subsidiaries could pay up to $436.4 million to the Company during the following 12 months under the ordinary dividend regulations.

In converting from U.S. statutory accounting principles to U.S. GAAP, typical adjustments include deferral of policy acquisition costs, differences in the calculation of deferred income taxes and the inclusion of net unrealized gains or losses relating to fixed maturities in shareholders' equity. The Company does not use any permitted statutory accounting practices that are different from prescribed statutory accounting practices which impact statutory capital and surplus.

United Kingdom

The Company's United Kingdom insurance subsidiary, Markel International Insurance Company Limited (MIICL), and its Lloyd's managing agent, Markel Syndicate Management Limited (MSM), are authorized by the Prudential Regulation Authority (PRA) and regulated by both the PRA and the Financial Conduct Authority (FCA). The PRA oversees compliance with established periodic auditing and reporting requirements, minimum solvency margins and individual capital assessment requirements under the Solvency II Directive and imposes dividend restrictions, while both the PRA and the FCA oversee compliance with risk assessment reviews and various other requirements. MIICL is required to give advance notice to the PRA for any dividends from MIICL and any transaction or proposed transaction with a connected or related person. MSM is required to satisfy the solvency requirements of Lloyd's. In addition, the Company's United Kingdom subsidiaries must comply with the United Kingdom Companies Act of 2006, which provides that dividends may only be paid out of profits available for that purpose. As of December 31, 2017, earnings of the Company's United Kingdom subsidiaries, to the extent not previously taxed in the United States, are considered reinvested indefinitely for U.S. income tax purposes and will not be made available for distributions to the holding company. See note 8 for further discussion of the effect of U.S. income tax regulations on the Company's foreign subsidiaries.

Bermuda

The Company's Bermuda insurance subsidiary, Markel Bermuda Limited (Markel Bermuda), is subject to enhanced capital requirements in addition to minimum solvency and liquidity requirements. The enhanced capital requirement is determined by reference to a risk-based capital model that determines a control threshold for statutory capital and surplus by taking into account the risk characteristics of different aspects of the insurer's business. At December 31, 2017, Markel Bermuda satisfied both the enhanced capital requirements and the minimum solvency and liquidity requirements.

Under the Bermuda Insurance Act, Markel Bermuda is prohibited from paying or declaring dividends during a fiscal year if it is in breach of its enhanced capital requirement, solvency margin or minimum liquidity ratio or if the declaration or payment of the dividend would cause a breach of those requirements. If an insurer fails to meet its solvency margin or minimum liquidity ratio on the last day of any financial year, it is prohibited from declaring or paying any dividends during the next financial year without the approval of the Bermuda Monetary Authority (BMA). Further, Markel Bermuda is prohibited from declaring or paying, in any financial year, dividends of more than 25% of its total statutory capital and surplus as set forth in its previous year's statutory balance sheet unless at least seven days before payment of those dividends it files with the BMA an affidavit stating that it will continue to meet its solvency margin and minimum liquidity ratio. Markel Bermuda must obtain the BMA's prior approval for a reduction by 15% or more of the total statutory capital as set forth in its previous year's financial statements. In addition, as a long-term insurer, Markel Bermuda may not declare or pay a dividend to any person other than a policyholder unless the value of the assets in its long-term business fund, as certified by Markel Bermuda's approved actuary, exceeds the liabilities of its long-term business. The amount of the dividend cannot exceed the aggregate of that excess and any other funds legally available for the payment of the dividend. As of December 31, 2017, Markel Bermuda could pay up to $443.5 million during the following 12 months without making any additional filings with the BMA.

Other Jurisdictions

The Company's other foreign subsidiaries are subject to capital and solvency requirements in their respective jurisdictions of domicile that govern their ability to declare and pay dividends. As of December 31, 2017, earnings of the Company's foreign subsidiaries, to the extent not previously taxed in the United States, are considered reinvested indefinitely for U.S. income tax purposes and will not be made available for distributions to the holding company.

b) Lloyd's sets the corporate members' required capital annually based on each syndicates' business plans, rating environment, reserving environment and input arising from Lloyd's discussions with, inter alia, regulatory and rating agencies. Such required capital is referred to as Funds at Lloyd's (FAL), and comprises cash and investments. The amount of cash and investments held as FAL as of December 31, 2017 was $868.0 million. The amount which the Company provides as FAL is not available for distribution to the holding company. The Company's corporate members may also be required to maintain funds under the control of Lloyd's in excess of their capital requirements and such funds also may not be available for distribution to the holding company.

20. Segment Reporting Disclosures

The Company monitors and reports its ongoing underwriting operations in the following three segments: U.S. Insurance, International Insurance and Reinsurance. In determining how to aggregate and monitor its underwriting results, the Company considers many factors, including the geographic location and regulatory environment of the insurance entity underwriting the risk, the nature of the insurance product sold, the type of account written and the type of customer served. The U.S. Insurance segment includes all direct business and facultative reinsurance placements written by the Company's insurance subsidiaries domiciled in the United States. The International Insurance segment includes all direct business and facultative reinsurance placements written by the Company's insurance subsidiaries domiciled outside of the United States, including the Company's syndicate at Lloyd's of London. The Reinsurance segment includes all treaty reinsurance written across the Company. Results for lines of business discontinued prior to, or in conjunction with, acquisitions, including results attributable to the run-off of life and annuity reinsurance business, are reported in the Other Insurance (Discontinued Lines) segment. All investing activities related to the Company's insurance operations are included in the Investing segment.

In addition to it's underwriting operations, the Company also has various other insurance-related and non-insurance operations. These other operations include the Company's Markel Ventures operations, which primarily consist of controlling interests in various businesses that operate outside of the specialty insurance marketplace. The Company's other operations also include the results of the Company's legal and professional consulting services, and, effective December 8, 2015, the results of the Company's investment management services attributable to MCIM. Effective November 17, 2017, the Company's other operations also include the results of the program services business acquired as part of the State National transaction. For purposes of segment reporting, while presented separately in the Company's segment disclosures, none of these other operations are considered a reportable segment.

The following table summarizes the Company's gross written premiums by country. Gross written premiums are attributed to individual countries based upon location of risk or cedent.

	Years Ended December 31,					
(dollars in thousands)	**2017**	**% of Total**	2016	% of Total	2015	% of Total
United States	**$ 4,163,753**	**79%**	$ 3,691,840	77%	$ 3,519,487	76%
United Kingdom	**374,941**	**7**	358,348	7	414,941	9
Canada	**132,018**	**3**	125,444	3	115,191	2
Other countries	**582,395**	**11**	621,013	13	583,293	13
Total Underwriting	**5,253,107**	**100%**	4,796,645	100%	4,632,912	100%
United States - Program Services	**253,853**		—		—	
TOTAL	**$ 5,506,960**		$ 4,796,645		$ 4,632,912	

Most of the Company's gross written premiums are placed through insurance and reinsurance brokers. During the years ended December 31, 2017, 2016 and 2015, the top three independent brokers accounted for 27%, 28% and 27% of gross premiums written in the Company's underwriting segments. During the years ended December 31, 2017, 2016 and 2015, the top three independent brokers accounted for 35%, 40% and 42%, respectively, of gross premiums written in the International Insurance segment and 78%, 75% and 68%, respectively, of gross premiums written in the Reinsurance segment.

Segment profit for the Investing segment is measured by net investment income and net realized investment gains or losses. Segment profit or loss for each of the Company's underwriting segments is measured by underwriting profit or loss. The property and casualty insurance industry commonly defines underwriting profit or loss as earned premiums net of losses and loss adjustment expenses and underwriting, acquisition and insurance expenses. Underwriting profit or loss does not replace operating income or net income computed in accordance with U.S. GAAP as a measure of profitability. Underwriting profit or loss provides a basis for management to evaluate the Company's underwriting performance. Segment profit or loss for the

Company's underwriting segments also includes other revenues and other expenses, primarily related to the run-off of managing general agent operations that were discontinued in conjunction with acquisitions. Other revenues and other expenses in the Other Insurance (Discontinued Lines) segment are comprised of the results attributable to the run-off of life and annuity reinsurance business.

For management reporting purposes, the Company allocates assets to its underwriting, investing and other operations. Underwriting assets are all assets not specifically allocated to the Investing segment or to the Company's other operations. Underwriting and investing assets are not allocated to the U.S. Insurance, International Insurance, Reinsurance or Other Insurance (Discontinued Lines) segments since the Company does not manage its assets by underwriting segment. The Company does not allocate capital expenditures for long-lived assets to any of its underwriting segments for management reporting purposes.

a) The following tables summarize the Company's segment disclosures.

	Year Ended December 31, 2017						
(dollars in thousands)	U.S. Insurance	International Insurance	Reinsurance	Other Insurance (Discontinued Lines)	Investing	Other	Consolidated
Gross premium volume	**$ 2,885,279**	**$ 1,255,922**	**$ 1,112,101**	**$ (195)**	**$ —**	**$ 253,853**	**$ 5,506,960**
Net written premiums	**2,432,477**	**1,007,319**	**978,160**	**(169)**	**—**	**—**	**4,417,787**
Earned premiums	**2,364,121**	**949,912**	**934,114**	**(169)**	**—**	**—**	**4,247,978**
Losses and loss adjustment expenses:							
Current accident year	**(1,648,427)**	**(793,917)**	**(924,879)**	**—**	**—**	**—**	**(3,367,223)**
Prior accident years	**301,939**	**198,688**	**(7,803)**	**8,459**	**—**	**179**	**501,462**
Amortization of policy acquisition costs	**(502,217)**	**(173,253)**	**(218,883)**	**—**	**—**	**—**	**(894,353)**
Other operating expenses	**(395,472)**	**(215,028)**	**(81,766)**	**(795)**	**—**	**—**	**(693,061)**
Underwriting profit (loss)	**119,944**	**(33,598)**	**(299,217)**	**7,495**	**—**	**179**	**(205,197)**
Net investment income	**—**	**—**	**—**	**—**	**405,709**	**—**	**405,709**
Net realized investment losses	**—**	**—**	**—**	**—**	**(5,303)**	**—**	**(5,303)**
Other revenues	**3,419**	**5,886**	**417**	**2,022**	**—**	**1,401,531**	**1,413,275**
Other expenses	**(1,093)**	**(7,388)**	**—**	**(28,218)**	**—**	**(1,271,281)**	**(1,307,980)**
Total profit (loss)	**$ 122,270**	**$ (35,100)**	**$ (298,800)**	**$ (18,701)**	**$ 400,406**	**$ 130,429**	**$ 300,504**
Amortization of intangible assets							**(80,758)**
Interest expense							**(132,451)**
INCOME BEFORE INCOME TAXES							**$ 87,295**
U.S. GAAP COMBINED RATIO [1]	**95%**	**104%**	**132%**	**NM[2]**		**NM[2]**	**105%**

[1] The U.S. GAAP combined ratio is a measure of underwriting performance and represents the relationship of incurred losses, loss adjustment expenses and underwriting, acquisition and insurance expenses to earned premiums.

[2] NM — Ratio is not meaningful.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

	Year Ended December 31, 2016						
(dollars in thousands)	U.S. Insurance	International Insurance	Reinsurance	Other Insurance (Discontinued Lines)	Investing	Other	Consolidated
Gross premium volume	$ 2,635,266	$ 1,119,815	$ 1,041,055	$ 509	$ —	$ —	$ 4,796,645
Net written premiums	2,237,163	864,494	898,728	635	—	—	4,001,020
Earned premiums	2,175,332	853,512	836,264	762	—	—	3,865,870
Losses and loss adjustment expenses:							
Current accident year	(1,403,589)	(605,837)	(546,476)	—	—	—	(2,555,902)
Prior accident years	204,881	164,713	125,514	10,050	—	—	505,158
Amortization of policy acquisition costs	(446,649)	(146,117)	(189,455)	—	—	—	(782,221)
Other operating expenses	(377,230)	(219,066)	(119,012)	(1,061)	—	—	(716,369)
Underwriting profit	152,745	47,205	106,835	9,751	—	—	316,536
Net investment income	—	—	—	—	373,230	—	373,230
Net realized investment gains	—	—	—	—	65,147	—	65,147
Other revenues	7,143	5,560	—	1,891	—	1,293,185	1,307,779
Other expenses	(15,407)	(5,712)	—	(26,504)	—	(1,142,620)	(1,190,243)
Total profit (loss)	$ 144,481	$ 47,053	$ 106,835	$ (14,862)	$ 438,377	$ 150,565	$ 872,449
Amortization of intangible assets							(68,533)
Interest expense							(129,896)
Loss on early extinguishment of debt							(44,100)
INCOME BEFORE INCOME TAXES							$ 629,920
U.S. GAAP COMBINED RATIO [1]	93%	94%	87%	NM[2]			92%

[1] The U.S. GAAP combined ratio is a measure of underwriting performance and represents the relationship of incurred losses, loss adjustment expenses and underwriting, acquisition and insurance expenses to earned premiums.

[2] NM — Ratio is not meaningful.

(dollars in thousands)	Year Ended December 31, 2015						
	U.S. Insurance	International Insurance	Reinsurance	Other Insurance (Discontinued Lines)	Investing	Other	Consolidated
Gross premium volume	$ 2,504,096	$ 1,164,866	$ 965,374	$ (1,424)	$ —	$ —	$ 4,632,912
Net written premiums	2,106,490	888,214	824,324	265	—	—	3,819,293
Earned premiums	2,105,212	879,426	838,543	351	—	—	3,823,532
Losses and loss adjustment expenses:							
Current accident year	(1,367,159)	(638,144)	(561,242)	—	—	—	(2,566,545)
Prior accident years	298,967	248,834	97,860	(17,861)	—	—	627,800
Amortization of policy acquisition costs	(420,289)	(142,657)	(182,018)	—	—	—	(744,964)
Other operating expenses	(378,563)	(221,758)	(106,863)	(2,932)	—	—	(710,116)
Underwriting profit (loss)	238,168	125,701	86,280	(20,442)	—	—	429,707
Net investment income	—	—	—	—	353,213	—	353,213
Net realized investment gains	—	—	—	—	106,480	—	106,480
Other revenues	3,331	7,790	593	617	—	1,074,427	1,086,758
Other expenses	(3,902)	(5,717)	(1,419)	(29,057)	—	(1,006,710)	(1,046,805)
Total profit (loss)	$ 237,597	$ 127,774	$ 85,454	$ (48,882)	$ 459,693	$ 67,717	$ 929,353
Amortization of intangible assets							(68,947)
Interest expense							(118,301)
INCOME BEFORE INCOME TAXES							$ 742,105
U.S. GAAP COMBINED RATIO [1]	89%	86%	90%	NM[2]			89%

[1] The U.S. GAAP combined ratio is a measure of underwriting performance and represents the relationship of incurred losses, loss adjustment expenses and underwriting, acquisition and insurance expenses to earned premiums.

[2] NM — Ratio is not meaningful.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

b) The following table summarizes deferred policy acquisition costs, unearned premiums and unpaid losses and loss adjustment expenses by segment.

(dollars in thousands)	Deferred Policy Acquisition Costs	Unearned Premiums	Unpaid Losses and Loss Adjustment Expenses
December 31, 2017			
U.S. Insurance	**$ 212,102**	**$ 1,324,591**	**$ 4,331,541**
International Insurance	**74,678**	**530,740**	**3,379,969**
Reinsurance	**178,789**	**690,565**	**3,248,070**
Other Insurance (Discontinued Lines)	**—**	**—**	**429,270**
Total Underwriting	**465,569**	**2,545,896**	**11,388,850**
Program Services	**—**	**762,883**	**2,195,431**
TOTAL	**$ 465,569**	**$ 3,308,779**	**$ 13,584,281**
December 31, 2016			
U.S. Insurance	$ 176,348	$ 1,166,914	$ 3,849,541
International Insurance	51,948	445,183	3,062,725
Reinsurance	164,114	651,741	2,661,209
Other Insurance (Discontinued Lines)	—	—	542,187
TOTAL	$ 392,410	$ 2,263,838	$ 10,115,662

c) The following table summarizes earned premiums by major product grouping.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
U.S. Insurance:			
General liability	**$ 642,283**	$ 563,908	$ 522,358
Professional liability	**333,758**	328,597	324,230
Property	**273,735**	270,026	264,232
Personal lines	**367,073**	364,843	325,811
Programs	**273,954**	263,783	277,829
Workers compensation	**319,679**	301,126	281,954
Other	**153,639**	83,049	108,798
Total U.S. Insurance	**2,364,121**	2,175,332	2,105,212
International Insurance:			
General liability	**122,673**	111,291	124,198
Professional liability	**295,120**	272,010	268,637
Property	**91,778**	87,294	85,152
Marine and energy	**276,134**	242,070	262,307
Other	**164,207**	140,847	139,132
Total International Insurance	**949,912**	853,512	879,426
Reinsurance:			
Property	**321,178**	288,771	265,373
Casualty	**351,457**	327,383	315,027
Auto	**28,700**	65,363	102,227
Other	**232,779**	154,747	155,916
Total Reinsurance	**934,114**	836,264	838,543
Other Insurance (Discontinued Lines)	**(169)**	762	351
TOTAL EARNED PREMIUMS	**$ 4,247,978**	$ 3,865,870	$ 3,823,532

The Company does not manage products at this level of aggregation. The Company offers a diverse portfolio of products and manages these products in logical groupings within each operating segment.

d) The following table reconciles segment assets to the Company's consolidated balance sheets.

	December 31,		
(dollars in thousands)	**2017**	2016	2015
Segment assets:			
Investing	**$ 20,317,160**	$ 19,029,584	$ 18,056,947
Underwriting	**6,828,048**	5,397,696	5,385,126
Total segment assets	**27,145,208**	24,427,280	23,442,073
Other operations	**5,659,808**	1,448,019	1,497,042
TOTAL ASSETS	**$ 32,805,016**	$ 25,875,299	$ 24,939,115

e) Beginning in 2018, the Company will monitor and report its operations in the following four segments: Insurance, Reinsurance, Investing and Markel Ventures. The Insurance segment will include all direct business and facultative placements written on a global basis across the Company, which currently are included in the U.S. Insurance and International Insurance segments. The Reinsurance segment will remain unchanged. Results for lines of business discontinued prior to, or in conjunction with, acquisitions will continue to be excluded from these segments but will no longer be considered a reportable segment. All investing activities related to the Company's insurance operations will continue to be included in the Investing segment. The Markel Ventures segment will include results attributable to the Company's Markel Ventures operations, which previously were not considered a reportable segment. Historically, the Company's chief operating decision maker monitored and assessed the performance of each Markel Ventures business separately with no single business being individually significant. Following the continued growth in the Company's Markel Ventures operations, effective in the first quarter of 2018, the chief operating decision maker reviews and assesses Markel Ventures' performance in the aggregate. The Company's other operations, which include legal and professional consulting services, investment management services, program services business and the run-off underwriting operations discontinued prior to, or in conjunction with, acquisitions will be monitored and reported separately from the Company's four reportable segments.

21. Other Revenues and Other Expenses

The following table summarizes the components of other revenues and other expenses.

	Years Ended December 31,					
	2017		2016		2015	
(dollars in thousands)	Other Revenues	Other Expenses	Other Revenues	Other Expenses	Other Revenues	Other Expenses
Markel Ventures:						
Manufacturing	**$ 742,591**	**$ 650,491**	$ 784,745	$ 675,620	$ 755,802	$ 677,054
Markel Ventures:						
Non-Manufacturing	**590,689**	**535,352**	429,704	396,323	291,714	301,004
Investment management	**28,740**	**52,636**	56,455	46,190	—	—
Program services	**15,328**	**6,508**	—	—	—	—
Managing general agent operations	**8,821**	**5,803**	12,703	21,119	10,202	9,619
Life and annuity	**2,022**	**28,218**	1,891	26,504	617	29,057
Other	**25,084**	**28,972**	22,281	24,487	28,423	30,071
TOTAL	**1,413,275**	**1,307,980**	1,307,779	1,190,243	1,086,758	1,046,805

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

The Company's Markel Ventures operations primarily consist of controlling interests in various businesses that operate outside of the specialty insurance marketplace and are viewed by management as separate and distinct from the Company's insurance operations. While each of the businesses is operated independently from one another, management aggregates financial results into two industry groups: manufacturing and non-manufacturing.

22. Employee Benefit Plans

a) The Company maintains defined contribution plans for employees of its United States insurance operations in accordance with Section 401(k) of the U.S. Internal Revenue Code of 1986. Employees of the Company's Markel Ventures subsidiaries are provided post-retirement benefits under separate plans. The Company also provides various defined contribution plans for employees of its international insurance and other operations, which are in line with local market terms and conditions of employment. Expenses relating to the Company's defined contribution plans, including the defined contribution plans of State National effective November 17, 2017, were $36.7 million, $30.1 million and $27.7 million in 2017, 2016 and 2015, respectively.

b) The Terra Nova Pension Plan is a defined benefit plan which covers certain employees in the Company's international insurance operations who meet the eligibility conditions set out in the plan. The plan has been closed to new participants since 2001. The cost of providing pensions for employees is charged to earnings over the average working life of employees according to actuarial recommendations. Final benefits are based on the employee's years of credited service and the higher of pensionable compensation received in the calendar year preceding retirement or the best average pensionable compensation received in any three consecutive years in the ten years preceding retirement. Effective April 1, 2012, employees are no longer accruing benefits for future service in the Terra Nova Pension Plan. The Company uses December 31 as the measurement date for the Terra Nova Pension Plan.

The following table summarizes the funded status of the Terra Nova Pension Plan and the amounts recognized on the accompanying consolidated balance sheets of the Company.

	Years Ended December 31,	
(dollars in thousands)	**2017**	2016
Change in projected benefit obligation:		
Projected benefit obligation at beginning of period	**$ 178,618**	$ 170,005
Interest cost	**5,016**	6,113
Benefits paid	**(5,644)**	(3,322)
Actuarial loss	**4,985**	38,485
Effect of foreign currency rate changes	**16,142**	(32,663)
Projected benefit obligation at end of year	**$ 199,117**	$ 178,618
Change in plan assets:		
Fair value of plan assets at beginning of period	**$ 175,644**	$ 186,727
Actual gain on plan assets	**16,902**	22,367
Employer contributions	**3,393**	3,577
Benefits paid	**(5,644)**	(3,322)
Effect of foreign currency rate changes	**16,275**	(33,705)
Fair value of plan assets at end of year	**$ 206,570**	$ 175,644
Funded status of the plan	**$ 7,453**	$ (2,974)
Net actuarial pension loss	**77,567**	85,110
TOTAL	**$ 85,020**	$ 82,136

Net actuarial pension loss is recognized as a component of accumulated other comprehensive income, net of taxes. The asset or liability for pension benefits, also referred to as the funded status of the plan, at December 31, 2017 and 2016 was included in other assets on the consolidated balance sheets.

The following table presents the changes in plan assets and projected benefit obligation recognized in accumulated other comprehensive income.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Net actuarial gain (loss)	**$ 3,728**	$ (25,243)	$ (3,102)
Settlement loss recognized	**—**	—	343
Amortization of:			
Net actuarial loss	**3,815**	1,951	2,319
Tax benefit (expense)	**(1,284)**	4,192	88
Total Other Comprehensive Income (Loss)	**$ 6,259**	$ (19,100)	$ (352)

The following table summarizes the components of net periodic benefit income (loss) and the weighted average assumptions for the Terra Nova Pension Plan.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Components of net periodic benefit income (loss):			
Interest cost	**$ 5,016**	$ 6,113	$ 6,645
Expected return on plan assets	**(8,189)**	(9,124)	(11,496)
Amortization of net actuarial pension loss	**3,815**	1,951	2,319
Settlement loss recognized	**—**	—	343
Net Periodic Benefit Income (Loss)	**$ 642**	$ (1,060)	$ (2,189)
Weighted average assumptions as of December 31:			
Discount rate	**2.6%**	2.7%	4.0%
Expected return on plan assets	**4.5%**	4.5%	5.4%
Rate of compensation increase	**3.0%**	3.0%	2.9%

The projected benefit obligation and the net periodic benefit income (loss) are determined by independent actuaries using assumptions provided by the Company. In determining the discount rate, the Company uses the current yield on high-quality, fixed maturity investments that have maturities corresponding to the anticipated timing of estimated defined benefit payments. The decrease in the weighted average discount rate from 2015 to 2016 is due to a decrease in the yields on securities used to determine the discount rate during 2016. The expected return on plan assets is estimated based upon the anticipated average yield on plan assets using asset return assumptions for each asset class, and the cross-correlations between the asset classes, over a specified projection horizon. The decrease in the weighted average expected return on plan assets from 2015 to 2016 is due to changes in market conditions during 2016 that impacted projected returns. The rate of compensation increase is based upon historical experience and management's expectation of future compensation.

Management's discount rate and rate of compensation increase assumptions at December 31, 2017 were used to calculate the Company's projected benefit obligation. Management's discount rate, expected return on plan assets and rate of compensation increase assumptions at December 31, 2016 were used to calculate the net periodic benefit income for 2017. The Company estimates that net periodic benefit cost in 2018 will include an expense of $3.1 million resulting from the amortization of the net actuarial pension loss included as a component of accumulated other comprehensive income at December 31, 2017.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

The fair values of each of the plan's assets are measured using quoted prices in active markets for identical assets, which represent Level 1 inputs within the fair value hierarchy established in FASB ASC 820-10. The following table summarizes the fair value of plan assets as of December 31, 2017 and 2016.

	December 31,	
(dollars in thousands)	**2017**	2016
Plan assets:		
Fixed maturity index funds	**$ 110,936**	$ 103,218
Equity security index funds	**95,452**	72,419
Cash and cash equivalents	**182**	7
TOTAL	**$ 206,570**	$ 175,644

The Company's target asset allocation for the plan is 47% equity securities and 53% fixed maturities. At December 31, 2017, the actual allocation of assets in the plan was 46% equity securities and 54% fixed maturities. At December 31, 2016, the actual allocation of assets in the plan was 41% equity securities and 59% fixed maturities.

Investments are managed by a third party investment manager. Equity securities are invested in an index fund where 30% is indexed to United Kingdom equities and 70% is indexed to other markets. Assets are also invested in a mutual fund with a diversified global portfolio of equities, investment grade debt, property and cash. The primary objective of investing in these funds is to earn rates of return that are consistently in excess of inflation. Investing in equity securities, historically, has provided rates of return that are higher than investments in fixed maturities. Fixed maturity investments are allocated between five mutual funds; two index funds that include United Kingdom government securities, one index fund that includes securities issued by other foreign governments, one mutual fund that includes investment grade corporate bonds from the United Kingdom and foreign markets and one index fund that includes United Kingdom corporate securities. The assets in these funds are invested to meet the Company's obligations for current pensioners and those individuals nearing retirement. The plan does not invest in the Company's common shares.

At December 31, 2017 and 2016, the fair value of plan assets exceeded the plan's accumulated benefit obligation of $195.1 million and $175.1 million, respectively. The Company expects to make plan contributions of $3.5 million in 2018.

The benefits expected to be paid in each year from 2018 to 2022 are $3.0 million, $3.1 million, $3.1 million, $3.2 million and $3.3 million, respectively. The aggregate benefits expected to be paid in the five years from 2023 to 2027 are $17.6 million. The expected benefits to be paid are based on the same assumptions used to measure the Company's projected benefit obligation at December 31, 2017.

23. Markel Corporation (Parent Company Only) Financial Information

The following parent company only condensed financial information reflects the financial position, results of operations and cash flows of Markel Corporation.

CONDENSED BALANCE SHEETS

	December 31,	
	2017	2016
	(dollars in thousands)	
ASSETS		
Investments, available-for-sale, at estimated fair value:		
Fixed maturities (amortized cost of $533,183 in 2017 and $51,181 in 2016)	**$ 532,438**	$ 52,234
Equity securities (cost of $402,694 in 2017 and $203,708 in 2016)	**646,060**	367,156
Short-term investments (estimated fair value approximates cost)	**1,159,323**	1,729,400
Total Investments	**2,337,821**	2,148,790
Cash and cash equivalents	**349,347**	369,641
Restricted cash and cash equivalents	**1,419**	1,013
Receivables	**18,684**	20,477
Investments in consolidated subsidiaries	**9,510,215**	8,107,450
Notes receivable from subsidiaries	**140,110**	60,110
Income taxes receivable	**5,704**	—
Other assets	**121,233**	97,364
TOTAL ASSETS	**$ 12,484,533**	$ 10,804,845
LIABILITIES AND SHAREHOLDERS' EQUITY		
Senior long-term debt	**$ 2,537,331**	$ 1,944,171
Notes payable to subsidiaries	**285,000**	285,000
Income taxes payable	**—**	25,240
Net deferred tax liability	**84,507**	25,902
Other liabilities	**73,547**	63,605
Total Liabilities	**2,980,385**	2,343,918
Total Shareholders' Equity	**9,504,148**	8,460,927
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	**$ 12,484,533**	$ 10,804,845

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

CONDENSED STATEMENTS OF INCOME AND COMPREHENSIVE INCOME

	Years Ended December 31,		
	2017	2016	2015
	(dollars in thousands)		
REVENUES			
Net investment income	**$ 21,076**	$ 9,561	$ 2,565
Dividends on common stock of consolidated subsidiaries	**895,920**	349,622	187,496
Net realized investment gains:			
Other-than-temporary impairment losses	**—**	(98)	(3,455)
Net realized investment gains, excluding other-than-temporary impairment losses	**3,383**	1,166	75,000
Net realized investment gains	**3,383**	1,068	71,545
TOTAL REVENUES	**920,379**	360,251	261,606
EXPENSES			
Interest expense	**122,151**	116,013	95,620
Loss on early extinguishment of debt	**—**	44,100	—
Other expenses	**11,708**	13,076	11,287
TOTAL EXPENSES	**133,859**	173,189	106,907
Income Before Equity in Undistributed Earnings of Consolidated Subsidiaries and Income Taxes	**786,520**	187,062	154,699
Equity in undistributed earnings of consolidated subsidiaries	**(469,365)**	196,615	407,489
Income tax benefit	**(78,114)**	(72,012)	(20,584)
NET INCOME TO SHAREHOLDERS	**$ 395,269**	$ 455,689	$ 582,772
OTHER COMPREHENSIVE INCOME (LOSS) TO SHAREHOLDERS			
Change in net unrealized gains on investments, net of taxes:			
Net holding gains (losses) arising during the period	**$ 52,277**	$ 37,045	$ (41,861)
Consolidated subsidiaries' net holding gains (losses) arising during the period	**735,062**	238,616	(198,309)
Consolidated subsidiaries' change in unrealized other-than-temporary impairment losses on fixed maturities arising during the period	**—**	35	160
Reclassification adjustments for net gains included in net income to shareholders	**(1,513)**	(558)	(45,273)
Consolidated subsidiaries' reclassification adjustments for net gains included in net income to shareholders	**(22,783)**	(32,970)	(35,209)
Change in net unrealized gains on investments, net of taxes	**763,043**	242,168	(320,492)
Change in foreign currency translation adjustments, net of taxes	**(2,260)**	(1,326)	2,970
Consolidated subsidiaries' change in foreign currency translation adjustments, net of taxes	**12,663**	(10,384)	(32,175)
Consolidated subsidiaries' change in net actuarial pension loss, net of taxes	**6,259**	(19,100)	(352)
Total Other Comprehensive Income (Loss) to Shareholders	**779,705**	211,358	(350,049)
COMPREHENSIVE INCOME TO SHAREHOLDERS	**$ 1,174,974**	$ 667,047	$ 232,723

CONDENSED STATEMENTS OF CASH FLOWS

	Years Ended December 31,		
	2017	2016	2015
	(dollars in thousands)		
OPERATING ACTIVITIES			
Net income to shareholders	**$ 395,269**	$ 455,689	$ 582,772
Adjustments to reconcile net income to shareholders to net cash provided by operating activities	**(166,132)**	(120,564)	(464,193)
NET CASH PROVIDED BY OPERATING ACTIVITIES	**229,137**	335,125	118,579
INVESTING ACTIVITIES			
Proceeds from sales of fixed maturities and equity securities	**20,562**	1,831	100,633
Proceeds from maturities, calls and prepayments of fixed maturities	**64,705**	11,960	24,945
Cost of fixed maturities and equity securities purchased	**(765,602)**	(29,110)	(55,656)
Net change in short-term investments	**579,261**	(970,364)	9,956
Securities received from subsidiaries as dividends, repayment of notes receivable and return of capital	**862,554**	238,975	—
Securities provided to subsidiaries for issuance of notes receivable and capital contributions	**(99,942)**	—	—
Return of capital from subsidiaries	**45,225**	21,021	—
Decrease (increase) in notes receivable due from subsidiaries	**(58)**	92,530	—
Capital contributions to subsidiaries	**(270,623)**	—	(228,578)
Acquisitions, net of cash acquired	**(1,153,683)**	—	—
Cost of equity method investments	**(10,633)**	(3,100)	(13,164)
Additions to property and equipment	**—**	(584)	(305)
Other	**6,972**	(3,207)	(376)
NET CASH USED BY INVESTING ACTIVITIES	**(721,262)**	(640,048)	(162,545)
FINANCING ACTIVITIES			
Additions to senior long-term debt	**592,923**	493,149	—
Increase in notes payable to subsidiaries	**—**	—	285,000
Repayment and retirement of senior long-term debt	**—**	(183,343)	(2,000)
Premiums and fees related to early extinguishment of debt	**—**	(43,691)	—
Repurchases of common stock	**(110,838)**	(51,142)	(31,491)
Issuance of common stock	**552**	4,623	4,752
Purchase of noncontrolling interests	**(8,970)**	—	—
Other	**(1,430)**	(4,960)	3,985
NET CASH PROVIDED BY FINANCING ACTIVITIES	**472,237**	214,636	260,246
Increase (decrease) in cash, cash equivalents, restricted cash and restricted cash equivalents	**(19,888)**	(90,287)	216,280
Cash, cash equivalents, restricted cash and restricted cash equivalents at beginning of year	**370,654**	460,941	244,661
CASH, CASH EQUIVALENTS, RESTRICTED CASH AND RESTRICTED CASH EQUIVALENTS AT END OF YEAR	**$ 350,766**	$ 370,654	$ 460,941

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (continued)

24. Quarterly Financial Information (unaudited)

The following table presents the unaudited quarterly results of consolidated operations for 2017, 2016 and 2015.

	Quarters Ended			
(dollars in thousands, except per share amounts)	Mar. 31	June 30	Sept. 30	Dec. 31
2017				
Operating revenues	**$ 1,411,751**	**$ 1,481,493**	**$ 1,506,148**	**$ 1,662,267**
Net income (loss)	**71,040**	**151,427**	**(261,035)**	**439,326**
Net income (loss) to shareholders	**69,869**	**149,660**	**(259,141)**	**434,881**
Comprehensive income (loss) to shareholders	**223,239**	**342,357**	**(19,869)**	**629,247**
Net income (loss) per share:				
Basic	**$ 3.91**	**$ 10.34**	**$ (18.82)**	**$ 30.48**
Diluted	**3.90**	**10.31**	**(18.82)**	**30.39**
Common stock price ranges:				
High	**$ 992.00**	**$ 996.38**	**$ 1,086.68**	**$ 1,157.30**
Low	**887.40**	**936.95**	**963.79**	**1,054.20**
2016				
Operating revenues	$ 1,376,182	$ 1,375,937	$ 1,431,282	$ 1,428,625
Net income	163,646	80,673	83,421	132,703
Net income to shareholders	160,370	78,797	83,796	132,726
Comprehensive income (loss) to shareholders	396,994	209,942	89,161	(29,050)
Net income per share:				
Basic	$ 11.21	$ 5.44	$ 5.62	$ 9.14
Diluted	11.15	5.41	5.60	9.11
Common stock price ranges:				
High	$ 895.03	$ 989.18	$ 961.78	$ 931.94
Low	805.03	880.01	909.84	811.05
2015				
Operating revenues	$ 1,302,154	$ 1,304,605	$ 1,342,764	$ 1,420,460
Net income	194,006	92,453	104,410	198,273
Net income to shareholders	190,992	91,369	102,519	197,892
Comprehensive income (loss) to shareholders	281,807	(132,925)	(51,143)	134,984
Net income per share:				
Basic	$ 13.57	$ 6.76	$ 7.43	$ 14.23
Diluted	13.49	6.72	7.39	14.14
Common stock price ranges:				
High	$ 783.50	$ 821.00	$ 898.08	$ 937.91
Low	660.05	736.96	775.00	791.97

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The accompanying consolidated financial statements and related notes have been prepared in accordance with U.S. generally accepted accounting principles (U.S. GAAP) and include the accounts of Markel Corporation and its subsidiaries, as well as any variable interest entities that meet the requirements for consolidation (the Company). For a discussion of our significant accounting policies, see note 1 of the notes to consolidated financial statements.

The following discussion and analysis should be read in conjunction with Selected Financial Data, the consolidated financial statements and related notes and the discussion under "Risk Factors" and "Safe Harbor and Cautionary Statement."

Our Business

We are a diverse financial holding company serving a variety of niche markets. Our principal business markets and underwrites specialty insurance products. We believe that our specialty product focus and niche market strategy enable us to develop expertise and specialized market knowledge. We seek to differentiate ourselves from competitors by our expertise, service, continuity and other value-based considerations. We also own interests in various businesses that operate outside of the specialty insurance marketplace. Our financial goals are to earn consistent underwriting and operating profits and superior investment returns to build shareholder value.

Our business is comprised of the following types of operations:

- Underwriting - our underwriting operations are comprised of our risk-bearing insurance operations, which include the run-off of underwriting operations that were discontinued in conjunction with acquisitions
- Investing - our investing activities are primarily related to our underwriting operations
- Program Services - our program services business serves as a fronting platform that provides other insurance companies access to the U.S. property and casualty insurance market
- Markel CATCo - our Markel CATCo operations include an investment fund manager that offers insurance-linked securities to investors
- Markel Ventures - our Markel Ventures operations include our controlling interests in a diverse portfolio of businesses that operate outside of the specialty insurance marketplace

Through December 31, 2017, we monitored and reported our ongoing underwriting operations in the following three segments: U.S. Insurance, International Insurance and Reinsurance. In determining how to aggregate and monitor our underwriting results, management considered many factors, including the geographic location and regulatory environment of the insurance entity underwriting the risk, the nature of the insurance product sold, the type of account written and the type of customer served.

With the continued growth and diversification of our business, beginning in 2018, we no longer consider the geographic location of the insurance entity underwriting the risk when monitoring our underwriting operations and will monitor and report our ongoing underwriting operations on a global basis in the following two segments: Insurance and Reinsurance. The Insurance segment will include all direct business and facultative placements written across the Company, which currently are reported in our U.S. Insurance and International Insurance segments. The Reinsurance segment will remain unchanged.

The U.S. Insurance segment includes all direct business and facultative reinsurance placements written by our insurance subsidiaries domiciled in the United States. The International Insurance segment includes all direct business and facultative reinsurance placements written by our insurance subsidiaries domiciled outside of the United States, including our syndicate at Lloyd's of London (Lloyd's). The Reinsurance segment includes all treaty reinsurance written across the Company. Results for lines of business discontinued prior to, or in conjunction with, acquisitions, are reported in the Other Insurance (Discontinued Lines) segment. All investing activities related to our insurance operations are included in the Investing segment.

Our U.S. Insurance segment includes both hard-to-place risks written outside of the standard market on an excess and surplus lines basis and unique and hard-to-place risks that must be written on an admitted basis due to marketing and regulatory reasons. The following products are included in this segment: general liability, professional liability, catastrophe-exposed property, personal property, workers' compensation, specialty program insurance for well-defined niche markets, and liability coverages and other coverages tailored for unique exposures. Business in this segment is written through our Specialty division and our Wholesale and Global Insurance divisions, which were combined effective January 1, 2018 to form the Markel

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

Assurance division. The Specialty division writes program insurance and other specialty coverages for well-defined niche markets, primarily on an admitted basis. The Wholesale division writes commercial risks, primarily on an excess and surplus lines basis, using a network of wholesale brokers managed on a regional basis. The Global Insurance division writes risks outside of the standard market on both an admitted and non-admitted basis. Global Insurance division business written by our U.S. insurance subsidiaries is included in this segment.

In November 2017, we completed the acquisition of State National Companies, Inc. (State National), a leading specialty provider of property and casualty insurance. The acquisition of State National adds a premier fronting platform to our insurance operations through which insurance products can be offered throughout the United States. State National also offers collateral protection insurance (CPI) to credit unions and regional banks. Results attributable to CPI business are included in the U.S. Insurance segment. Results attributable to the program services (fronting) operations are reported within our other operations, which are not included in a reportable segment.

In April 2017, we completed the acquisition of SureTec Financial Corp. (SureTec), a Texas-based privately held surety company primarily offering contract, commercial and court bonds. Results attributable to SureTec are included in the U.S. Insurance segment.

Our International Insurance segment writes risks that are characterized by either the unique nature of the exposure or the high limits of insurance coverage required by the insured. Risks written in the International Insurance segment are written on either a direct basis or a subscription basis, the latter of which means that loss exposures brought into the market are typically insured by more than one insurance company or Lloyd's syndicate. When we write business in the subscription market, we prefer to participate as lead underwriter in order to control underwriting terms, policy conditions and claims handling. Products offered within our International Insurance segment include primary and excess of loss property, excess liability, professional liability, marine and energy and liability coverages and other coverages tailored for unique exposures. Business included in this segment is produced through our Markel International and Global Insurance divisions. The Markel International division writes business worldwide from our London-based platform, which includes our syndicate at Lloyd's. Global Insurance division business written by our non-U.S. insurance subsidiaries, which primarily targets Fortune 1000 accounts, is included in this segment.

Our Reinsurance segment includes property, casualty and specialty treaty reinsurance products offered to other insurance and reinsurance companies globally through the broker market. Our treaty reinsurance offerings include both quota share and excess of loss reinsurance and are typically written on a participation basis, which means each reinsurer shares proportionally in the business ceded under the reinsurance treaty written. Principal lines of business include: property (including catastrophe-exposed property), professional liability, general casualty, credit, surety, auto and workers' compensation. Our reinsurance product offerings are underwritten by our Global Reinsurance division and our Markel International division.

For purposes of segment reporting, the Other Insurance (Discontinued Lines) segment includes lines of business that have been discontinued prior to, or in conjunction with, acquisitions. The lines were discontinued because we believed some aspect of the product, such as risk profile or competitive environment, would not allow us to earn consistent underwriting profits. The Other Insurance (Discontinued Lines) segment also includes development on asbestos and environmental (A&E) loss reserves and the results attributable to the run-off of our life and annuity reinsurance business.

In December 2015, we completed the acquisition of substantially all of the assets of CATCo Investment Management Ltd. (CATCo IM) and CATCo-Re Ltd. CATCo IM was an insurance-linked securities investment fund manager and reinsurance manager headquartered in Bermuda focused on building and managing highly diversified, collateralized retrocession and reinsurance portfolios covering global property catastrophe risks. Following the acquisition, we are operating this business through Markel CATCo Investment Management Ltd. (MCIM). MCIM receives management fees for its investment management and insurance management services, as well as performance fees based on the annual performance of the investment funds that it manages. Results attributable to MCIM are included with our other operations, which are not included in a reportable segment. As of December 31, 2017, MCIM's total investment and insurance assets under management were $6.2 billion, which includes $6.0 billion for unconsolidated variable interest entities.

Through our wholly owned subsidiary Markel Ventures, Inc. (Markel Ventures), we own interests in various businesses that operate outside of the specialty insurance marketplace. These businesses are viewed by management as separate and distinct from our insurance operations and are comprised of a diverse portfolio of businesses from various industries. Local management teams oversee the day-to-day operations of these companies, while strategic decisions are made in conjunction with members of our executive management team. While each of these businesses is operated independently, we aggregate their financial results into two industry groups: manufacturing and non-manufacturing. Our manufacturing operations are comprised of manufacturers of transportation and other industrial equipment. Our non-manufacturing operations are comprised of businesses from several industry groups, including consumer goods and services (including healthcare) and business services. Our strategy in making these investments is similar to our strategy for purchasing equity securities. We seek to invest in profitable companies, with honest and talented management, that exhibit reinvestment opportunities and capital discipline, at reasonable prices. We intend to own the businesses acquired for a long period of time.

In August 2017, we acquired 81% of Costa Farms, a Florida-based privately held grower of house and garden plants. Results attributable to Costa Farms are included with our Markel Ventures operations, which are not included in a reportable segment.

In December 2015, we acquired 80% of the outstanding shares of CapTech Ventures, Inc. (CapTech), a privately held company headquartered in Richmond, Virginia. CapTech is a management and IT consulting firm, providing services and solutions to a wide array of customers. Results attributable to CapTech are included with our Markel Ventures operations, which are not included in a reportable segment.

We historically monitored and assessed the performance of each of our Markel Ventures businesses separately with no single business being individually significant to the operations of the Company as a whole. Following the continued growth in our Markel Ventures operations and its aggregate significance to our financial results, beginning in 2018, we will monitor and report our Markel Ventures operations as a single operating segment, consistent with the way our chief operating decision maker now reviews and assesses Markel Ventures' performance.

For further discussion of our lines of business, principal products offered, distribution channels, competition, underwriting philosophy and our Markel Ventures operations, see the discussion under Business Overview.

Critical Accounting Estimates

Critical accounting estimates are those estimates that both are important to the portrayal of our financial condition and results of operations and require us to exercise significant judgment. The preparation of financial statements in accordance with U.S. GAAP requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses and the disclosure of material contingent assets and liabilities, including litigation contingencies. These estimates, by necessity, are based on assumptions about numerous factors.

We review the following critical accounting estimates and assumptions quarterly: evaluating the adequacy of reserves for unpaid losses and loss adjustment expenses, life and annuity reinsurance benefit reserves, the reinsurance allowance for doubtful accounts and income tax liabilities, as well as analyzing the recoverability of deferred tax assets, estimating reinsurance premiums written and earned and evaluating the investment portfolio for other-than-temporary declines in estimated fair value. Critical accounting estimates and assumptions for goodwill and intangible assets are reviewed in conjunction with an acquisition and goodwill and indefinite-lived intangible assets are reassessed at least annually for impairment. Actual results may differ materially from the estimates and assumptions used in preparing the consolidated financial statements.

Unpaid Losses and Loss Adjustment Expenses

Our consolidated balance sheet included estimated unpaid losses and loss adjustment expenses of $13.6 billion and reinsurance recoverable on unpaid losses of $4.6 billion at December 31, 2017 compared to $10.1 billion and $2.0 billion, respectively, at December 31, 2016. Included in the December 31, 2017 balances for both unpaid losses and loss adjustment expenses and reinsurance recoverable on unpaid losses were $2.2 billion attributable to our program services business.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

We accrue liabilities for unpaid losses and loss adjustment expenses based upon estimates of the ultimate amounts payable. We maintain reserves for specific claims incurred and reported (case reserves) and reserves for claims incurred but not reported (IBNR reserves).

Reported claims are in various stages of the settlement process, and the corresponding reserves for reported claims are based upon all information available to us. Case reserves consider our estimate of the ultimate cost to settle the claims, including investigation and defense of lawsuits resulting from the claims, and may be subject to adjustment for differences between costs originally estimated and costs subsequently re-estimated or incurred. Claims are settled based upon their merits, and some claims may take years to settle, especially if legal action is involved.

As of any balance sheet date, all claims have not yet been reported, and some claims may not be reported for many years. As a result, the liability for unpaid losses and loss adjustment expenses includes significant estimates for incurred but not reported claims.

There is normally a time lag between when a loss event occurs and when it is actually reported to us. The actuarial methods that we use to estimate losses have been designed to address the lag in loss reporting as well as the delay in obtaining information that would allow us to more accurately estimate future payments. There is also often a time lag between cedents establishing case reserves and re-estimating their reserves, and notifying us of the new or revised case reserves. As a result, the reporting lag is more pronounced in our reinsurance contracts than in our insurance contracts due to the reliance on ceding companies to report their claims to us. On reinsurance transactions, the reporting lag will generally be 60 to 90 days after the end of a reporting period, but can be longer in some cases. Based on the experience of our actuaries and management, we select loss development factors and trending techniques to mitigate the difficulties caused by reporting lags. At least annually, we evaluate and update our loss development and trending factor selections using cedent specific and industry data.

U.S. GAAP requires that IBNR reserves be based on the estimated ultimate cost of settling claims, including the effects of inflation and other social and economic factors, using past experience adjusted for current trends and any other factors that would modify past experience. IBNR reserves are generally calculated by subtracting paid losses and case reserves from estimated ultimate losses. IBNR reserves were 64% of total unpaid losses and loss adjustment expenses at December 31, 2017 compared to 67% at December 31, 2016.

Each quarter, our actuaries prepare estimates of the ultimate liability for unpaid losses and loss adjustment expenses based on established actuarial methods. Management reviews these estimates, supplements the actuarial analyses with information provided by claims, underwriting and other operational personnel and determines its best estimate of loss reserves, which is recorded in our consolidated financial statements. Our procedures for determining the adequacy of loss reserves at the end of the year are substantially similar to the procedures applied at the end of each interim period.

Any adjustments to reserves resulting from our interim or year-end reviews, including changes in estimates, are recorded as a component of losses and loss adjustment expenses in the period of the change. Reserve changes that increase previous estimates of ultimate claims cost are referred to as unfavorable or adverse development, or reserve strengthening. Reserve changes that decrease previous estimates of ultimate claims cost are referred to as favorable development.

Program Services

For our program services business, case reserves are generally established based on reports received from the general agents or reinsurers with whom we do business. Our actuaries review the loss reserve data received for sufficiency, consistency with historical data and for consistency with other programs we write that have similar characteristics. If the data is not credible, or where no data is available, the loss reserves are calculated using our experience or industry experience for similar products or lines of business. All of the premium written in our program services business is ceded and net reserves for unpaid losses and loss adjustment expenses as of December 31, 2017 were $2.4 million.

Underwriting

For our insurance operations, we are generally notified of insured losses by our insureds or their brokers. Based on this information, we establish case reserves by estimating the expected ultimate losses from the claim (including any administrative

costs associated with settling the claim). Our claims personnel use their knowledge of the specific claim along with internal and external experts, including underwriters, actuaries and legal counsel, to estimate the expected ultimate losses.

For our reinsurance operations, case reserves are generally established based on reports received from ceding companies or their brokers. For excess of loss contracts, we are typically notified of insurance losses on specific contracts and record a case reserve for the estimated expected ultimate losses from the claim. For quota share contracts, we typically receive aggregated claims information and record a case reserve based on that information. As with insurance business, we evaluate this information and estimate the expected ultimate losses.

Our liabilities for unpaid losses and loss adjustment expenses can generally be categorized into two distinct groups, short-tail business and long-tail business. Short-tail business refers to lines of business, such as property, accident and health, automobile, watercraft and marine hull exposures, for which losses are usually known and paid shortly after the loss actually occurs. Long-tail business describes lines of business for which specific losses may not be known and reported for some period and losses take much longer to emerge. Given the time frame over which long-tail exposures are ultimately settled, there is greater uncertainty and volatility in these lines than in short-tail lines of business. Our long-tail coverages consist of most casualty lines, including professional liability, directors' and officers' liability, products liability, general and excess liability and excess and umbrella exposures, as well as workers' compensation insurance. Some factors that contribute to the uncertainty and volatility of long-tail casualty programs, and thus require a significant degree of judgment in the reserving process, include the inherent uncertainty as to the length of reporting and payment development patterns, the possibility of judicial interpretations or legislative changes, including changes in workers' compensation benefit laws, that might impact future loss experience relative to prior loss experience and the potential lack of comparability of the underlying data used in performing loss reserve analyses. For example, we have exposure to auto casualty claims in the United Kingdom (U.K.) through reinsurance contracts written on the 2014 and prior years of account. In the United Kingdom, the calculation of these outstanding claims is informed by the discount rate used in determining lump sum awards in personal injury cases referenced in the Ogden tables. Effective March 20, 2017, the Ogden Rate decreased from plus 2.5% to minus 0.75%, which represents the first rate change since 2001. The reduction in the Ogden Rate increased the expected claims payments on these exposures, and we increased loss reserves accordingly.

Our ultimate liability may be greater or less than current reserves. Changes in our estimated ultimate liability for loss reserves generally occur as a result of the emergence of unanticipated loss activity, the completion of specific actuarial or claims studies or changes in internal or external factors. We closely monitor new information on reported claims and use statistical analyses prepared by our actuaries to evaluate the adequacy of our recorded reserves. We are required to exercise considerable judgment when assessing the relative credibility of loss development trends. Our philosophy is to establish loss reserves that are more likely redundant than deficient. This means that we seek to establish loss reserves that will ultimately prove to be adequate. As a result, if new information or trends indicate an increase in frequency or severity of claims in excess of what we initially anticipated, we generally respond quickly and increase loss reserves. If, however, frequency or severity trends are more favorable than initially anticipated, we often wait to reduce our loss reserves until we can evaluate experience in additional periods to confirm the credibility of the trend. In addition, for long-tail lines of business, trends develop over longer periods of time, and as a result, we give credibility to these trends more slowly than for short-tail or less volatile lines of business. As part of our acquisition of underwriting operations, to the extent the reserving philosophy of the acquired business is less conservative than our reserving philosophy, the post-acquisition loss reserves will be strengthened until total loss reserves are consistent with our target level of confidence.

In establishing our liabilities for unpaid losses and loss adjustment expenses, our actuaries estimate an ultimate loss ratio, by accident year or policy year, for each of our product lines with input from our underwriting and claims associates. For product lines in which loss reserves are established on a policy year basis, we have developed a methodology to convert from policy year to accident year for financial reporting purposes. In estimating an ultimate loss ratio for a particular line of business, our actuaries may use one or more actuarial reserving methods and select from these a single point estimate. To varying degrees, these methods include detailed statistical analysis of past claim reporting, settlement activity, claim frequency and severity, policyholder loss experience, industry loss experience and changes in market conditions, policy forms and exposures. The actuarial methods we use include:

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

Initial Expected Loss Ratio Method – This method multiplies earned premiums by an expected loss ratio. The expected loss ratio is selected utilizing industry data, our historical data, frequency-severity and rate level forecasts and professional judgment.

Paid Loss Development – This method uses historical loss payment patterns to estimate future loss payment patterns. Our actuaries use the historical loss patterns to develop factors that are applied to current paid loss amounts to calculate expected ultimate losses.

Incurred Loss Development – This method uses historical loss reporting patterns to estimate future loss reporting patterns. Our actuaries use the historical loss patterns to develop factors that are applied to current reported losses to calculate expected ultimate losses.

Bornhuetter-Ferguson Paid Loss Development – This method divides the projection of ultimate losses into the portion that has already been paid and the portion that has yet to be paid. The portion that has yet to be paid is estimated as the product of three amounts: the premium earned for the exposure period, the expected loss ratio and the percentage of ultimate losses that are still unpaid. The expected loss ratio is selected by considering historical loss ratios, adjusted for any known changes in pricing, loss trends, adequacy of case reserves, changes in administrative practices and other relevant factors.

Bornhuetter-Ferguson Incurred Loss Development – This method is identical to the Bornhuetter-Ferguson paid loss development method, except that it uses the percentage of ultimate losses that are still unreported, instead of the percentage of ultimate losses that are still unpaid.

Frequency/Severity – Under this method, expected ultimate losses are equal to the product of the expected ultimate number of claims and the expected ultimate average cost per claim. Our actuaries use historical reporting patterns and severity patterns to develop factors that are applied to the current reported amounts to calculate expected ultimate losses.

Outstanding to IBNR Ratio Method – Under this method, IBNR is based on a detailed review of remaining open claims. This method assumes that the estimated future loss development is indicated by the current level of case reserves.

Each actuarial method has its own set of assumptions and its own strengths and limitations, with no one method being better than the others in all situations. Our actuaries select the reserving methods that they believe will produce the most reliable estimate for the class of business being evaluated. Greater judgment may be required when we introduce new product lines or when there have been changes in claims handling practices, as the statistical data available may be insufficient. In these instances, we may rely upon assumptions applied to similar lines of business, rely more heavily on industry experience, take into account changes in underwriting guidelines and risk selection or review the impact of changes in claims reserving practices with claims personnel.

For example, in January 2013, we acquired Essentia Insurance Company, a company that underwrites insurance exclusively for Hagerty Insurance Agency and Hagerty Classic Marine Insurance Agency (collectively, Hagerty). Hagerty offers liability and physical damage insurance for classic cars, vintage boats, motorcycles and related automotive collectibles. Because Markel had limited exposure to such risks in the past, we supplemented our limited data and loss experience with third-party data. Working with Hagerty, we were able to obtain loss development triangles for the business Hagerty had underwritten with their previous carriers. Markel now aggregates that data with our own data for use in the pricing of and reserving for the Hagerty portfolio of business.

A key assumption in most actuarial analyses is that past development patterns will repeat themselves in the future, absent a significant change in internal or external factors that influence the ultimate cost of our unpaid losses and loss adjustment expenses. Our estimates reflect implicit and explicit assumptions regarding the potential effects of external factors, including economic and social inflation, judicial decisions, changes in law, general economic conditions and recent trends in these factors. Our actuarial analyses are based on statistical analysis but also consist of reviewing internal factors that are difficult to analyze statistically, including underwriting and claims handling changes. In some of our markets, and where we act as a reinsurer, the timing and amount of information reported about underlying claims are in the control of third parties. This can also affect estimates and require re-estimation as new information becomes available.

As indicated above, we may use one or more actuarial reserving methods, which incorporate numerous underlying judgments and assumptions, to establish our estimate of ultimate loss reserves. While we use our best judgment in establishing our estimate for loss reserves, applying different assumptions and variables could lead to significantly different loss reserve estimates.

Loss frequency and loss severity are two key measures of loss activity that often result in adjustments to actuarial assumptions relative to ultimate loss reserve estimates. Loss frequency measures the number of claims per unit of insured exposure. When the number of newly reported claims is higher than anticipated, generally speaking, loss reserves are increased. Conversely, loss reserves are generally decreased when fewer claims are reported than expected. Loss severity measures the average size of a claim. When the average severity of reported claims is higher than originally estimated, loss reserves are typically increased. When the average claim size is lower than anticipated, loss reserves are typically decreased. For example, in each of the past three years, we experienced favorable development on prior years' loss reserves in our brokerage products liability product line as a result of decreases in loss severity. During 2016, we experienced unfavorable development on prior years' loss reserves related to our specified medical and medical malpractice product lines as a result of increases in loss frequency.

Changes in prior years' loss reserves, including the trends and factors that impacted loss reserve development, as well as the likelihood that such trends and factors could result in future loss reserve development, are discussed in further detail under "Results of Operations."

Loss reserves are established at management's best estimate, which is generally higher than the corresponding actuarially calculated point estimate. The actuarial point estimate represents our actuaries' estimate of the most likely amount that will ultimately be paid to settle the loss reserves we have recorded at a particular point in time; however, there is inherent uncertainty in the point estimate as it is the expected value in a range of possible reserve estimates. In some cases, actuarial analyses, which are based on statistical analysis, cannot fully incorporate all of the subjective factors that affect development of losses. In other cases, management's perspective of these more subjective factors may differ from the actuarial perspective. Subjective factors where management's perspective may differ from that of the actuaries include: the credibility and timeliness of claims information received from third parties, economic and social inflation, judicial decisions, changes in law, changes in underwriting or claims handling practices, general economic conditions, the risk of moral hazard and other current and developing trends within the insurance and reinsurance markets, including the effects of competition. As a result, the actuarially calculated point estimates for each of our lines of business represent starting points for management's quarterly review of loss reserves.

In management's opinion, the actuarially calculated point estimate generally underestimates both the ultimate favorable impact of a hard insurance market and the ultimate adverse impact of a soft insurance market. Therefore, the percentage by which management's best estimate exceeds the actuarial point estimate will generally be higher during a soft market than during a hard market. Additionally, following an acquisition of insurance operations, to the extent the reserving philosophy of the acquired business is less conservative than our reserving philosophy, the percentage by which management's best estimate exceeds the actuarial point estimate will generally be lower until we build total loss reserves that are consistent with our historic level of confidence. Management's best estimate of net reserves for unpaid losses and loss adjustment expenses exceeded the actuarially calculated point estimate by $576.9 million, or 6.9%, at December 31, 2017, compared to $537.4 million, or 7.2%, at December 31, 2016.

The difference between management's best estimate and the actuarially calculated point estimate in both 2017 and 2016 is primarily associated with our long-tail business. Actuarial estimates can underestimate the adverse effects of a soft insurance market because the impact of changes in risk selection and terms and conditions can be difficult to quantify. In addition, the frequency of claims may increase in a recessionary environment. Similarly, the risk an insured will intentionally cause or be indifferent to loss may increase during an economic downturn, and the attention to loss prevention measures may decrease. These subjective factors affect the development of losses and represent instances where management's perspectives may differ from those of our actuaries. As a result, management has attributed less credibility than our actuaries to favorable trends experienced on our long-tail business during soft market periods and has not incorporated these favorable trends into its best estimate to the same extent as the actuaries.

See note 9 of the notes to consolidated financial statements for further details regarding the historical development of reserves for losses and loss adjustment expenses and changes in methodologies and assumptions used to calculate reserves for unpaid losses and loss adjustment expenses.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

Management also considers the range, or variability, of reasonably possible losses determined by our actuaries when establishing its best estimate for loss reserves. The actuarial ranges represent our actuaries' estimate of a likely lowest amount and likely highest amount that will ultimately be paid to settle the loss reserves we have recorded at a particular point in time. The range determinations are based on estimates and actuarial judgments and are intended to encompass reasonably likely changes in one or more of the factors that were used to determine the point estimates. Using statistical models, our actuaries establish high and low ends of a range of reasonable reserve estimates for each of our operating segments.

The following table summarizes our reserves for net unpaid losses and loss adjustment expenses and the actuarially established high and low ends of a range of reasonable reserve estimates at December 31, 2017. As described in note 9 of the notes to consolidated financial statements, unpaid losses and loss adjustment expenses attributable to acquisitions are recorded at fair value as of the acquisition date, which generally consists of the present value of the expected net loss and loss adjustment expense payments plus a risk premium. The net loss reserves presented in this table represent our estimated future payments for losses and loss adjustment expenses, whereas the reserves for unpaid losses and loss adjustment expenses included in the consolidated balance sheet include the unamortized portion of fair value adjustments recorded in conjunction with an acquisition.

(dollars in millions)	Net Loss Reserves Held	Low End of Actuarial Range[1]	High End of Actuarial Range[1]
U.S. Insurance	**$ 3,500.1**	**$ 3,033.5**	**$ 3,786.3**
International Insurance	**2,261.7**	**1,805.8**	**2,520.5**
Reinsurance	**2,886.1**	**2,087.3**	**3,240.7**
Other Insurance (Discontinued Lines)	**263.0**	**208.1**	**426.8**

[1] Due to the actuarial methods used to determine the separate ranges for each segment of our business, it is not appropriate to aggregate the high or low ends of the separate ranges to determine the high and low ends of the actuarial range on a consolidated basis.

Undue reliance should not be placed on these ranges of estimates as they are only one of many points of reference used by management to determine its best estimate of ultimate losses. Further, actuarial ranges may not be a true reflection of the potential variability between loss reserves estimated at the balance sheet date and the ultimate cost of settling claims. Actuarial ranges are developed based on known events as of the valuation date, while ultimate losses are subject to events and circumstances that are unknown as of the valuation date.

We place less reliance on the range established for our Other Insurance (Discontinued Lines) segment than on the ranges established for our other operating segments. The range established for our Other Insurance (Discontinued Lines) segment includes exposures related to acquired lines of business, many of which are no longer being written, that were not subject to our underwriting discipline and controls prior to our acquisition. Additionally, A&E exposures, which are subject to an uncertain and unfavorable legal environment, account for 40% of the net loss reserves considered in the range established for our Other Insurance (Discontinued Lines) segment.

Our exposure to A&E claims results from policies written by acquired insurance operations before their acquisitions. The exposure to A&E claims originated from umbrella, excess and commercial general liability (CGL) insurance policies and assumed reinsurance contracts that were written on an occurrence basis from the 1970s to mid-1980s. Exposure also originated from claims-made policies that were designed to cover environmental risks provided that all other terms and conditions of the policy were met. A&E claims include property damage and clean-up costs related to pollution, as well as personal injury allegedly arising from exposure to hazardous materials. After 1986, we began underwriting CGL coverage with pollution exclusions, and in some lines of business we began using a claims-made form. These changes significantly reduced our exposure to future A&E claims on post-1986 business.

There is significant judgment required in estimating the amount of our potential exposure from A&E claims due to the limited and variable historical data on A&E losses as compared to other types of claims, the potential significant reporting delays of claims from insureds to insurance companies and the continuing evolution of laws and judicial interpretations of those laws relative to A&E exposures. Due to these unique aspects of A&E exposures, the ultimate value of loss reserves for A&E claims cannot be estimated using traditional methods and is subject to greater uncertainty than other types of claims. Other factors

contributing to the significant uncertainty in estimating A&E reserves include: uncertainty as to the number and identity of insureds with potential exposure; uncertainty as to the number of claims filed by exposed, but not ill, individuals; uncertainty as to the settlement values to be paid; difficulty in properly allocating responsibility and liability for the loss, especially if the claim involves multiple insurance providers or multiple policy periods; growth in the number and significance of bankruptcies of asbestos defendants; uncertainty as to the financial status of companies that insured or reinsured all or part of A&E claims; and inconsistent court decisions and interpretations with respect to underlying policy intent and coverage.

Due to these uncertainties, it is not possible to estimate our ultimate liability for A&E exposures with the same degree of reliability as with other types of exposures. Future development will be affected by the factors mentioned above and could have a material effect on our results of operations, cash flows and financial position. As of December 31, 2017 and 2016, our consolidated balance sheets included estimated net reserves for A&E losses and loss adjustment expenses of $104.7 million and $111.6 million, respectively.

In March 2015, we completed a retroactive reinsurance transaction to cede a portfolio of policies primarily comprised of liabilities arising from A&E exposures that originated before 1992 to a third party. Effective March 31, 2017, the related reserves, which totaled $69.1 million, were formally transferred to the third party by way of a Part VII transfer pursuant to the Financial Services and Markets Act 2000 of the United Kingdom. The Part VII transfer eliminates the uncertainty regarding the potential for adverse development of estimated ultimate liabilities on the underlying policies. In October 2015, we completed a second retroactive reinsurance transaction to cede a portfolio of policies primarily comprised of liabilities arising from A&E exposures that originated before 1987. The transaction provides up to $300 million of coverage for losses in excess of a $97.0 million retention on the ceded policies and 50% coverage on an additional $100 million of losses. After considering our retention on the ceded policies, ceded reserves for unpaid losses and loss adjustment expenses totaled $76.4 million. As of December 31, 2017, our total reinsurance recoverable on unpaid losses for A&E exposures was 62% of our gross reserves for A&E exposures.

We seek to establish appropriate reserve levels for A&E exposures, including A&E exposures ceded to third parties under retroactive reinsurance transactions; however, these reserves could increase in the future. Any future adverse development on reserves subject to retroactive reinsurance contracts will result in increases in our gross reserves for unpaid losses and loss adjustment expenses for A&E exposures and will be recognized in net income in the current period. Any corresponding benefit for ceded losses, however, will be deferred and recognized as claims are settled. These reserves are not discounted to present value and are forecasted to pay out over the next 40 to 50 years as claims are settled.

Life and Annuity Benefits

We previously acquired a block of life and annuity reinsurance contracts which subject us to mortality, longevity and morbidity risks. The related reserves are compiled by our actuaries on a reinsurance contract-by-contract basis and are computed on a discounted basis using standard actuarial techniques and cash flow models. Since the development of our life and annuity reinsurance reserves is based upon cash flow projection models, we must make estimates and assumptions based on cedent experience, industry mortality tables, and expense and investment experience, including a provision for adverse deviation. The assumptions used to determine policy benefit reserves are generally locked-in for the life of the contract unless an unlocking event occurs. To the extent existing policy reserves, together with the present value of future gross premiums and expected investment income earned thereon, are not adequate to cover the present value of future benefits, settlement and maintenance costs, the locked-in assumptions are revised to current best estimate assumptions and a charge to earnings for life and annuity benefits is recognized at that time. Our consolidated balance sheets at December 31, 2017 and 2016 included reserves for life and annuity benefits of $1.1 billion and $1.0 billion, respectively.

Because of the assumptions and estimates used in establishing reserves for life and annuity benefit obligations and the long-term nature of these reinsurance contracts, the ultimate liability may be greater or less than the estimates. The average discount rate for the life and annuity benefit reserves was 2.3% as of December 31, 2017.

Reinsurance Premiums

Our assumed reinsurance premiums are recorded at the inception of each contract based upon contract terms and information received from cedents and brokers. For excess of loss contracts, the amount of minimum or deposit premium is usually contractually documented at inception, and variances between this premium and final premium are generally small. An

adjustment is made to the minimum or deposit premium, when notified, if there are changes in underlying exposures insured. For quota share contracts, gross premiums written are normally estimated at inception based on information provided by cedents or brokers. We generally record such premiums using the cedent's initial estimates, and then adjust them as more current information becomes available, with such adjustments recorded as premiums written in the period they are determined. We believe that the cedent's estimate of the volume of business they expect to cede to us usually represents the best estimate of gross premium written at the beginning of the contract. As the contract progresses, we monitor actual premium received in conjunction with correspondence from the cedent in order to refine our estimate. Variances from original premium estimates are normally greater for quota share contracts than excess of loss contracts. Premiums are earned on a pro rata basis over the coverage period, or for multi-year contracts, in proportion with the underlying risk exposure to the extent there is variability in the exposure throughout the coverage period. The impact of premium adjustments to net income may be mitigated by related acquisition costs and losses.

Certain contracts we write, particularly property catastrophe reinsurance contracts, provide for reinstatements of coverage. Reinstatement premiums are the premiums for the restoration of the reinsurance limit of a contract to its full amount after a loss occurrence by the reinsured. The purpose of optional and required reinstatements is to permit the reinsured to reinstate the reinsurance coverage at a pre-determined price level once a loss event has penetrated the reinsurance layer. In addition, required reinstatement premiums permit the reinsurer to obtain additional premiums to cover the additional loss limits provided.

We accrue for reinstatement premiums resulting from losses recorded. Such accruals are based upon contractual terms and the only element of management judgment involved is with respect to the amount of losses recorded. Changes in estimates of losses recorded on contracts with reinstatement premium features will result in changes in reinstatement premiums based on contractual terms. Reinstatement premiums are recognized at the time we record losses and are earned on a pro rata basis over the coverage period.

Ceded Reinsurance Allowance for Doubtful Accounts

We evaluate and adjust reserves for uncollectible ceded reinsurance based upon our collection experience, the financial condition of our reinsurers, collateral held and the development of our gross loss reserves. Our consolidated balance sheets at December 31, 2017 and 2016 included a reinsurance allowance for doubtful accounts of $34.0 million and $36.8 million, respectively, all of which is attributable to our underwriting operations. Based on the significant amounts of collateral held on our program services business and historical collection experience, we have not recorded a reinsurance allowance for doubtful accounts on this business.

Reinsurance recoverables recorded on insurance losses ceded under reinsurance contracts are subject to judgments and uncertainties similar to those involved in estimating gross loss reserves. In addition to these uncertainties, our reinsurance recoverables may prove uncollectible if the reinsurers are unable or unwilling to perform under the reinsurance contracts. In establishing our reinsurance allowance for amounts deemed uncollectible, we evaluate the financial condition of our reinsurers and monitor concentration of credit risk arising from our exposure to individual reinsurers. To determine if an allowance is necessary, we consider, among other factors, published financial information, reports from rating agencies, payment history, collateral held and our legal right to offset balances recoverable against balances we may owe. Our ceded reinsurance allowance for doubtful accounts is subject to uncertainty and volatility due to the time lag involved in collecting amounts recoverable from reinsurers. Over the period of time that losses occur, reinsurers are billed and amounts are ultimately collected, economic conditions, as well as the operational and financial performance of particular reinsurers, may change and these changes may affect the reinsurers' willingness and ability to meet their contractual obligation to us. It is also difficult to fully evaluate the impact of major catastrophic events on the financial stability of reinsurers, as well as the access to capital that reinsurers may have when such events occur. The ceding of insurance does not legally discharge us from our primary liability for the full amount of the policies, and we will be required to pay the loss and bear collection risk if the reinsurers fail to meet their obligations under the reinsurance contracts.

Income Taxes and Uncertain Tax Positions

The preparation of our consolidated income tax provision, including the evaluation of tax positions we have taken or expect to take on our income tax returns, requires significant judgment. In evaluating our tax positions, we recognize the tax benefit from

an uncertain tax position only if, based on the technical merits of the position, it is more likely than not that the tax position will be sustained upon examination by the taxing authorities. Tax positions that meet the more likely than not threshold are then measured using a probability weighted approach, whereby the largest amount of tax benefit that is greater than 50% likely of being realized upon ultimate settlement is recognized. At December 31, 2017, we did not have any material unrecognized tax benefits. The tax positions that we have taken or expect to take are based upon the application of tax laws and regulations, which are subject to interpretation, judgment and uncertainty. As a result, our actual liability for income taxes may differ significantly from our estimates.

We record deferred income taxes as assets or liabilities on our consolidated balance sheets to reflect the net tax effect of the temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in years in which those temporary differences are expected to be recovered or settled. At December 31, 2017 and 2016, our net deferred tax liability was $505.6 million and $330.5 million, respectively. The increase in our net deferred tax liability in 2017 was primarily driven by the increase in net unrealized gains on investments in 2017 and an increase in intangible assets attributable to acquisitions, partially offset by the remeasurement of our net deferred tax liability at the lower enacted U.S. corporate tax rate following the enactment of the Tax Cuts and Jobs Act (TCJA) in December 2017. See further discussion of the impact of the TCJA in note 8 of the notes consolidated financial statements.

Deferred tax assets are reduced by a valuation allowance when management believes it is more likely than not that some, or all, of the deferred tax assets will not be realized. As of December 31, 2017 and 2016, our deferred tax assets were net of a valuation allowance of $25.2 million and $18.8 million, respectively. In evaluating our ability to realize our deferred tax assets and assessing the need for a valuation allowance at December 31, 2017 and 2016, we made estimates regarding the future taxable income of our subsidiaries and judgments about our ability to pursue prudent and feasible tax planning strategies. A change in any of these estimates and judgments could result in the need to increase our valuation allowance through a charge to earnings. See note 8 of the notes to consolidated financial statements for further discussion of our consolidated income tax provision, uncertain tax positions and net operating losses.

Goodwill and Intangible Assets

Our consolidated balance sheet as of December 31, 2017 included goodwill and intangible assets of $3.1 billion. Goodwill and intangible assets are recorded as a result of business acquisitions. Goodwill represents the excess of the amount paid to acquire a business over the net fair value of assets acquired and liabilities assumed at the date of acquisition. Indefinite-lived and other intangible assets are recorded at fair value as of the acquisition date. The determination of the fair value of certain assets acquired and liabilities assumed involves significant judgment and the use of valuation models and other estimates, which require assumptions that are inherently subjective. Goodwill and indefinite-lived intangible assets are tested for impairment at least annually. Intangible assets with definite lives are reviewed for impairment when events or circumstances indicate that their carrying value may not be recoverable. We completed our annual test for impairment during the fourth quarter of 2017 based upon results of operations through September 30, 2017.

For some reporting units, we assessed qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. This assessment serves as a basis for determining whether it is necessary to perform the quantitative goodwill impairment test. For other reporting units, we elected to perform the quantitative goodwill impairment test, which includes determining whether the carrying amount of a reporting unit, including goodwill, exceeds its estimated fair value. If the carrying amount of the reporting unit exceeds the fair value, the excess of the recorded amount of goodwill over the fair value is charged to net income as an impairment loss. The impairment loss is limited to the amount of goodwill allocated to that reporting unit.

A significant amount of judgment is required in performing goodwill impairment tests. When using the qualitative approach, we considered macroeconomic factors such as industry and market conditions. We also considered reporting unit-specific events, actual financial performance versus expectations and management's future business expectations. As part of our qualitative evaluation of certain reporting units with material goodwill, we considered the fact that some of the businesses had been recently acquired in orderly transactions between market participants, and our purchase price represented fair value at

acquisition. There were no events since acquisition which had a significant impact on the fair value of these reporting units. For reporting units which we tested quantitatively, we estimated fair value primarily using an income approach based on a discounted cash flow model. The cash flow projections used in the discounted cash flow model included management's best estimate of future growth and margins. The discount rates used to determine the fair value estimates were developed based on the capital asset pricing model using market-based inputs as well as an assessment of the inherent risk in projected future cash flows.

We believe the fair value of each of our reporting units exceeded its respective carrying amount as of October 1, 2017 and December 31, 2017.

During the fourth quarter of 2016, we recorded a goodwill impairment charge of $18.7 million to other expenses for one of our Markel Ventures industrial manufacturing reporting units, to reduce the carrying value of its goodwill to its implied fair value. Unfavorable market conditions, specifically declining oil prices from late 2014 through 2016, resulted in lower than expected earnings over a similar time period. The reporting unit's earnings are generally tied to infrastructure spending across global markets, a significant portion of which are influenced by the price of oil. To determine the value of the impairment loss, we estimated the fair value of the reporting unit primarily using an income approach based on a discounted cash flow model that incorporates management's best estimate of future growth and margins. While these cash flow projections yield positive cash flows and earnings in the long-term, they were insufficient to support the current carrying value of the reporting unit due to the unfavorable impact of current market conditions and recent trends on our shorter-term projections. After recording this charge in 2016, the reporting unit's goodwill was reduced to zero.

During the fourth quarter of 2015, we recorded a goodwill impairment charge of $14.9 million to other expenses, for one of our Markel Ventures healthcare reporting units, to reduce the carrying value of its goodwill to its implied fair value. The reporting unit's operations consist of the planning, development and operation of behavioral health services in partnership with healthcare organizations. In 2015, we determined the goodwill for the reporting unit was impaired as a result of lower than expected earnings and lower estimated future earnings. We believe the performance of this reporting unit has been impacted by healthcare legislation, evolving general healthcare market conditions and the need to adapt more quickly to those changes. Additionally, the reporting unit's performance has been impacted by operational costs in excess of projections on new operating facilities where construction began just prior to our acquisition. Although we anticipated a ramp-up period in the initial operations of these facilities, costs have continued to exceed both our initial and revised expectations. To determine the value of the impairment loss, we estimated the fair value of the reporting unit primarily using an income approach based on a discounted cash flow model that incorporates management's best estimate of future growth and margins. After recording this charge in 2015, the reporting unit's goodwill was reduced to zero.

Investments

We complete a detailed analysis each quarter to assess whether the decline in the fair value of any investment below its cost basis is deemed other-than-temporary. All securities with unrealized losses are reviewed. For equity securities, a decline in fair value that is considered to be other-than-temporary is recognized in net income based on the fair value of the security at the time of assessment, resulting in a new cost basis for the security. For fixed maturities where we intend to sell the security or it is more likely than not that we will be required to sell the security before recovery of its amortized cost, a decline in fair value is considered to be other-than-temporary and is recognized in net income based on the fair value of the security at the time of assessment, resulting in a new cost basis for the security. If the decline in fair value of a fixed maturity below its amortized cost is considered to be other-than-temporary based upon other considerations, we compare the estimated present value of the cash flows expected to be collected to the amortized cost of the security. The extent to which the estimated present value of the cash flows expected to be collected is less than the amortized cost of the security represents the credit-related portion of the other-than-temporary impairment, which is recognized in net income, resulting in a new cost basis for the security. Any remaining decline in fair value represents the non-credit portion of the other-than-temporary impairment, which is recognized in other comprehensive income (loss). The discount rate used to calculate the estimated present value of the cash flows expected to be collected is the effective interest rate implicit for the security at the date of purchase.

We consider many factors in completing our quarterly review of securities with unrealized losses for other-than-temporary impairment, including the length of time and the extent to which fair value has been below cost and the financial condition and near-term prospects of the issuer. For equity securities, the ability and intent to hold the security for a period of time sufficient

to allow for any anticipated recovery is considered. For fixed maturities, we consider whether we intend to sell the security or if it is more likely than not that we will be required to sell the security before recovery, the implied yield-to-maturity, the credit quality of the issuer and the ability to recover all amounts outstanding when contractually due. When assessing whether we intend to sell a fixed maturity or if it is likely that we will be required to sell a fixed maturity before recovery of its amortized cost, we evaluate facts and circumstances including, but not limited to, decisions to reposition the investment portfolio, potential sales of investments to meet cash flow needs and potential sales of investments to capitalize on favorable pricing.

Risks and uncertainties are inherent in our other-than-temporary decline in fair value assessment methodology. The risks and uncertainties include, but are not limited to, incorrect or overly optimistic assumptions about the financial condition, liquidity or near-term prospects of an issuer, inadequacy of any underlying collateral, unfavorable changes in economic or social conditions and unfavorable changes in interest rates or credit ratings. Changes in any of these assumptions could result in charges to earnings in future periods.

Losses from write downs for other-than-temporary declines in the estimated fair value of investments, while potentially significant to net income, do not have an impact on our financial position. Since our investment securities are considered available-for-sale and are recorded at estimated fair value, unrealized losses on investments are already included in accumulated other comprehensive income. See note 3(b) of the notes to consolidated financial statements for further discussion of our assessment methodology for other-than-temporary declines in the estimated fair value of investments.

Recent Accounting Pronouncements

The Financial Accounting Standards Board has issued several accounting standards updates (ASUs) that become effective January 1, 2018. These standards were evaluated and we have identified the impacts, if any, to our consolidated financial position, results of operations and cash flows.

Adoption of ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, will not have a material impact on our consolidated financial position, results of operations or cash flows.

Upon adoption of ASU No. 2016-01, *Financial Instruments (Topic 825): Recognition and Measurement of Financial Assets and Financial Liabilities*, changes in the fair value of equity securities will be recognized in net income rather than other comprehensive income. As of December 31, 2017, accumulated other comprehensive income included $3.3 billion of net unrealized gains on equity securities, which will be reclassified to retained earnings on January 1, 2018. As of December 31, 2017, accumulated other comprehensive income was net of deferred income taxes on net unrealized gains on equity securities of $1.1 billion. We are still assessing the impact of ASU No. 2018-02 following the enactment of the Tax Cuts and Jobs Act in December 2017, on deferred taxes included in accumulated other comprehensive income and have not determined the amount of deferred income taxes on net unrealized gains on equity securities that will be reclassified to retained earnings on January 1, 2018.

Other ASUs that we expect have the most potential to significantly impact our consolidated financial position, results of operations or cash flows upon adoption and are currently evaluating are as follows:

- ASU No. 2016-02, *Leases (Topic 842)*
- ASU No. 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*
- ASU No. 2018-02, *Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*

See note 1(w) of the notes to consolidated financial statements for discussion of all of these ASUs and the expected effects on our consolidated financial position, results of operations and cash flows.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

Key Performance Indicators

An important measure of our financial success is our ability to grow book value per share at a high rate of return over a long period of time. To mitigate the effects of short-term volatility, we measure ourselves over a five-year period. We believe that growth in book value per share is a comprehensive measure of our success because it includes all underwriting, investing and operating results. We measure underwriting results by our underwriting profit or loss and combined ratio. We measure investing results by our net investment income and net realized gains (losses) as well as our taxable equivalent total investment return. We measure our other operating results, which primarily consist of our Markel Ventures operations, by our revenues and net income (loss), as well as earnings before interest, income taxes, depreciation and amortization (EBITDA). These measures are discussed in greater detail under "Results of Operations." As we continue to expand and diversify our operations beyond underwriting and investing, we recognize that book value per share does not capture all of the economic value in our business, as a growing portion of our operations are not recorded at fair value or otherwise captured in book value. As a result, beginning in 2018, we will also measure our financial success through the growth in the market price of a share of our stock, or total shareholder return. For the year ended December 31, 2017, our share price increased 26%. Over the past five years, our share price increased at a compound annual rate of 21%.

Results of Operations

The following table presents the components of net income to shareholders.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
U.S. Insurance segment underwriting profit	**$ 119,944**	$ 152,745	$ 238,168
International Insurance segment underwriting profit (loss)	**(33,598)**	47,205	125,701
Reinsurance segment underwriting profit (loss)	**(299,217)**	106,835	86,280
Other Insurance (Discontinued Lines) segment underwriting profit (loss)	**7,495**	9,751	(20,442)
Other underwriting profit	**179**	—	—
Net investment income	**405,709**	373,230	353,213
Net realized investment gains (losses)	**(5,303)**	65,147	106,480
Other revenues	**1,413,275**	1,307,779	1,086,758
Other expenses	**(1,307,980)**	(1,190,243)	(1,046,805)
Amortization of intangible assets	**(80,758)**	(68,533)	(68,947)
Interest expense	**(132,451)**	(129,896)	(118,301)
Loss on early extinguishment of debt	**—**	(44,100)	—
Income tax benefit (expense)	**313,463**	(169,477)	(152,963)
Net income attributable to noncontrolling interests	**(5,489)**	(4,754)	(6,370)
NET INCOME TO SHAREHOLDERS	**$ 395,269**	$ 455,689	$ 582,772

Net income to shareholders decreased 13% from 2016 to 2017 due to an underwriting loss and net realized investment losses in 2017 compared to an underwriting profit and net realized investment gains in 2016. These decreases were partially offset by recording a one-time tax benefit of $339.9 million in the fourth quarter of 2017, primarily related to the remeasurement of our U.S. net deferred tax liability at the lower enacted U.S. corporate tax rate as a result of the TCJA. See further discussion of the impact of the TCJA in note 8 of the notes to consolidated financial statements. Net income to shareholders decreased 22% from 2015 to 2016 due to less favorable underwriting results, a loss on early extinguishment of debt and lower net realized investment gains, partially offset by more favorable results within our other operations compared to 2015. The components of net income to shareholders are discussed in further detail under "Underwriting Results," "Life and Annuity Benefits," "Investing Results," "Markel Ventures Operations" and "Interest Expense, Loss on Early Extinguishment of Debt and Income Taxes."

Underwriting Results

Underwriting profits are a key component of our strategy to grow book value per share. We believe that the ability to achieve consistent underwriting profits demonstrates knowledge and expertise, commitment to superior customer service and the ability to manage insurance risk. The property and casualty insurance industry commonly defines underwriting profit or loss as earned premiums net of losses and loss adjustment expenses and underwriting, acquisition and insurance expenses. We use underwriting profit or loss as a basis for evaluating our underwriting performance. The combined ratio is a measure of underwriting performance and represents the relationship of incurred losses, loss adjustment expenses and underwriting, acquisition and insurance expenses to earned premiums. The combined ratio is the sum of the loss ratio and the expense ratio. A combined ratio less than 100% indicates an underwriting profit, while a combined ratio greater than 100% reflects an underwriting loss. The loss ratio represents the relationship of incurred losses and loss adjustment expenses to earned premiums. The expense ratio represents the relationship of underwriting, acquisition and insurance expenses to earned premiums.

The following table presents selected data from our underwriting operations.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Gross premium volume [1]	**$ 5,253,107**	$ 4,796,645	$ 4,632,912
Net written premiums	**$ 4,417,787**	$ 4,001,020	$ 3,819,293
Net retention [1]	**84%**	83%	82%
Earned premiums	**$ 4,247,978**	$ 3,865,870	$ 3,823,532
Losses and loss adjustment expenses	**$ 2,865,761**	$ 2,050,744	$ 1,938,745
Underwriting, acquisition and insurance expenses	**$ 1,587,414**	$ 1,498,590	$ 1,455,080
Underwriting profit (loss)	**$ (205,197)**	$ 316,536	$ 429,707
U.S. GAAP Combined Ratios			
U.S. Insurance	**95%**	93%	89%
International Insurance	**104%**	94%	86%
Reinsurance	**132%**	87%	90%
Other Insurance (Discontinued Lines)	**NM[2]**	NM[2]	NM[2]
Markel Corporation (Consolidated)	**105%**	92%	89%

[1] Gross premium volume and net retention for the year ended December 31, 2017 exclude $253.9 million of gross written premium attributable to our program services business, which was 100% ceded.

[2] NM—Ratio is not meaningful. Further discussion of Other Insurance (Discontinued Lines) underwriting profit (loss) follows.

Underwriting results in 2017 included $565.3 million, or 13 points, of underwriting loss from Hurricanes Harvey, Irma, Maria and Nate as well as the earthquakes in Mexico and wildfires in California (2017 Catastrophes). The underwriting loss on the 2017 Catastrophes was comprised of $585.4 million of estimated net losses and $20.1 million of net assumed reinstatement premiums. The 2016 consolidated combined ratio included $68.7 million of underwriting loss, or two points on the consolidated combined ratio, related to Hurricane Matthew and the Canadian wildfires (2016 Catastrophes).

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

The following table summarizes, by segment, the components of the underwriting losses related to the 2017 Catastrophes.

	Year Ended December 31, 2017			
(dollars in thousands)	U.S. Insurance	International Insurance	Reinsurance	Consolidated
Losses and loss adjustment expenses	$ 132,159	$ 122,817	$ 330,384	$ 585,360
Ceded (assumed) reinstatement premiums	9,001	3,390	(32,465)	(20,074)
Underwriting loss	$ 141,160	$ 126,207	$ 297,919	$ 565,286
Impact on combined ratio	6%	13%	32%	13%

The estimated net losses and loss adjustment expenses on the 2017 Catastrophes are net of estimated reinsurance recoveries of $490.3 million. Both the gross and net loss estimates on the 2017 Catastrophes represent our best estimate of losses based upon information currently available. Our estimate for these losses is based on claims received to date and detailed policy level reviews, industry loss estimates, output from both industry and proprietary models as well as a review of in-force contracts. The estimate is dependent on broad assumptions about coverage, liability and reinsurance. Due to these factors, we believe our gross and net loss estimates on the 2017 Catastrophes have a high degree of volatility. While we believe our reserves for the 2017 Catastrophes as of December 31, 2017 are adequate, we continue to closely monitor reported claims and will adjust our estimates of gross and net losses as new information becomes available. The net losses for the 2017 Catastrophes were within our risk tolerance for events of this magnitude.

The increase in the consolidated combined ratio from 2017 to 2016 was driven by the impact of the 2017 Catastrophes. Excluding the impact of underwriting losses related to the 2016 Catastrophes and 2017 Catastrophes described above, the combined ratio increased due to a higher current accident year loss ratio and less favorable prior accident year loss ratio, partially offset by a lower expense ratio. The increase in the current accident year loss ratio is primarily due to higher current accident year loss ratios in our International Insurance and Reinsurance segments in 2017 compared to 2016. The decrease in the expense ratio in 2017 compared to 2016 is primarily driven by a favorable impact from higher earned premium volume and a decrease in profit sharing expenses in 2017 compared to 2016. These decreases in the expense ratio were partially offset by an unfavorable impact from changes in the mix of business in our International Insurance and Reinsurance segments. The increase in the consolidated combined ratio from 2015 to 2016 was driven by less favorable development on prior years' loss reserves in 2016 compared to 2015.

The 2017 combined ratio included $501.5 million of favorable development on prior years' loss reserves compared to $505.2 million in 2016. Although favorable development on prior years' loss reserves remained consistent in 2017 compared to 2016, development on prior years' loss reserves had a less favorable impact on the combined ratio in 2017 due to higher earned premium volume in 2017 compared to 2016. In 2017, prior years' loss reserves in our Reinsurance segment included $85.0 million, or two points, of adverse development on prior years' loss reserves resulting from a decrease in the discount rate, known as the Ogden Rate, required in the calculation of lump sum awards in U.K. bodily injury cases. Effective March 20, 2017, the Ogden Rate decreased from plus 2.5% to minus 0.75%, which represents the first rate change since 2001. The effect of the rate change is most impactful to our U.K. auto casualty exposures through reinsurance contracts written in our Reinsurance segment. We ceased writing new U.K. auto business in late 2014. The reduction in the Ogden Rate increased the expected claims payments on these exposures, and management increased loss reserves accordingly. Our estimate of the ultimate cost of settling these claims is based on many factors, and is subject to increase or decrease as the effect of changes in these factors becomes known over time. In 2016, favorable development on prior years' loss reserves in our U.S. Insurance segment was net of $71.2 million, or two points on the consolidated combined ratio, of adverse development on our medical malpractice and specified medical product lines. There was no significant development on these lines in 2017.

The decrease in favorable development on prior years' loss reserves in 2016 compared to 2015 was due in part to the adverse development in our U.S. Insurance segment on our medical malpractice and specified medical product lines, as described above. Favorable development on prior years' loss reserves in 2015 included $82.7 million, or two points on the 2015 consolidated combined ratio, of favorable development attributable to a decrease in the estimated volatility of our consolidated net reserves for unpaid losses and loss adjustment expenses, as a result of ceding a significant portion of our A&E exposures to a third party. As a result of this decrease in estimated volatility, our level of confidence in our net reserves for unpaid losses and loss adjustment expenses increased. Therefore, management reduced prior years' loss reserves in order to maintain a consolidated

confidence level in a range consistent with our historic levels. This reduction in prior years' loss reserves occurred across all three of our ongoing underwriting segments. The decrease in favorable development on prior years' loss reserves in 2016 was also attributable to less favorable development on prior years' loss reserves in our International Insurance segment.

In connection with our quarterly reviews of loss reserves, the actuarial methods we used have exhibited a favorable trend for the 2010 to 2016 accident years during 2017. This trend was observed using statistical analysis of actual loss experience for those years, particularly with regard to most of our long-tail books of business within the U.S. Insurance and International Insurance segments, which developed more favorably than we had expected based upon our historical experience. As actual losses experienced on these accident years have continued to be lower than anticipated, it has become more likely that the underwriting results will prove to be better than originally estimated. Additionally, as most actuarial methods rely upon historical reporting patterns, the favorable trends experienced on earlier accident years have resulted in a re-estimation of our ultimate incurred losses on more recent accident years. When we experience loss frequency or loss severity trends that are more favorable than we initially anticipated, we often evaluate the loss experience over a period of several years in order to assess the relative credibility of loss development trends. In each of the past three years, based upon our evaluations of claims development patterns in our long-tail, and often volatile, lines of business, we gave greater credibility to the favorable trend. As a result, our actuaries reduced their estimates of ultimate losses, and management incorporated this favorable trend into its best estimate and reduced prior years' loss reserves accordingly.

While we believe it is possible that there will be additional favorable development on prior years' loss reserves in 2018, we caution readers not to place undue reliance on this favorable trend. Despite stabilization of prices on certain product lines during the last three years, we still consider the overall property and casualty insurance market to be soft. The impact on our underwriting results from the soft insurance market cannot be fully quantified in advance.

The following discussion provides more detail by segment of the underwriting results described above. Following this segment-based discussion is a summary table of prior years' loss reserve development.

U.S. Insurance Segment

The combined ratio for the U.S. Insurance segment for 2017 was 95% (including six points for the underwriting loss on the 2017 Catastrophes) compared to 93% (including one point for the underwriting loss on the 2016 Catastrophes) in 2016 and 89% in 2015. The increase in the 2017 combined ratio was due to the impact of the 2017 Catastrophes, partially offset by more favorable development of prior years' loss reserves. The increase in the 2016 combined ratio was due to less favorable development of prior years' loss reserves.

The U.S. Insurance segment's 2017 combined ratio included $301.9 million of favorable development on prior years' loss reserves compared to $204.9 million in 2016 and $299.0 million in 2015. The increase in favorable development was primarily due to adverse development on our medical malpractice and specified medical product lines in 2016, which totaled $71.2 million or three points on the segment combined ratio. There was no significant development on these product lines in 2017. Also contributing to the increase in favorable development on prior years' loss reserves was favorable development on our specialty programs business in 2017 compared to slightly adverse development on this business in 2016 and more favorable development on our workers' compensation product line in 2017 compared to 2016. These increases in favorable development were partially offset by less favorable development on our property product lines in 2017 compared to 2016. The decrease in favorable development on prior years' loss reserves in 2016 was driven by adverse development on our medical malpractice and specified medical product lines in 2016, as described above, and less favorable development on our property product lines in 2016 compared to 2015. Additionally, favorable development on prior years' loss reserves in 2015 included $35.2 million, or two points on the segment combined ratio, attributable to the decrease in the volatility of our consolidated net reserves for unpaid losses and loss adjustment expenses, as previously discussed. The following is a discussion of the product lines with the most significant development on prior years' loss reserves in the U.S. Insurance segment during the last three years.

In 2017 we experienced $93.9 million of favorable development on various long-tail general and excess liability lines. The favorable development occurred across several accident years, but was most significant on the 2011 to 2016 accident years. In 2016, we experienced $104.0 million of favorable development on various long-tail general and excess liability lines. The favorable development occurred across several accident years, but were most significant on the 2013 to 2015 accident years. In 2015, we experienced $111.3 million of favorable development on various long-tail general and excess liability lines,

primarily on the 2011 to 2014 accident years. In 2017, the favorable development was due in part to favorable case incurred loss development on certain of our general liability product lines as well as a decrease in the frequency and severity of claims other general liability product lines. In 2015 and 2016, the favorable development was due in part to lower loss severity than originally anticipated. Our binding and brokerage casualty business includes product lines that are long-tail and volatile in nature. During 2017, 2016 and 2015, actual incurred losses and loss adjustment expenses on prior accident years for reported claims on certain long-tail casualty lines were $52.3 million, $51.8 million, and $40.0 million, respectively, less than we anticipated in our actuarial analyses. As a result, our actuaries reduced their estimates of ultimate losses in 2017, 2016 and 2015, and management assigned greater credibility to this favorable experience and reduced prior years' loss reserves accordingly.

The favorable development on prior years' loss reserves in the U.S. Insurance segment in 2017, 2016 and 2015 also included $65.6 million, $41.1 million, and $36.6 million, respectively, of favorable development in our workers' compensation unit. In 2017, the favorable development was most significant on the 2012 to 2016 accident years. In 2016, the favorable development in our workers' compensation unit was most significant on the 2012 to 2015 accident years. In 2015, the favorable development in our workers' compensation unit was most significant on the 2011 to 2014 accident years. When we acquired this business in 2010, we supplemented our limited data with longer-tailed industry development factors and adopted a more conservative loss reserving position until we had sufficient data to determine how the loss reserves develop. During 2015, our actuaries gave more weight to our own data and placed less reliance on industry data as part of the reserving for this product line. As a result, our actuaries reduced their estimates of ultimate losses in those years. Management assigned greater credibility to this favorable experience and reduced prior years' loss reserves accordingly. During 2016, actual incurred losses and loss adjustment expenses on prior accident years for reported claims was $24.9 million less than we anticipated in our actuarial analysis, due in part to lower loss severity than originally anticipated. As a result, our actuaries reduced their estimates of ultimate losses in 2016 and management assigned greater credibility to this favorable experience and reduced prior years' loss reserves accordingly. During 2017, actual incurred losses and loss adjustment expenses on prior accident years for reported claims was $44.8 million less than we anticipated in our actuarial analysis, due in part to lower loss severity than originally anticipated, and improvement in the claim closure ratios. As a result, our actuaries reduced their estimates of ultimate losses in 2017 and management assigned greater credibility to this favorable experience and reduced prior years' loss reserves accordingly.

In 2017 we experienced $27.4 million of favorable development in our personal lines business, primarily on the 2013 to 2016 accident years. The favorable development occurred across multiple personal lines products and was driven primarily by a decrease in claim severity, as well as claim frequency. As a result, our actuaries reduced their estimates of ultimate losses in 2017 and management assigned greater credibility to this favorable experience and reduced prior years' loss reserves accordingly.

In 2017 and 2016, we also experienced favorable development in certain of our professional liability product lines. In 2017, we experienced $25.5 million of favorable development on our professional liability product lines, primarily on the 2015 to 2016 accident years. In 2017, the favorable development occurred across multiple professional liability lines and was driven primarily by favorable case incurred loss development. Actual case incurred losses were less than expected. As a result of these factors, our actuarial estimates of the ultimate liability for unpaid losses and loss adjustment expenses were reduced, and management reduced prior years' loss reserves accordingly. In 2016, favorable development on our professional liability product lines was more than offset by adverse development of $71.2 million on our medical malpractice and specified medical product lines, primarily on the 2010 through 2015 accident years. The adverse development on both of these product lines was driven by an increase in the proportion of business written on classes with higher claim frequencies relative to other classes of business within these product lines over the last several years, including correctional facilities, locum tenens and contract staffing. Beginning in late 2015, we saw an increase in claim frequencies on these classes, which was inconsistent with the historical trends indicated by our actuarial analyses. In 2016, we continued to see steady increases in claim frequencies, as well as increases in claims payments on these classes of business. As a result, we gave more credibility to this new trend and management increased loss reserves accordingly. In response, we took corrective actions for business written in the affected classes. Excluding the adverse development on our medical malpractice and specified medical product lines, we experienced $38.0 million of favorable development on our other professional liability programs during 2016, primarily on the 2014 and 2015 accident years. The favorable development occurred across multiple professional liability lines and was driven by a combination of factors, including lower loss severity than was originally anticipated and a decrease in the frequency of claims and large losses. As a result of these factors, our actuarial estimates of the ultimate liability for unpaid losses and loss adjustment expenses were reduced, and management reduced prior years' loss reserves accordingly.

In 2016, we experienced favorable development on prior years' loss reserves on our property product lines, primarily our inland marine and brokerage property lines. Favorable development on our inland marine business totaled $20.1 million in 2016, primarily on the 2014 and 2015 accident years. Favorable development totaled $27.5 million in 2015, primarily on the 2013 and 2014 accident years. In both years, the favorable development was attributable to lower than expected frequency of large loss events. Favorable development on our brokerage property product lines totaled $17.9 million in 2016 and was due to lower than expected losses and development on known claims, primarily on the 2012 to 2014 accident years. In 2015, favorable development totaled $35.0 million and was due to lower than expected frequency of large loss events, primarily on the 2013 and 2014 accident years. As a result of these factors, our actuarial estimates of the ultimate liability for unpaid losses and loss adjustment expenses decreased, and management reduced prior years' loss reserves accordingly.

International Insurance Segment

The combined ratio for the International Insurance segment was 104% (including 13 points for the underwriting loss on the 2017 Catastrophes) for 2017 compared to 94% (including one point for the underwriting loss on the 2016 Catastrophes) for 2016 and 86% for 2015. The increase in the 2017 combined ratio was driven by the impact of the 2017 Catastrophes, partially offset by a lower expense ratio and more favorable development of prior years' loss reserves. Excluding the impact of underwriting losses related to the 2016 Catastrophes and 2017 Catastrophes described above, the current accident year loss ratio increased, primarily due to higher attritional losses on our property product lines in 2017 compared to 2016. The decrease in the expense ratio was attributable to the write off of previously capitalized software development costs in 2016 and lower profit sharing in 2017 compared to 2016. These decreases were partially offset by an unfavorable impact from changes in the mix of business in this segment, most notably as the result of higher retentions on products with higher net commission rates in 2017 compared to 2016.

The increase in the 2016 combined ratio was driven by less favorable development of prior years' loss reserves and a higher expense ratio, partially offset by a lower current accident year ratio in 2016 compared to 2015. The 2016 current accident year loss ratio included $12.0 million, or one point on the segment combined ratio, of underwriting loss related to Hurricane Matthew. We also experienced higher attritional and large losses on our marine and energy product lines in 2016. The impact of these losses on the 2016 current accident year loss ratio was more than offset by lower attritional losses in our general liability product lines in 2016 compared to 2015 and a decrease in management's best estimate of ultimate loss ratios on various product lines in 2016, as previously discussed. The increase in the 2016 expense ratio was attributable to higher broker commissions in 2016 compared to 2015 and the write off of previously capitalized software development costs in 2016, partially offset by lower profit sharing costs in 2016 compared to 2015.

The International Insurance segment's 2017 combined ratio included $198.7 million of favorable development on prior years' loss reserves compared to $164.7 million of favorable development in 2016 and $248.8 million of favorable development in 2015. The increase in favorable development in 2017 compared to 2016 was driven by more favorable development on our general liability product lines in 2017. Development on prior years' loss reserves was less favorable in 2016 compared to 2015 driven by less favorable development on our marine and energy and general liability product lines. Additionally, favorable development on prior years' loss reserves in 2015 included $32.3 million, or four points on the segment combined ratio, attributable to the decrease in volatility of our consolidated net reserves for unpaid losses and loss adjustment expenses, as previously discussed. In 2017, 2016 and 2015, favorable development on prior years' loss reserves occurred across several product lines, but was most significant on our professional liability, general liability and marine and energy product lines. In all three years, the favorable development was driven by lower than expected claims activity on prior accident years and favorable claims settlements. Favorable development on our professional liability product lines totaled $74.9 million in 2017 compared to $66.6 million in 2016 and $39.7 million in 2015. Favorable development on our marine and energy product lines totaled $35.5 million in 2017 compared to $39.6 million in 2016 and $64.8 million in 2015. Favorable development on our general liability product lines totaled $50.2 million in 2017 compared to $23.1 million in 2016 and $60.9 million in 2015. In 2017, the favorable development on prior years' loss reserves in the International Insurance segment was most significant on the 2013 to 2015 accident years. In 2016, the favorable development on prior year loss reserves was most significant on the 2013 and 2014 accident years. In 2015, the favorable development on prior years' loss reserves was most significant on the 2012 to 2014 accident years.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

Reinsurance Segment

The combined ratio for the Reinsurance segment was 132% (including 32 points for the underwriting loss on the 2017 Catastrophes) for 2017 compared to 87% (including four points for the underwriting loss on the 2016 Catastrophes) for 2016 and 90% for 2015. The increase in the 2017 combined ratio was driven by the impact of the 2017 Catastrophes and adverse development on prior years' loss reserves attributable to the decrease in the Ogden rate in 2017. These increases were partially offset by a lower expense ratio in 2017 compared to 2016. Excluding the impact of underwriting losses related to the 2016 Catastrophes and 2017 Catastrophes described above, the current accident year loss ratio increased, primarily due to more unfavorable premium adjustments in 2017 compared to 2016. The decrease in the expense ratio in 2017 compared to 2016 was primarily due to lower profit sharing expenses and a favorable impact from higher earned premium, including reinstatement premiums related to the 2017 Catastrophes. These decreases in the expense ratio were partially offset by the impact of higher earned premium on our quota share business in 2017 compared to 2016, which carries a higher commission rate than other business in the Reinsurance segment.

The decrease in the combined ratio in 2016 was driven by more favorable development on prior years' loss reserves and a lower current accident year loss ratio, partially offset by a higher expense ratio in 2016 compared to 2015. The 2016 current accident year loss ratio included $18.7 million, or two points on the segment combined ratio, of underwriting loss related to the Canadian wildfires and $16.2 million, or two points on the segment combined ratio, of underwriting loss related to Hurricane Matthew. The impact of these losses on the 2016 current accident year loss ratio was more than offset by lower attritional losses and a decrease in management's best estimate of ultimate loss ratios on various product lines, as previously discussed. The increase in the expense ratio was primarily due to higher profit sharing expenses and broker commissions in 2016 compared to 2015.

The Reinsurance segment's 2017 combined ratio included $7.8 million of adverse development on prior years' loss reserves compared to $125.5 million of favorable development in 2016 and $97.9 million in 2015. The adverse development in 2017 is primarily due to the decrease in the Ogden Rate, as previously discussed, which resulted in $85.0 million of adverse development, or nine points on the Reinsurance segment's combined ratio. We also experienced adverse development in 2017 on our professional liability product line. Largely offsetting this adverse development in 2017 was favorable development on our property product lines. The increase in favorable development in 2016 compared to 2015 was driven by more favorable development on our property product lines. Favorable development on prior years' loss reserves in 2015 included $15.2 million, or two points on the segment combined ratio, attributable to the decrease in volatility of our consolidated net reserves for unpaid losses and loss adjustment expenses, as previously discussed. In 2017 and 2016, favorable development on prior years' loss reserves was most significant on our property product lines, with the remaining favorable development occurring across several product lines. In 2015, favorable development on prior years' loss reserves was most significant on our casualty and property product lines.

Favorable development on prior years' loss reserves on our property lines of business in 2017, 2016 and 2015 were $41.2 million, $67.6 million and $21.1 million, respectively. In 2017 and 2016, the favorable development on prior years' loss reserves on these lines was most significant on the 2013 to 2015 accident years. In 2015, the favorable development on prior years' loss reserves was most significant on the 2012 to 2014 accident years. In all three years, the favorable development on prior years' loss reserves was due in part to lower than expected development on reported events, favorable claims settlements and lower than expected claims activity. As a result of these factors, our actuaries reduced their estimates of ultimate losses, and management reduced prior years' loss reserves accordingly.

Favorable development on our casualty lines in 2015 totaled $27.4 million, and was primarily attributable to our general casualty and professional liability business. During 2015, management gained more confidence in the actuarial projections on these product lines and reduced prior years' loss reserves accordingly.

Other Insurance (Discontinued Lines) Segment

The majority of the losses and loss adjustment expenses and the underwriting, acquisition and insurance expenses for the Other Insurance (Discontinued Lines) segment are associated with A&E exposures or other acquired lines of business that were discontinued in conjunction with the acquisition. Given the insignificant amount of premium earned in the Other Insurance (Discontinued Lines) segment, we evaluate this segment's underwriting performance in terms of dollars of underwriting profit or loss instead of its combined ratio.

The Other Insurance (Discontinued Lines) segment produced an underwriting profit of $7.5 million in 2017 compared to an underwriting profit of $9.8 million in 2016 and an underwriting loss of $20.4 million in 2015. The underwriting profit in 2017 was due in part to the Part VII transaction completed during the period. See note 9 of the notes to consolidated financial statements. The underwriting profit in 2016 was driven by a commutation that was completed during the period. The underwriting loss in 2015 included $25.4 million of adverse loss reserve development on A&E exposures.

In March and October 2015, we completed two retroactive reinsurance transactions through which we ceded a significant portion of our A&E exposures to a third party. At the time of the transactions, reserves for unpaid losses and loss adjustment expenses on the policies ceded totaled $170.5 million. The first transaction resulted in a gain of $5.1 million, which was deferred and is being recognized in earnings in proportion to actual reinsurance recoveries received pursuant to the transaction. The second transaction resulted in an underwriting loss of $10.1 million, including $7.1 million of losses and loss adjustment expenses, all of which was recognized during 2015. Following the October 2015 retroactive reinsurance transaction, our actuaries increased their estimate of the ultimate losses on the remaining A&E claims and management increased prior years' loss reserves by $15.0 million. Without the diversification of a larger portfolio of loss reserves, there is greater uncertainty around the potential outcomes of the remaining claims, and management strengthened reserves accordingly.

We complete an annual review of our A&E exposures during the third quarter of the year unless circumstances suggest an earlier review is appropriate. During our 2015, 2016 and 2017 reviews, we determined that no adjustment to loss reserves was required.

A&E loss reserves are subject to significant uncertainty due to potential loss severity and frequency resulting from an uncertain and unfavorable legal climate. Our A&E reserves are not discounted to present value and are forecasted to pay out over the next 40 to 50 years as claims are settled. We seek to establish appropriate reserve levels for A&E exposures, including A&E exposures ceded to third parties under retroactive reinsurance transactions; however, these reserves could be subject to increases in the future. As of December 31, 2017, our reinsurance recoverable on unpaid losses for A&E exposures was 62% of our gross reserves for A&E exposures. See note 9(c) of the notes to consolidated financial statements for further discussion of our exposures to A&E claims.

The following tables summarize the increases (decreases) in prior years' loss reserves by segment, as discussed above.

	Year Ended December 31, 2017				
(dollars in millions)	U.S. Insurance	International Insurance	Reinsurance	Other Insurance (Discontinued Lines)	Total
U.S. Insurance:					
General liability	**$ (93.9)**				**$ (93.9)**
Workers' compensation	**(65.6)**				**(65.6)**
Professional liability	**(25.5)**				**(25.5)**
Personal Lines	**(27.4)**				**(27.4)**
International Insurance:					
Professional liability		**$ (74.9)**			**(74.9)**
Marine and energy		**(35.5)**			**(35.5)**
General liability		**(50.2)**			**(50.2)**
Reinsurance:					
Ogden rate decrease			**$ 85.0**		**85.0**
Property			**(41.2)**		**(41.2)**
Other Insurance (Discontinued Lines):					
A&E and other discontinued lines				**$ (8.5)**	**(8.5)**
Net other prior years' redundancy	**(89.5)**	**(38.1)**	**(36.0)**	**—**	**(163.6)**
Increase (decrease)	**$ (301.9)**	**$ (198.7)**	**$ 7.8**	**$ (8.5)**	**$ (501.3)**[1]

[1] Total decrease in prior years' loss reserves excludes $0.2 million of favorable development on our program services business, which is included in our consolidated underwriting results but is not included in a reportable segment.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

	Year Ended December 31, 2016				
(dollars in millions)	U.S. Insurance	International Insurance	Reinsurance	Other Insurance (Discontinued Lines)	Total
U.S. Insurance:					
General liability	$ (104.0)				$ (104.0)
Workers' compensation	(41.1)				(41.1)
Property:					
Brokerage property	(17.9)				(17.9)
Inland marine	(20.1)				(20.1)
Professional liability:					
Medical malpractice and specified medical	71.2				71.2
All other	(38.0)				(38.0)
International Insurance:					
Professional liability		$ (66.6)			(66.6)
Marine and energy		(39.6)			(39.6)
General liability		(23.1)			(23.1)
Reinsurance:					
Property			$ (67.6)		(67.6)
Other Insurance (Discontinued Lines):					
A&E and other discontinued lines				$ (10.1)	(10.1)
Net other prior years' redundancy	(55.0)	(35.4)	(57.9)	—	(148.3)
Decrease	$ (204.9)	$ (164.7)	$ (125.5)	$ (10.1)	$ (505.2)

	Year Ended December 31, 2015				
(dollars in millions)	U.S. Insurance	International Insurance	Reinsurance	Other Insurance (Discontinued Lines)	Total
U.S. Insurance:					
General liability	$ (111.3)				$ (111.3)
Workers' compensation	(36.6)				(36.6)
Property:					
Brokerage property	(35.0)				(35.0)
Inland marine	(27.5)				(27.5)
International Insurance:					
Marine and energy		$ (64.8)			(64.8)
General liability		(60.9)			(60.9)
Professional liability		(39.7)			(39.7)
Reinsurance:					
Casualty			$ (27.4)		(27.4)
Property			(21.1)		(21.1)
Other Insurance (Discontinued Lines):					
Loss on retroactive reinsurance transaction				$ 7.1	7.1
Other A&E exposures				18.3	18.3
Impact of retroactive reinsurance transactions on reserve volatility	(35.2)	(32.3)	(15.2)	—	(82.7)
Net other prior years' redundancy	(53.4)	(51.1)	(34.2)	(7.5)	(146.2)
Increase (decrease)	$ (299.0)	$ (248.8)	$ (97.9)	$ 17.9	$ (627.8)

Over the past three years, we have experienced favorable development on prior years' loss reserves ranging from 6% to 7% of beginning of year net loss reserves. In 2017, we experienced favorable development of $501.5 million, or 6% of beginning of year net loss reserves, compared to $505.2 million, or 6% of beginning of year net loss reserves, in 2016 and $627.8 million, or 7% of beginning of year net loss reserves, in 2015.

It is difficult for management to predict the duration and magnitude of an existing trend and, on a relative basis, it is even more difficult to predict the emergence of factors or trends that are unknown today but may have a material impact on loss reserve development. In assessing the likelihood of whether the above favorable trends will continue and whether other trends may develop, we believe that a reasonably likely movement in prior years' loss reserves during 2018 would range from favorable development of less than 1%, or $50 million, to favorable development of approximately 7%, or $650 million, of December 31, 2017 net loss reserves.

Premiums

The following table summarizes gross premium volume.

GROSS PREMIUM VOLUME	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
U.S. Insurance	**$ 2,885,279**	$ 2,635,266	$ 2,504,096
International Insurance	**1,255,922**	1,119,815	1,164,866
Reinsurance	**1,112,101**	1,041,055	965,374
Other Insurance (Discontinued Lines)	**(195)**	509	(1,424)
Total Underwriting	**5,253,107**	4,796,645	4,632,912
Program Services	**253,853**	—	—
Total	**$ 5,506,960**	$ 4,796,645	$ 4,632,912

We monitor the effect of movements in foreign currency exchange rates on gross premium volume and earned premiums. To the extent there are significant variations in foreign currency exchange rates between the U.S. dollar and the foreign currencies in which our insurance business is transacted, management uses the change in gross premium volume and earned premiums at a constant rate of exchange to evaluate trends in premium volume. The impact of foreign currency translation is excluded, when significant, as the effect of fluctuations in exchange rates could distort the analysis of trends. When excluding the effect of foreign currency translation on changes in premium, management uses the current period average exchange rates to translate both the current period and the prior period foreign currency denominated gross premiums written and earned premiums.

Gross premium volume in our underwriting segments increased 10% in 2017 compared to 2016. The increase in gross premium volume was attributable to an increase in gross premium volume across all three of our ongoing underwriting segments. Also impacting consolidated gross premium volume was $253.9 million of gross premium written through our program services business acquired as part of the State National transaction, which is not included in our underwriting segments. All gross premium written in our program services business was ceded to third parties in 2017.

Gross premium volume in our U.S. Insurance segment increased 9% in 2017 compared to 2016 driven by growth within our general liability product lines, personal lines and specialty programs business as well the contribution of premiums from our new surety and collateral protection product lines which were acquired in 2017. Gross premium volume in our International Insurance segment increased 12% in 2017 compared to 2016 primarily due to higher premium volume within our marine and energy and general liability product lines. Gross premium volume in our Reinsurance segment increased 7% in 2017 compared to 2016 driven by $136.5 million of premium related to two large specialty quota share treaties entered into in the first quarter of 2017, as well as a favorable impact from assumed reinstatement premiums in our property product lines resulting from the 2017 Catastrophes. These increases were partially offset by lower gross premium volume in our auto and general liability product lines. Significant variability in gross premium volume can be expected in our Reinsurance segment due to individually significant deals and multi-year contracts.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

Gross premium volume increased 4% in 2016 compared to 2015. The increase in gross premium volume was attributable to the U.S. Insurance and Reinsurance segments, partially offset by lower gross premium volume in our International Insurance segment. Gross premium volume in our U.S. Insurance segment increased 5% in 2016 compared to 2015 driven by higher premium volumes, primarily within our general liability and personal lines of business. The increase was also attributable to an additional week of gross premium volume during the first quarter of 2016 compared to the same period of 2015 based on differences in the timing of our underwriting systems closings. The timing of our underwriting systems closings has a negligible impact on our premium earnings as premiums are earned over the policy period. Gross premium volume in our International Insurance segment decreased 4% in 2016 compared to 2015 primarily due to an unfavorable impact from foreign currency exchange rate movements, as well as lower premium volume within our marine and energy product lines. Gross premium volume in our Reinsurance segment increased 8% in 2016 compared to 2015 driven by our general liability and property lines, due to new business and a favorable impact from the timing of renewals on multi-year contracts in 2016 compared to 2015. These increases were partially offset by lower gross premium volume within our auto, professional liability and credit and surety reinsurance product lines.

We continued to see small price decreases across many of our product lines during 2017, especially in our international business on our property and marine and energy product lines. Our large account business is also subject to more pricing pressure and competition remains strong in the reinsurance market. However, following the high level of natural catastrophes that occurred in the third and fourth quarters of 2017, beginning in first quarter of 2018, we saw more favorable rates, particularly on our catastrophe exposed product lines. We are also seeing more stabilized pricing on our other product lines and continue to see pricing margins in most reinsurance lines of business. Despite stabilization of prices on certain product lines during the last several years, we still consider the overall property and casualty insurance market to be soft. When we believe the prevailing market price will not support our underwriting profit targets, the business is not written. As a result of our underwriting discipline, gross premium volume may vary when we alter our product offerings to maintain or improve underwriting profitability.

The following table summarizes net written premiums.

NET WRITTEN PREMIUMS	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
U.S. Insurance	**$ 2,432,477**	$ 2,237,163	$ 2,106,490
International Insurance	**1,007,319**	864,494	888,214
Reinsurance	**978,160**	898,728	824,324
Other Insurance (Discontinued Lines)	**(169)**	635	265
TOTAL	**$ 4,417,787**	$ 4,001,020	$ 3,819,293

All gross premium written in our program services business was ceded to third parties in 2017, resulting in zero net written premiums. Within our underwriting operations, we purchase reinsurance and retrocessional reinsurance in order to manage our net retention on individual risks and enable us to write policies with sufficient limits to meet policyholder needs. Net retention of gross premium volume for our underwriting operations was 84% in 2017, 83% in 2016 and 82% in 2015. In 2017, higher retention in our International Insurance and Reinsurance segments was partially offset by lower retention in our U.S. Insurance segment. The increase in net retention within the International Insurance segment in 2017 was largely due to higher retention on our professional liability product lines. The increase in net retention within the Reinsurance segment for 2017 was primarily due to changes in the mix of business. Net retention in the U.S. Insurance segment decreased in 2017 compared to 2016 due to lower retention on our specialty programs and personal lines business, partially offset by higher retention on our casualty product lines.

In 2016, retention increased in all three of our ongoing underwriting segments compared to 2015. These increases were largely due to changes in mix of business.

The following table summarizes earned premiums.

EARNED PREMIUMS	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
U.S. Insurance	**$ 2,364,121**	$ 2,175,332	$ 2,105,212
International Insurance	**949,912**	853,512	879,426
Reinsurance	**934,114**	836,264	838,543
Other Insurance (Discontinued Lines)	**(169)**	762	351
TOTAL	**$ 4,247,978**	$ 3,865,870	$ 3,823,532

All gross premium written in our program services business was ceded to third parties in 2017, resulting in zero earned premiums. Consolidated earned premiums for 2017 increased 10% compared to 2016. The increase in earned premiums was attributable to higher earned premiums across all three of our ongoing underwriting segments and the favorable impact of net assumed reinstatement premiums. The increase in earned premiums in our U.S. Insurance segment was primarily due to an increase in gross premium volume and higher retention in our general liability product lines. The increase was also attributable to earned premiums within our new surety and collateral protection product lines, as previously discussed. The increase in earned premiums in our International Insurance segment was attributable to an increase in gross premium volume in our marine and energy product line and an increase in gross premium volume and higher retention in our professional liability product lines. The increase in earned premiums in our Reinsurance segment was primarily due to higher earned premiums in our property product lines due to the favorable impact of reinstatement premiums related to the 2017 Catastrophes, higher earned premium from the two large specialty quota share treaties entered into in the first quarter of 2017, as previously discussed, as well as higher earned premiums in our professional liability and general liability product lines. These increases were partially offset by lower earned premiums in our auto product line.

Consolidated earned premiums for 2016 increased 1% compared to 2015. Higher earned premiums in our U.S. Insurance segment more than offset lower earned premiums in our International Insurance segment. The increase in earned premiums in our U.S. Insurance segment was primarily due to the increases in gross premium volume as previously discussed. The decrease in earned premiums in our International Insurance segment was primarily due to an unfavorable impact from movements in foreign currency exchange rates. Additionally, higher earned premiums in our professional liability product lines were offset by lower earned premiums in our marine and energy product lines within the International Insurance segment.

Life and Annuity Benefits

The Other Insurance (Discontinued Lines) segment included other revenues of $2.0 million and other expenses of $28.2 million for 2017, other revenues of $1.9 million and other expenses of $26.5 million for 2016, and other revenues of $0.6 million and other expenses of $29.1 million for 2015 related to our life and annuity reinsurance business. This business is in run-off, and we are not writing any new life and annuity reinsurance contracts. The life and annuity benefit reserves are recorded on a net present value basis using assumptions that were determined when the portfolio of contracts was acquired. The accretion of this discount is recognized in the statement of income and comprehensive income as other expenses. Invested assets and the related investment income that support the life and annuity reinsurance contracts are reported in the Investing segment. As a result, we expect the results reported in the Other Insurance (Discontinued Lines) segment attributable to our life and annuity business will continue to reflect losses in future periods due to the accretion of the discount on the life and annuity benefit reserves, which are forecast to pay out over the next 40 to 50 years. Other revenues attributable to the life and annuity business included in the Other Insurance (Discontinued Lines) segment represent ongoing premium adjustments on existing contracts.

On April 24, 2015, we completed a novation that transferred our obligations under a reinsurance contract for life and annuity benefit policies to a third party in exchange for cash payments totaling $29.0 million, net of commissions. At the time of the transaction, reserves for life and annuity benefits on the novated reinsurance contract totaled $32.6 million, resulting in a gain of $3.6 million that was recorded as an offset to other expenses.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

Investing Results

Our business strategy recognizes the importance of both consistent underwriting and operating profits and superior investment returns to build shareholder value. We rely on sound underwriting practices to produce investable funds while minimizing underwriting risk.

The following table summarizes our investment performance.

	Years Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Net investment income	**$ 405,709**	$ 373,230	$ 353,213
Net realized investment gains (losses)	**$ (5,303)**	$ 65,147	$ 106,480
Change in net unrealized gains on investments	**$ 1,125,440**	$ 342,111	$ (457,584)
Investment yield [1]	**2.6%**	2.4%	2.3%
Taxable equivalent total investment return, before foreign currency effect	**9.2%**	5.0%	0.5%
Taxable equivalent total investment return	**10.2%**	4.4%	(0.7)%
Invested assets, end of year	**$ 20,570,337**	$ 19,058,666	$ 18,181,345

[1] Investment yield reflects net investment income as a percentage of monthly average invested assets at amortized cost.

Investments, cash and cash equivalents and restricted cash and cash equivalents (invested assets) increased 8% in 2017. The increase in the investment portfolio in 2017 was attributable to an increase in net unrealized gains on investments of $1.1 billion, net proceeds from our net issuance of long-term debt of $592.9 million and cash flows from operations of $858.5 million, partially offset by cash flows used by investing activities of $744.5 million. Invested assets increased 5% in 2016. The increase in the investment portfolio in 2016 was attributable to an increase in net unrealized gains on investments of $342.1 million, net proceeds from our net issuance of long-term debt of $271.7 million and cash flows from operations of $534.6 million.

In 2015, we continued to gradually build liquidity with higher cash balances due to continuing low interest rates and sales of certain securities from our equity portfolio. We increased our holdings of cash and cash equivalents and short-term investments and reduced our holdings of fixed maturities. During 2016, we increased our holdings of equity securities and fixed maturities and decreased our holdings of cash and cash equivalents and short-term investments in order to achieve higher returns and to more closely match the duration of our fixed maturity portfolio with our insurance liabilities. During 2017, we increased our holdings of equity securities in order to achieve higher returns. Additionally, our holdings of cash and cash equivalents increased primarily due to operating cash inflows, the issuance of long-term debt and maturities of fixed maturities held for anticipated claim payments for the 2017 Catastrophes. As of December 31, 2017, we had paid 27% of our estimated losses for the 2017 Catastrophes. Also in 2017, we decreased our holdings of short-term investments to fulfill the cash needed for acquisitions. Short-term investments, cash and cash equivalents and restricted cash and cash equivalents represented 23% of our invested assets at December 31, 2017 and 2016. Fixed maturities represented 48% of our invested assets at December 31, 2017 compared to 52% at December 31, 2016. Equity securities at December 31, 2017 represented 29% of our invested assets compared to 25% at December 31, 2016. The increase in the proportion of equity securities at December 31, 2017 compared to December 31, 2016 is primarily due to an increase in the estimated fair value of our equity portfolio as a result of strong overall equity market performance.

Net investment income increased 9% in 2017 compared to 2016. Net investment income in 2017 included higher short-term investment income compared to 2016, driven by higher short-term interest rates and higher dividend income due to increased equity holdings. Net investment income increased 6% in 2016 compared to 2015. Net investment income in 2016 included higher interest income on our fixed maturity portfolio compared to 2015, primarily due to increased holdings of fixed maturities. An increase in short-term investment income, driven by higher short-term interest rates, was largely offset by lower dividend income in 2016 compared to 2015 as equity securities purchased in 2016 have lower dividend yields than the equity securities sold in late 2015 and early 2016.

Net realized investment losses were $5.3 million in 2017 compared to net realized investment gains of $65.1 million and $106.5 million in 2016 and 2015, respectively. Net realized investment gains (losses) include gains and losses from sales of securities, losses from write downs for other-than-temporary declines in the estimated fair value of investments and gains and losses on securities measured at fair value through net income. See note 3(f) of the notes to consolidated financial statements for further details on the components of net realized investment gains (losses). In 2017, gains on sales of equity securities were more than offset by a $52.0 million loss on our investment in certain insurance-linked securities funds (ILS Funds) as a result of a decrease in the net asset value of the ILS Funds. This decrease was driven by the impact of losses from Hurricanes Harvey, Irma and Maria and the wildfires in California on the underlying reinsurance contracts in which the ILS Funds are invested. In 2016 and 2015, net realized investment gains were related to sales of equity securities and fixed maturities. During 2017, 2016 and 2015, we liquidated certain equity securities in our portfolio in light of our outlook on the economic and competitive environment facing those companies and our decision to reallocate capital to other equity securities with greater potential for long-term investment returns. Given our long-term focus, variability in the timing of realized and unrealized gains and losses is to be expected.

Net realized investment gains (losses) in 2017, 2016 and 2015 included $3.8 million, $7.7 million and $5.8 million, respectively, of realized losses from sales of fixed maturities and equity securities. Proceeds received on securities sold at a loss were $306.1 million in 2017, $138.3 million in 2016 and $154.5 million in 2015.

In 2017, 90% of the gross realized losses related to securities that had been in a continuous unrealized loss position for less than one year. Gross realized losses in 2017 included $7.6 million of write downs for other-than-temporary declines in the estimated fair value of investments. These write downs were made with respect to three equity securities and one fixed maturity security. We complete a detailed analysis each quarter to assess whether the decline in the fair value of any investment below its cost basis is deemed other-than-temporary. At December 31, 2017, we held securities with gross unrealized losses of $57.3 million, or less than 1% of invested assets. All securities with unrealized losses were reviewed, and we believe that there were no other securities with indications of declines in estimated fair value that were other-than-temporary at December 31, 2017. However, given the volatility in the debt and equity markets, we caution readers that further declines in fair value could be significant and may result in additional other-than-temporary impairment charges in future periods. Variability in the timing of realized and unrealized gains and losses is to be expected. See note 3(b) of the notes to consolidated financial statements for further discussion of unrealized losses.

In 2016, 52% of the gross realized losses related to securities that had been in a continuous unrealized loss position for less than one year. Gross realized losses in 2016 included $18.4 million of write downs for other-than-temporary declines in the estimated fair value of investments. These write downs were made with respect to 22 equity securities.

In 2015, 72% of the gross realized losses related to securities that had been in a continuous unrealized loss position for less than one year. Gross realized losses in 2015 included $44.5 million of write downs for other-than-temporary declines in the estimated fair value of investments. These write downs were made with respect to 21 equity securities.

In 2017, net unrealized gains on investments increased $1.1 billion, primarily due to an increase in the estimated fair value of our equity portfolio as a result of strong overall equity market performance. In 2016, net unrealized gains on investments increased $342.1 million due to an increase in the estimated fair value of our equity portfolio, as a result of strong overall equity market performance, partly offset by a decrease in the fair value of our fixed maturity portfolio, as interest rates increased during 2016. In 2015, net unrealized gains on investments decreased $457.6 million due to a decrease in the estimated fair value of our equity portfolio, as a result of lower overall equity market performance, and our fixed maturity portfolio, as interest rates increased during 2015.

We also evaluate our investment performance by analyzing taxable equivalent total investment return, which is a non-GAAP financial measure. Taxable equivalent total investment return includes items that impact net income, such as coupon interest on fixed maturities, dividends on equity securities and realized investment gains or losses, as well as changes in unrealized gains or losses, which do not impact net income. Certain items that are included in net investment income have been excluded from the calculation of taxable equivalent total investment return, such as amortization and accretion of premiums and discounts on our fixed maturity portfolio, to provide a comparable basis for measuring our investment return against industry investment

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

returns. The calculation of taxable equivalent total investment return also includes the current tax benefit associated with income on certain investments that is either taxed at a lower rate than the statutory income tax rate or is not fully included in federal taxable income. We believe the taxable equivalent total investment return is a better reflection of the economics of our decision to invest in certain asset classes. We focus on our long-term investment return, understanding that the level of realized and unrealized investment gains or losses may vary from one period to the next.

The following table reconciles investment yield to taxable equivalent total investment return.

	Years Ended December 31,		
	2017	2016	2015
Investment yield[1]	**2.6%**	2.4%	2.3%
Adjustment of investment yield from amortized cost to fair value	**(0.5)%**	(0.4)%	(0.4)%
Net amortization of net premium on fixed maturities	**0.4%**	0.4%	0.5%
Net realized investment gains (losses) and change in net unrealized gains on investments	**5.9%**	2.3%	(2.0)%
Taxable equivalent effect for interest and dividends[2]	**0.4%**	0.4%	0.4%
Other[3]	**1.4%**	(0.7)%	(1.5)%
Taxable equivalent total investment return	**10.2%**	4.4%	(0.7)%

[1] Investment yield reflects net investment income as a percentage of monthly average invested assets at amortized cost.

[2] Adjustment to tax-exempt interest and dividend income to reflect a taxable equivalent basis.

[3] Adjustment to reflect the impact of changes in foreign currency exchange rates and time-weighting the inputs to the calculation of taxable equivalent total investment return.

Markel Ventures Operations

Our Markel Ventures operations are comprised of a diverse portfolio of businesses that operate outside of the specialty insurance marketplace. These businesses are viewed by management as separate and distinct from our insurance operations. While each of these businesses is operated independently from one another, we aggregate their financial results into two industry groups: manufacturing and non-manufacturing. Our manufacturing operations are comprised of manufacturers of transportation and other industrial equipment. Our non-manufacturing operations are comprised of businesses from several industry groups, including consumer goods and services (including healthcare) and business services.

We consolidate our Markel Ventures operations on a one-month lag. Operating revenues and expenses associated with our Markel Ventures operations are included in other revenues and other expenses in the consolidated statements of income and comprehensive income. See note 21 of the notes to consolidated financial statements for the components of other revenues and other expenses associated with Markel Ventures.

The following tables summarize the amounts recognized in the consolidated balance sheets and consolidated statements of income related to Markel Ventures.

(dollars in thousands)	December 31, 2017	December 31, 2016
ASSETS		
Cash and cash equivalents	**$ 165,172**	$ 105,316
Receivables	**190,300**	97,921
Goodwill	**424,982**	237,767
Intangible assets	**400,656**	234,113
Other assets	**719,618**	531,106
TOTAL ASSETS	**$ 1,900,728**	$ 1,206,223
LIABILITIES AND EQUITY		
Senior long-term debt and other debt[1]	**$ 554,282**	$ 294,702
Other liabilities	**345,608**	217,804
Total Liabilities	**899,890**	512,506
Redeemable noncontrolling interests	**166,270**	73,678
Shareholders' equity[2]	**837,060**	621,639
Noncontrolling interests	**(2,492)**	(1,600)
Total Equity	**834,568**	620,039
TOTAL LIABILITIES AND EQUITY	**$ 1,900,728**	$ 1,206,223

[1] Senior long-term debt and other debt as of December 31, 2017 and 2016 included $476.0 million and $211.0 million, respectively, of debt due to other subsidiaries of Markel Corporation, which is eliminated in consolidation.

[2] Shareholders' equity includes $663.6 million and $520.7 million as of December 31, 2017 and 2016, respectively, which represents Markel Corporation's investment in Markel Ventures and is eliminated in consolidation.

(dollars in thousands)	Years Ended December 31, 2017	2016	2015
OPERATING REVENUES			
Net investment income	**$ 332**	$ 109	$ 5
Other revenues	**1,336,820**	1,214,449	1,047,516
Total Operating Revenues	**1,337,152**	1,214,558	1,047,521
OPERATING EXPENSES			
Amortization of intangible assets	**31,429**	29,105	27,443
Other expenses	**1,185,843**	1,071,943	978,058
Total Operating Expenses	**1,217,272**	1,101,048	1,005,501
Operating Income	**119,880**	113,510	42,020
Interest expense[1]	**20,009**	15,718	13,982
Income Before Income Taxes	**99,871**	97,792	28,038
Income tax expense (benefit)	**(9,303)**	36,005	10,641
Net Income	**109,174**	61,787	17,397
Net income attributable to noncontrolling interests	**5,615**	5,615	6,370
NET INCOME TO SHAREHOLDERS	**$ 103,559**	$ 56,172	$ 11,027

[1] Interest expense for the years ended December 31, 2017, 2016 and 2015 includes intercompany interest expense of $12.3 million, $9.7 million and $9.4 million, respectively, which is eliminated in consolidation.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

Revenues from our Markel Ventures operations increased in 2017 compared to 2016, primarily due to the acquisition of Costa Farms in August 2017, the results of which are included in our non-manufacturing operations. We also experienced higher sales volumes in our non-manufacturing operations, partially offset by lower revenues in our manufacturing operations, primarily driven by lower sales volumes at one of our transportation-related manufacturing businesses.

Revenues from our Markel Ventures operations increased in 2016 compared to 2015 primarily due to the acquisition of CapTech in December 2015. We also experienced higher sales volume from one of our transportation-related manufacturing businesses.

The following table summarizes the net expense (benefit), before taxes and non-controlling interests, of significant items included in Markel Ventures operating expenses.

	Year Ended December 31,		
(dollars in thousands)	**2017**	2016	2015
Insurance recoveries	**$ (64,029)**	$ —	$ —
Storm losses	**19,598**	—	—
Increase in contingent consideration obligations	**18,997**	10,276	31,187
Goodwill impairment	**—**	18,723	14,880
Total	**$ (25,434)**	$ 28,999	$ 46,067

In 2017, operating expenses for Markel Ventures included insurance recoveries, net of related storm losses, at one of our non-manufacturing businesses attributable to Hurricane Irma. Insurance recoveries include payments for the replacement cost of damaged structures and expected profits from damaged inventory that would have otherwise been sold in 2017 and 2018.

Operating expenses for the year ended December 31, 2017 included expense attributable to an increase in our estimate of the contingent consideration obligation related to our acquisition of Costa Farms. Operating expenses for the year ended December 31, 2016 included a similar charge related to 2015 acquisition of CapTech and the year ended December 31, 2015 included a similar charge related to our 2014 acquisition of Cottrell. A portion of the purchase consideration for these acquisitions was based on post-acquisition earnings, as defined in the respective purchase agreements. Our initial estimate of the contingent consideration we expected to pay was included in the allocation of the purchase price at the acquisition date. Subsequent increases in our expectation of the contingent consideration obligation result in a charge to operating expenses. As of December 31, 2017, the fair value of our outstanding contingent consideration obligation for Costa Farms and CapTech was $49.4 million and $13.6 million, respectively, which reflects the maximum amount payable under the respective purchase agreements. The contingent consideration obligation for Cottrell was paid in 2016 and a portion of the contingent consideration obligation for CapTech was paid in 2017.

Operating expenses in 2016 included a goodwill impairment charge related to one of our industrial manufacturing reporting units. Operating expenses in 2015 included a goodwill impairment charge related to one of our healthcare reporting units.

Net income to shareholders in 2017 also included a provisional one-time tax benefit of $37.1 million in the fourth quarter related to the remeasurement of Markel Ventures' net deferred tax liabilities at the lower enacted U.S. corporate tax rate as a result of the TCJA. See note 8 of the notes to consolidated financial statements for further discussion of the TCJA.

Excluding the impact of the significant operating expense items discussed above in all three years and the TCJA in 2017, net income to shareholders decreased from 2016 to 2017 and increased from 2015 to 2016. The decrease in net income to shareholders in 2017 was due to higher materials costs and lower sales volumes in certain of our manufacturing operations, partially offset by higher sales volumes in certain of our non-manufacturing operations. The increase in net income to shareholders in 2016 was due to higher sales volumes in one of our transportation-related manufacturing businesses, improved results across our non-manufacturing businesses and the contribution of earnings from CapTech.

The following table summarizes the cash flows attributable to Markel Ventures for the years ended December 31, 2017, 2016 and 2015.

(dollars in thousands)	Years Ended December 31, 2017	2016	2015
Cash and cash equivalents, beginning of year	**$ 105,316**	$ 120,889	$ 106,552
Net cash provided by operating activities	**195,054**	100,105	166,702
Net cash used by investing activities	**(456,586)**	(55,293)	(96,073)
Net cash provided (used) by financing activities[1, 2]	**321,388**	(60,385)	(56,292)
Increase (decrease) in cash and cash equivalents	**59,856**	(15,573)	14,337
CASH AND CASH EQUIVALENTS, END OF YEAR	**$ 165,172**	$ 105,316	$ 120,889

[1] Net cash provided (used) by financing activities for the years ended December 31, 2017 and 2015 includes capital contributions from our holding company (Markel Corporation) of $145.0 million and $22.8 million, respectively, which are eliminated in consolidation. There were no capital contributions from our holding company for the year ended December 31, 2016.

[2] Net cash provided (used) by financing activities for the year ended December 31, 2017 includes net additions to debt of $265.0 million, which are eliminated in consolidation. Net cash provided (used) by financing activities for the years ended December 31, 2016 and 2015 includes net repayments of debt of $5.9 million and $36.0 million, respectively, which are eliminated in consolidation.

The increase in net cash used by investing activities in 2017 compared to 2016 and 2015 was due to cash, net of cash acquired, of $408.5 million used for acquisitions during the year ended December 31, 2017. These acquisitions were funded through capital contributions from our holding company (Markel Corporation) and financing from our insurance subsidiaries.

Markel Ventures earnings before interest, income taxes, depreciation and amortization (EBITDA) is a non-GAAP financial measure. We use Markel Ventures EBITDA as an operating performance measure in conjunction with U.S. GAAP measures, including revenues and net income, to monitor and evaluate the performance of our Markel Ventures operations. Because EBITDA excludes interest, income taxes, depreciation and amortization, it provides an indicator of economic performance that is useful to both management and investors in evaluating our Markel Ventures businesses as it is not affected by levels of debt, interest rates, effective tax rates, levels of depreciation and amortization resulting from purchase accounting. The following table reconciles consolidated net income to shareholders, to Markel Ventures EBITDA, net of noncontrolling interests.

(dollars in thousands)	Years Ended December 31, 2017	2016	2015
Net income to shareholders	**$ 395,269**	$ 455,689	$ 582,772
(Income) Loss before income taxes from other Markel operations	**12,450**	(532,989)	(714,067)
Income tax expense (benefit) from other Markel operations	**(304,160)**	133,472	142,322
Markel Ventures net income to shareholders	**103,559**	56,172	11,027
Interest expense[1]	**18,345**	14,900	13,287
Income tax expense	**(11,494)**	34,502	10,710
Depreciation expense	**38,514**	32,759	30,478
Amortization of intangible assets	**28,691**	26,796	25,776
Markel Ventures EBITDA – Total	**$ 177,615**	$ 165,129	$ 91,278
Markel Ventures EBITDA – Manufacturing	**$ 104,938**	$ 120,993	$ 88,822
Markel Ventures EBITDA – Non-Manufacturing	**72,677**	44,136	2,456
Markel Ventures EBITDA – Total	**$ 177,615**	$ 165,129	$ 91,278

[1] Interest expense for the years ended December 31, 2017, 2016 and 2015 includes intercompany interest expense of $12.3 million, $9.7 million and $9.4 million, respectively.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

Markel Ventures EBITDA for the years ended December 31, 2017, 2016 and 2015, was impacted by the significant operating expense items previously discussed. Excluding the impact of the significant operating expense items in all three years, EBITDA decreased from 2016 to 2017 and increased from 2015 to 2016. The decrease in 2017 was a result of higher materials costs and lower sales volumes in certain of our manufacturing operations, partially offset by higher sales volumes in certain of our non-manufacturing operations, as previously discussed. The increase in 2016 was due to higher sales volumes in one of our transportation-related manufacturing businesses, improved results across our non-manufacturing businesses and the contribution of earnings from CapTech.

Interest Expense, Loss on Early Extinguishment of Debt and Income Taxes

Interest Expense and Loss on Early Extinguishment of Debt

Interest expense was $132.5 million in 2017 compared to $129.9 million in 2016 and $118.3 million in 2015. The increase in interest expense in 2017 compared to 2016 was due to interest expense associated with our 5.0% unsecured senior notes issued in the second quarter of 2016 and our 3.50% and 4.30% unsecured senior notes issued during the fourth quarter of 2017, partially offset by the partial purchase of our 7.125% unsecured senior notes and our 7.35% unsecured senior notes in the second quarter of 2016 and the repayment of our 7.20% unsecured senior notes in the second quarter of 2017. The increase in interest expense in 2016 compared to 2015 was due to interest expense associated with our 5.0% unsecured senior notes which were issued in the second quarter of 2016, partially offset by the partial purchase of our 7.125% unsecured senior notes and our 7.35% unsecured senior notes in the second quarter of 2016.

In the second quarter of 2016, we issued $500 million of 5.0% unsecured senior notes due April 5, 2046. Net proceeds were $493.1 million. We used a portion of these proceeds to purchase $70.2 million of principal on our 7.35% unsecured senior notes due 2034 and $108.8 million of principal on our 7.125% unsecured senior notes due 2019 through a tender offer at a total purchase price of $95.0 million and $126.4 million, respectively.

In connection with the tender offer and purchase, we recognized a loss on early extinguishment of debt of $44.1 million during 2016. Replacing this debt with our 5.0% unsecured senior notes due April 5, 2046 extended the average term of our unsecured senior notes at a more favorable interest rate.

Income Taxes

On December 22, 2017, the U.S. enacted the TCJA, which made significant modifications to U.S. federal income tax law, most of which are effective January 1, 2018. The TCJA, among other changes, (1) reduces the U.S. corporate tax rate from 35% to 21%, (2) imposes a one-time deemed repatriation tax on unremitted foreign earnings which were not previously subject to U.S. income tax, (3) moves the U.S. from a worldwide tax system towards a territorial tax system and (4) modifies the manner in which property and casualty insurance loss reserves are computed for federal income tax purposes. U.S. GAAP requires companies to recognize the effect of tax law changes in the period of enactment.

See note 8 of the notes to consolidated financial statements for further discussion of the TCJA.

The effective tax rate for the year ended December 31, 2017 is not meaningful as a result of the significant tax benefit resulting from enactment of the TCJA. Therefore, we also analyzed our adjusted effective tax rate, which excludes the impact of the TCJA and is a non-GAAP measure. The following table summarizes our effective tax rate and adjusted effective tax rate for the years ended December 31, 2017 and 2016.

	Years Ended December 31,		
	2017	2016	2015
Effective tax rate	**(359)%**	27%	21%
Impact of TCJA on effective tax rate	**(389)**	—	—
Adjusted effective tax rate	**30%**	27%	21%

In 2017, the adjusted effective tax rate differs from the statutory rate of 35% primarily as a result of tax-exempt investment income partially offset by the impact of a lower tax benefit from losses attributable to our foreign operations, which are taxed at a lower rate. The increase in the adjusted effective tax rate in 2017 compared to the effective tax rate in 2016 was primarily due to an increase in the proportion of U.S. earnings taxed at 35% in 2017 compared to 2016 and the impact of losses from our foreign operations on our 2017 effective tax rate. These increases were partially offset by the impact of tax-exempt investment income, which relative to lower income before income taxes in 2017 compared to 2016 produced a larger benefit on our effective tax rate in 2017.

In 2016, the effective tax rate differs from the statutory rate of 35% primarily as a result of tax-exempt investment income. In 2015, the effective tax rate differs from the statutory rate of 35% primarily as a result of tax credits for foreign taxes paid and tax-exempt investment income. In previous periods, certain foreign taxes paid were not available for use as tax credits against our U.S. provision for income taxes. Based on our earnings from our foreign operations in 2015, significant foreign taxes paid, both in 2015 and prior periods, were used as credits against our U.S. provision for income taxes in 2015. Our recognition of these tax credits in 2015 had a favorable impact on our 2015 effective tax rate of 8%, compared to 2% in 2016.

With few exceptions, we are no longer subject to income tax examination by tax authorities for years ended before January 1, 2014.

The impact of the TCJA on our future effective tax rate will depend on numerous factors and assumptions, including any changes to or interpretations of the new law. We expect that overall, the TCJA will have a favorable impact on our future after-tax earnings, primarily due to the lower U.S. corporate tax rate effective January 1, 2018. Based on our current estimates, in most years, we expect our future effective tax rate will range from 16% to 18%. However, we also expect increased volatility in pre-tax income and, therefore, in our effective tax rate beginning in 2018, as a result of including unrealized gains and losses on our equity portfolio in net income, rather than in other comprehensive income. For example, we recognized net unrealized gains on equity securities for the years ended December 31, 2017 and 2016 of $1.0 billion and $398.8 million, respectively, compared to net unrealized losses on equity securities of $320.3 million for the year ended December 31, 2015. Additionally, our estimate of the effective tax rate in future periods is subject to our assertion that we are indefinitely reinvested in our foreign subsidiaries. See note 8 of the notes to consolidated financial statements for further discussion of the impact of our indefinite reinvestment assertion.

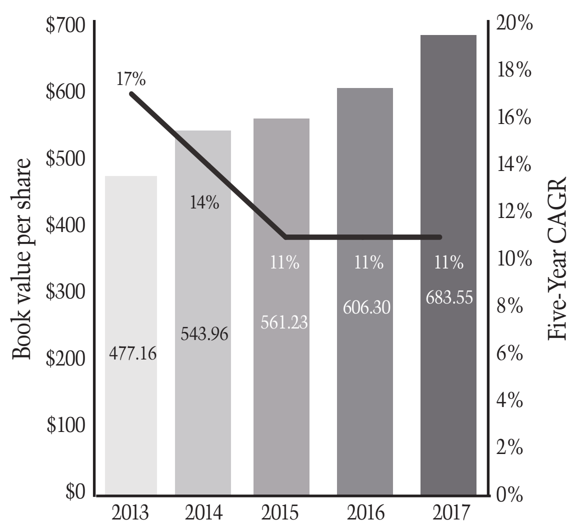
Comprehensive Income to Shareholders

Comprehensive income to shareholders was $1.2 billion, $667.0 million and $232.7 million in 2017, 2016 and 2015, respectively. Comprehensive income to shareholders for 2017 included an increase in net unrealized gains on investments, net of taxes, of $763.0 million and net income to shareholders of $395.3 million. Comprehensive income to shareholders for 2016 included net income to shareholders of $455.7 million and an increase in net unrealized gains on investments, net of taxes, of $242.2 million. Comprehensive income to shareholders for 2015 included net income to shareholders of $582.8 million, a decrease in net unrealized gains on investments, net of taxes, of $320.5 million and a decrease in foreign currency translation adjustments, net of taxes, of $29.3 million.

For the years ended December 31, 2017 and 2016, book value per share increased 13% and 8%, respectively, primarily due to comprehensive income to shareholders, as described above.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

The following graph presents book value per share and the five-year compound annual growth rate (CAGR) in book value per share for the past five years as of December 31.



Liquidity and Capital Resources

We seek to maintain prudent levels of liquidity and financial leverage for the protection of our policyholders, creditors and shareholders. Our debt to capital ratio was 25% at December 31, 2017 and 23% at December 31, 2016.

At December 31, 2017, our holding company (Markel Corporation) held $2.7 billion of invested assets compared to $2.5 billion at December 31, 2016. The increase in holding company invested assets is primarily due to dividends received from our subsidiaries and net proceeds from the issuance of unsecured senior notes, partially offset by cash paid for acquisitions and capital contributions to our subsidiaries. At December 31, 2017, invested assets approximated 22 times annual interest expense of the holding company. Excess liquidity at Markel Corporation is available to increase capital at our insurance subsidiaries, complete acquisitions, repurchase shares of our common stock or retire debt.

Our Board of Directors has approved the repurchase of up to $300 million of common stock under a share repurchase program (the Program). Under the Program, we may repurchase outstanding shares of common stock from time to time, primarily through open-market transactions. The Program has no expiration date but may be terminated by the Board of Directors at any time. As of December 31, 2017, we had repurchased 183,735 shares of common stock at a cost of $158.0 million under the Program.

Our underwriting operations collect premiums and pay claims, reinsurance costs and operating expenses. Premiums collected and positive cash flows from the underwriting operations are invested primarily in short-term investments and long-term fixed maturities. Short-term investments held by our insurance subsidiaries provide liquidity for projected claims, reinsurance costs and operating expenses. As a holding company, Markel Corporation receives cash from its subsidiaries as reimbursement for operating and other administrative expenses it incurs. The reimbursements are made within the guidelines of various management agreements between the holding company and its subsidiaries.

The holding company has historically relied upon dividends from its domestic subsidiaries to meet debt service obligations. Under the insurance laws of the various states in which our domestic insurance subsidiaries are incorporated, an insurer is restricted in the amount of dividends it may pay without prior approval of regulatory authorities. At December 31, 2017, our domestic insurance subsidiaries and Markel Bermuda Limited could pay ordinary dividends of $879.9 million during the following twelve months under these laws.

There are also regulatory restrictions on the amount of dividends that our foreign insurance subsidiaries may pay based on applicable laws in the United Kingdom. At December 31, 2017, our foreign subsidiaries, with the exception of certain of our Bermuda subsidiaries, are considered reinvested indefinitely and no provision for deferred United States income taxes has been recorded. At December 31, 2017, cash and cash equivalents, restricted cash and cash equivalents and short-term investments of $1.1 billion were held by our foreign subsidiaries. We do not expect the amount of cash and cash equivalents, restricted cash and cash equivalents and short-term investments that are attributable to foreign subsidiaries that are considered reinvested indefinitely, and not available for distributions to the holding company, to have a material effect on our liquidity or capital resources.

Net cash provided by operating activities was $858.5 million, $534.6 million and $651.2 million in 2017, 2016 and 2015, respectively. Net cash flows from operating activities for the year ended December 31, 2017 reflected higher premium collections, primarily in the U.S. Insurance and Reinsurance segments, and lower payments for income taxes and employee profit sharing compared to the same period of 2016. Also reflected in net cash flows from operating activities for 2017 was higher claims settlement activity across all of our underwriting segments compared to 2016, primarily as a result of the 2017 Catastrophes that occurred in the second half of 2017. As of December 31, 2017 we had paid 27% of our total estimated net losses on the 2017 Catastrophes. Net cash provided by operating activities in 2017 was net of a $45.8 million payment made in connection with the commutation of a property and casualty insurance contract. The decrease in net cash provided by operating activities in 2016 compared to 2015 was due in part to higher claims payments in the U.S. Insurance segment, in particular on our professional liability lines of business, as well as higher payments for employee profit sharing in 2016 compared to 2015. Net cash provided by operating activities in 2016 was net of a $51.9 million payment made in connection with the commutation of a property and casualty deposit contract. Cash flows in 2016 also included payments totaling $47.0 million to settle contingent purchase consideration obligations, of which $32.9 million was included in operating activities. Net cash provided by operating activities in 2015 was net of cash payments totaling $156.4 million made in connection with two retroactive reinsurance transactions completed in 2015, in which we ceded two portfolios of policies comprised of liabilities arising from A&E exposures to a third party. Net cash provided by operating activities in 2015 was also net of a $29.0 million cash payment made to transfer our obligations under a reinsurance contract for life and annuity benefits to a third party.

Net cash used by investing activities was $744.5 million in 2017 compared to net cash used by investing activities of $1.6 billion in 2016 and net cash provided by investing activities of $63.4 million in 2015. Net cash used by investing activities in 2017 included $1.4 billion, net of cash acquired, used for acquisitions, offset by $531.3 million of proceeds from maturities and sales of fixed maturities and sales of equity securities, net of purchases. In 2017, we reduced our holdings of short-term investments to fulfill the cash need for acquisitions. Net cash used by investing activities in 2016 included the purchases of fixed maturities and equity securities, net of proceeds from sales, of $877.0 million. We also allocated more cash and cash equivalents to short-term investments to achieve higher returns while still maintaining adequate liquidity. Net cash provided by investing activities in 2015 included proceeds from the sales and maturities of investments, net of purchases of investments, of $466.3 million, partially offset by $261.5 million, net of cash acquired, used for acquisitions, and $79.8 million used to purchase property and equipment. See "Investing Results" for further discussion of changes in our allocation of funds within the investment portfolio in 2015, 2016 and 2017. Cash flow from investing activities is affected by various factors such as anticipated payment of claims, financing activity, acquisition opportunities and individual buy and sell decisions made in the normal course of our investment portfolio management.

Invested assets increased to $20.6 billion at December 31, 2017 from $19.1 billion at December 31, 2016. Net unrealized gains on investments, net of taxes, were $2.5 billion at December 31, 2017 compared to $1.7 billion at December 31, 2016. The increase in net unrealized gains on investments, net of taxes, in 2017 was primarily due to an increase in the estimated fair value of our equity portfolio, as a result of strong overall equity market performance.

Net cash provided by financing activities was $256.3 million in 2017 compared to net cash provided by financing activities of $152.0 million in 2016 and net cash used by financing activities of $74.2 million in 2015. During 2017, we issued $300 million of 3.50% unsecured senior notes due November 1, 2027 and $300 million of 4.30% unsecured senior notes due November 1, 2047. Net proceeds were $297.4 million and $295.5 million, respectively, to be used for general corporate purposes. Also in 2017, we used cash of $90.6 million to repay the remaining outstanding balance of our 7.20% unsecured senior notes due April 14, 2017 and also used cash of $84.3 million to repay debt assumed in connection with acquisitions. During 2016, we issued $500 million of 5.0% unsecured senior notes due April 5, 2046. Net proceeds were $493.1 million. We used a portion of these proceeds to purchase $70.2 million of principal on our 7.35% senior notes due 2034 and $108.8 million of principal on our

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

7.125% senior notes due 2019 through a tender offer at a total purchase price of $95.0 million and $126.4 million, respectively. During 2017, 2016 and 2015, cash of $110.8 million, $51.1 million and $31.5 million, respectively, was used to repurchase shares of our common stock.

In recent years, we have completed numerous reinsurance commutations, which involve the termination of ceded or assumed reinsurance contracts. Our commutation strategy related to ceded reinsurance contracts is to reduce credit exposure and eliminate administrative expenses associated with the run-off of reinsurance placed with certain reinsurers. Our commutation strategy related to assumed reinsurance contracts is to reduce our loss exposure to long-tailed liabilities assumed under reinsurance agreements that were entered into by companies we acquired prior to our acquisition. We will continue to pursue commutations, or similar reinsurance transactions, when we believe they meet our objectives. As previously discussed, during 2015, we completed two retroactive reinsurance transactions to cede two portfolios of policies primarily comprised of liabilities arising from A&E exposures to a third party. See "Critical Accounting Estimates" for further discussion. We also completed a novation that transferred our obligations under a reinsurance contract for life and annuity benefit policies to a third party. In 2016 and 2017, we completed commutations that transferred our obligations under a property and casualty deposit contract and insurance contract, respectively. While we recognize that these transactions have the short term impact of reducing investment income, we have significantly reduced the uncertainty around these exposures and increased our flexibility regarding capital allocation.

We have credit risk to the extent any of our reinsurers are unwilling or unable to meet their obligations under our ceded reinsurance agreements. Within our underwriting operations, our reinsurance recoverable balance for the ten largest reinsurers was $1.6 billion at December 31, 2017, representing 61% of the balance, before considering allowances for bad debts. All of our ten largest reinsurers within our underwriting operations were rated "A" or better by A.M. Best. We were the beneficiary of letters of credit, trust accounts and funds withheld in the aggregate amount of $401.5 million at December 31, 2017, collateralizing reinsurance recoverable balances due from these ten reinsurers. Within our program services business, our reinsurance recoverable balance for the ten largest reinsurers was $1.7 billion at December 31, 2017, representing 79% of the balance, before considering allowances for bad debts. Five of our ten largest reinsurers within our program services business were rated "A" or better by A.M. Best. We were the beneficiary of letters of credit, trust accounts and funds withheld in the aggregate amount of $1.5 billion at December 31, 2017, collateralizing reinsurance recoverable balances due from these ten reinsurers. See note 15 of the notes to consolidated financial statements for further discussion of reinsurance recoverables and exposures.

Within our underwriting operations, we attempt to minimize credit exposure to reinsurers through adherence to internal reinsurance guidelines. We monitor changes in the financial condition of each of our reinsurers, and we assess our concentration of credit risk on a regular basis. Within our program services business, we mitigate credit risk by either selecting well capitalized, highly rated authorized reinsurers or requiring that the reinsurer post substantial collateral to secure the reinsured risks. While we believe that net reinsurance recoverable balances are collectible, deterioration in reinsurers' ability to pay, or collection disputes, could adversely affect our operating cash flows, financial position and results of operations.

Unpaid losses and loss adjustment expenses were $13.6 billion and $10.1 billion at December 31, 2017 and 2016, respectively. The following table summarizes case reserves and IBNR reserves. As described in note 9 to consolidated financial statements, unpaid losses and loss adjustment expenses attributable to acquisitions are recorded at fair value as of the acquisition date, which consists of the present value of the expected net loss and loss adjustment expense payments plus a risk premium. Unpaid losses and loss adjustment expenses included in the consolidated balance sheet include the unamortized portion of any fair value adjustments recorded in conjunction with an acquisition and any adjustments to discount reserves; however, as these amounts do not represent case or IBNR reserves, they are excluded from the table below. See note 9 of the notes to consolidated financial statements and "Critical Accounting Estimates" for a discussion of estimates and assumptions related to unpaid losses and loss adjustment expenses.

(dollars in thousands)	U.S. Insurance	International Insurance	Reinsurance	Other Insurance (Discontinued Lines)	Program Services	Consolidated
December 31, 2016						
Case reserves	**$ 1,355,146**	**$ 1,350,517**	**$ 1,219,119**	**$ 188,892**	**$ 759,943**	**$ 4,873,617**
IBNR reserves	**2,972,020**	**2,003,996**	**2,104,783**	**240,377**	**1,435,488**	**8,756,664**
TOTAL	**$ 4,327,166**	**$ 3,354,513**	**$ 3,323,902**	**$ 429,269**	**$ 2,195,431**[1]	**$ 13,630,281**
December 31, 2016						
Case reserves	$ 1,088,388	$ 1,188,171	$ 819,405	$ 248,729	$ —	$ 3,344,693
IBNR reserves	2,754,209	1,841,042	1,813,361	293,458	—	6,702,070
TOTAL	$ 3,842,597	$ 3,029,213	$ 2,632,766	$ 542,187	$ —	$ 10,046,763

[1] All of the premium written in our program services business is ceded to third parties, resulting in reinsurance recoverables on paid and unpaid losses of $2.2 billion as of December 31, 2017. We are the beneficiary of letters of credit, trust accounts and funds withheld in the aggregate amount of $1.9 billion at December 31, 2017, collateralizing these reinsurance recoverable balances in our program services business.

The following table summarizes our contractual cash payment obligations at December 31, 2017.

	Payments Due by Period[1]				
(dollars in thousands)	Total	Less than 1 year	1-3 years	4-5 years	More than 5 years
Senior long-term debt and other debt[2]	**$ 5,080,481**	**$ 241,513**	**$ 876,499**	**$ 831,574**	**$ 3,130,895**
Unpaid losses and loss adjustment expenses (estimated)	**13,630,281**	**3,203,638**	**4,598,591**	**2,565,085**	**3,262,967**
Life and annuity benefits (estimated)	**1,423,225**	**88,828**	**146,103**	**135,343**	**1,052,951**
Operating leases	**311,722**	**53,398**	**81,985**	**63,924**	**112,415**
TOTAL	**$ 20,445,709**	**$ 3,587,377**	**$ 5,703,178**	**$ 3,595,926**	**$ 7,559,228**

[1] See notes 9, 10, 11 and 16 of the notes to consolidated financial statements for further discussion of these obligations.
[2] Amounts include interest.

Senior long-term debt and other debt, excluding net unamortized premium and net unamortized debt issuance costs, was $3.1 billion at December 31, 2017 and $2.6 billion at December 31, 2016.

We maintain a revolving credit facility, which provides $300 million of capacity for future acquisitions, investments, repurchases of our capital stock and for general corporate purposes. At our discretion, $200 million of the total capacity may be used for secured letters of credit. We may increase the capacity of the facility to $500 million subject to certain terms and conditions. This facility expires in August 2019. As of December 31, 2017 and 2016, there were no borrowings outstanding under our revolving credit facility.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

We were in compliance with all covenants contained in our revolving credit facility at December 31, 2017. To the extent that we are not in compliance with our covenants, our access to the revolving credit facility could be restricted. While we believe this to be unlikely, the inability to access the revolving credit facility could adversely affect our liquidity. See note 11 of the notes to consolidated financial statements for further discussion of our revolving credit facility.

Reserves for unpaid losses and loss adjustment expenses represent future contractual obligations associated with property and casualty insurance and reinsurance contracts issued to our policyholders or other insurance companies. Information presented in the table of contractual cash payment obligations is an estimate of our future payment of claims as of December 31, 2017. Payment patterns for losses and loss adjustment expenses were generally based upon historical claims patterns. Each claim is settled individually based upon its merits and certain claims may take years to settle, especially if legal action is involved. The actual cash payments for settled claims will vary, possibly significantly, from the estimates shown in the preceding table. The unpaid losses and loss adjustment expenses in the table above are our gross estimates of known liabilities as of December 31, 2017. The expected payments by period are the estimated payments at a future time, whereas the reserves for unpaid losses and loss adjustment expenses included in the consolidated balance sheet include the unamortized portion of any fair value adjustments for unpaid losses and loss adjustment expenses assumed in conjunction with an acquisition.

Reserves for life and annuity benefits represent future contractual obligations associated with reinsurance contracts issued to other insurance companies. Information presented in the table of contractual cash payment obligations is an estimate of our future payment of benefits as of December 31, 2017. The assumptions used in estimating the likely payments due by period are based on cedent experience, industry mortality tables, and our expense experience. Due to the inherent uncertainty in the process of estimating the timing of such payments, there is a risk that the amounts paid in any such period can be significantly different from the estimates shown in the preceding table. The life and annuity benefits in the above table are our gross estimates of known obligations as of December 31, 2017. These obligations are computed on a net present value basis in the consolidated balance sheet as of December 31, 2017, whereas the expected payments by period in the table above are the estimated payments at a future time and do not reflect a discount of the amount payable.

At December 31, 2017, we had $4.6 billion of invested assets held in trust or on deposit for the benefit of policyholders or ceding companies or to support underwriting activities. Additionally, we have pledged investments and cash and cash equivalents totaling $349.5 million at December 31, 2017 as security for letters of credit that have been issued by various banks on our behalf. These invested assets and the related liabilities are included on our consolidated balance sheet. See note 3(h) of the notes to consolidated financial statements for further discussion of restrictions over our invested assets.

Our insurance operations require capital to support premium writings, and we remain committed to maintaining adequate capital and surplus at each of our insurance subsidiaries. The National Association of Insurance Commissioners (NAIC) developed a model law and risk-based capital formula designed to help regulators identify domestic property and casualty insurers that may be inadequately capitalized. Under the NAIC's requirements, a domestic insurer must maintain total capital and surplus above a calculated threshold or face varying levels of regulatory action. Capital adequacy of our foreign insurance subsidiaries is regulated by applicable laws of the United Kingdom, Bermuda and other jurisdictions. At December 31, 2017, the capital and surplus of each of our insurance subsidiaries significantly exceeded the amount of statutory capital and surplus necessary to satisfy regulatory requirements.

We have access to various capital sources, including dividends from certain of our insurance subsidiaries, holding company invested assets, undrawn capacity under our revolving credit facility and access to the debt and equity capital markets. We believe that we have sufficient liquidity to meet our capital needs.

Market Risk Disclosures

Market risk is the risk of economic losses due to adverse changes in the estimated fair value of a financial instrument as the result of changes in equity prices, interest rates, foreign currency exchange rates and commodity prices. Our consolidated balance sheets include assets and liabilities with estimated fair values that are subject to market risk. Our primary market risks have been equity price risk associated with investments in equity securities, interest rate risk associated with investments in fixed maturities and foreign currency exchange rate risk associated with our international operations. Various companies within our Markel Ventures operations are subject to commodity price risk; however, this risk is not material to the Company.

The estimated fair value of our investment portfolio at December 31, 2017 was $20.6 billion, 71% of which was invested in fixed maturities, short-term investments, cash and cash equivalents and restricted cash and cash equivalents and 29% of which was invested in equity securities. At December 31, 2016, the estimated fair value of our investment portfolio was $19.1 billion, 75% of which was invested in fixed maturities, short-term investments, cash and cash equivalents and restricted cash and cash equivalents and 25% of which was invested in equity securities.

Our fixed maturities, equity securities and short-term investments are recorded at fair value, which is measured based upon quoted prices in active markets, if available. We determine fair value for these investments after considering various sources of information, including information provided by a third party pricing service. The pricing service provides prices for substantially all of our fixed maturities and equity securities. In determining fair value, we generally do not adjust the prices obtained from the pricing service. We obtain an understanding of the pricing service's valuation methodologies and related inputs, which include, but are not limited to, reported trades, benchmark yields, issuer spreads, bids, offers, duration, credit ratings, estimated cash flows and prepayment speeds. We validate prices provided by the pricing service by reviewing prices from other pricing sources and analyzing pricing data in certain instances.

Equity Price Risk

We invest a portion of shareholder funds in equity securities, which have historically produced higher long-term returns relative to fixed maturities. We seek to invest in profitable companies, with honest and talented management, that exhibit reinvestment opportunities and capital discipline, at reasonable prices. We intend to hold these investments over the long term and focus on long-term total investment return, understanding that the level of unrealized gains or losses on investments may vary from one period to the next. See note 3(a) of the notes to consolidated financial statements for disclosure of gross unrealized gains and losses by investment category. Through December 31, 2017, changes in the estimated fair value of the equity portfolio are presented as a component of shareholders' equity in accumulated other comprehensive income, net of taxes. Effective January 1, 2018, changes in the estimated fair value of the equity portfolio will be presented in net income. See note 1(w) of the notes to consolidated financial statements for further discussion of this accounting change.

At December 31, 2017, our equity portfolio was concentrated in terms of the number of issuers and industries. Such concentrations can lead to higher levels of price volatility. At December 31, 2017, our ten largest equity holdings represented $2.5 billion, or 41%, of the equity portfolio. Investments in the property and casualty insurance industry represented $1.1 billion, or 19%, of our equity portfolio at December 31, 2017. Our investments in the property and casualty insurance industry included a $623.8 million investment in the common stock of Berkshire Hathaway Inc., a company whose subsidiaries engage in a number of diverse business activities in addition to insurance. We have investment guidelines that set limits on the equity holdings of our insurance subsidiaries.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

The following table summarizes our equity price risk and shows the effect of a hypothetical 35% increase or decrease in market prices as of December 31, 2017 and 2016. The selected hypothetical changes do not indicate what could be the potential best or worst case scenarios.

(dollars in millions)	Estimated Fair Value	Hypothetical Price Change	Estimated Fair Value after Hypothetical Change in Prices	Estimated Hypothetical Percentage Increase (Decrease) in Shareholders' Equity
As of December 31, 2017				
Equity securities	**$ 5,968**	**35% increase**	**$ 8,057**	**17.1%**
		35% decrease	**3,879**	**(17.1)**
As of December 31, 2016				
Equity securities	$ 4,746	35% increase	$ 6,407	13.1%
		35% decrease	3,085	(13.1)

Interest Rate Risk

Our fixed maturity investments and borrowings are subject to interest rate risk. Increases and decreases in interest rates typically result in decreases and increases, respectively, in the fair value of these financial instruments.

The majority of our investable assets come from premiums paid by policyholders. These funds are invested predominantly in high quality corporate, government and municipal bonds that generally match the duration of our loss reserves. The fixed maturity portfolio, including short-term investments and cash and cash equivalents, has an average duration of 4.4 years and an average rating of "AA." See note 3(c) of the notes to consolidated financial statements for disclosure of contractual maturity dates of our fixed maturity portfolio. The changes in the estimated fair value of the fixed maturity portfolio are presented as a component of shareholders' equity in accumulated other comprehensive income, net of taxes.

We work to manage the impact of interest rate fluctuations on our fixed maturity portfolio. The effective duration of the fixed maturity portfolio is managed with consideration given to the estimated duration of our liabilities. We have investment guidelines that limit the maximum duration and maturity of the fixed maturity portfolio.

We use a commercially available model to estimate the effect of interest rate risk on the fair values of our fixed maturity portfolio and borrowings. The model estimates the impact of interest rate changes on a wide range of factors including duration, prepayment, put options and call options. Fair values are estimated based on the net present value of cash flows, using a representative set of possible future interest rate scenarios. The model requires that numerous assumptions be made about the future. To the extent that any of the assumptions are invalid, incorrect estimates could result. The usefulness of a single point-in-time model is limited, as it is unable to accurately incorporate the full complexity of market interactions.

The following table summarizes our interest rate risk and shows the effect of hypothetical changes in interest rates as of December 31, 2017 and 2016. The selected hypothetical changes do not indicate what could be the potential best or worst case scenarios.

(dollars in millions)	Estimated Fair Value	Hypothetical Change in Interest Rates (bp=basis points)	Estimated Fair Value after Hypothetical Change in Interest Rates	Hypothetical Percentage Increase (Decrease) in	
				Fair Value of Fixed Maturities	Shareholders' Equity
FIXED MATURITY INVESTMENTS					
As of December 31, 2017					
Total fixed maturity investments	**$ 9,941**	**200 bp decrease**	**$ 11,323**	**13.9%**	**11.3%**
		100 bp decrease	**10,606**	**6.7**	**5.5**
		100 bp increase	**9,319**	**(6.3)**	**(5.1)**
		200 bp increase	**8,720**	**(12.3)**	**(10.0)**
As of December 31, 2016					
Total fixed maturity investments	$ 9,892	200 bp decrease	$ 11,252	13.8%	10.8%
		100 bp decrease	10,549	6.6	5.2
		100 bp increase	9,264	(6.3)	(5.0)
		200 bp increase	8,669	(12.4)	(9.7)
LIABILITIES[1]					
As of December 31, 2017					
Borrowings	**$ 3,351**	**200 bp decrease**	**$ 4,015**		
		100 bp decrease	**3,653**		
		100 bp increase	**3,096**		
		200 bp increase	**2,880**		
As of December 31, 2016					
Borrowings	$ 2,721	200 bp decrease	$ 3,184		
		100 bp decrease	2,933		
		100 bp increase	2,540		
		200 bp increase	2,384		

[1] Changes in estimated fair value have no impact on shareholders' equity.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

Foreign Currency Exchange Rate Risk

We have foreign currency exchange rate risk associated with certain of our assets and liabilities. We manage this risk primarily by matching assets and liabilities in each foreign currency, other than non-monetary assets and liabilities, as closely as possible. Non-monetary assets primarily consist of goodwill and intangible assets. As of December 31, 2017 and 2016, the carrying value of goodwill and intangible assets denominated in a foreign currency, which is not matched or hedged, was $225.9 million and $208.7 million, respectively. The increase is primarily due to the weakening of the U.S. dollar against the United Kingdom Sterling during 2017.

To assist with the matching of assets and liabilities in foreign currencies, we periodically purchase foreign currency forward contracts and we purchase or sell foreign currencies in the open market. Our forward contracts are generally designated as specific hedges for financial reporting purposes. As such, realized and unrealized gains and losses on these hedges are recorded as currency translation adjustments and are part of other comprehensive income (loss). Our forward contracts generally have maturities of three months. At December 31, 2017 and 2016, substantially all of our monetary assets and liabilities denominated in foreign currencies were either matched or hedged.

At December 31, 2017 and 2016, 87% and 88%, respectively, of our invested assets were denominated in United States Dollars. At December 31, 2017 and 2016, 84% and 81%, respectively, of our reserves for unpaid losses and loss adjustment expenses and life and annuity benefits were denominated in United States Dollars. At those dates, the largest foreign currency denominated balances within both our invested assets and reserves for unpaid losses and loss adjustment expenses and life and annuity benefits were the Euro and United Kingdom Sterling.

Credit Risk

Credit risk is the potential loss resulting from adverse changes in an issuer's ability to repay its debt obligations. We monitor our investment portfolio to ensure that credit risk does not exceed prudent levels. We have consistently invested in high credit quality, investment grade securities. Our fixed maturity portfolio has an average rating of "AA," with 98% rated "A" or better by at least one nationally recognized rating organization. Our policy is to invest in investment grade securities and to minimize investments in fixed maturities that are unrated or rated below investment grade. At December 31, 2017, less than 1% of our fixed maturity portfolio was unrated or rated below investment grade. Our fixed maturity portfolio includes securities issued with financial guaranty insurance. We purchase fixed maturities based on our assessment of the credit quality of the underlying assets without regard to insurance.

Our fixed maturity portfolio includes securities issued by foreign governments and non-sovereign foreign institutions. General concern exists about the financial difficulties facing certain foreign countries in light of the adverse economic conditions experienced over the past several years. We monitor developments in foreign countries, currencies and issuers that could pose risks to our fixed maturity portfolio, including ratings downgrades, political and financial changes and the widening of credit spreads. We believe that our fixed maturity portfolio is highly diversified and is comprised of high quality securities.

We obtain information from news services, rating agencies and various financial market participants to assess potential negative impacts on a country or company's financial risk profile. We analyze concentrations within our fixed maturity portfolio by country, currency and issuer, which allows us to assess our level of diversification with respect to these exposures, reduce troubled exposures should they occur and mitigate any future financial distress that these exposures could cause.

At December 31, 2017, we held fixed maturities of $42.2 million, or less than 1% of invested assets, from sovereign and non-sovereign issuers domiciled in Portugal, Ireland, Italy, Greece, Spain or Brazil and $1.5 billion, or 7% of invested assets, from sovereign and non-sovereign issuers domiciled in other European countries, including supranationals. At December 31, 2016, we held fixed maturities of $38.0 million, or less than 1% of invested assets, from sovereign and non-sovereign issuers domiciled in Portugal, Ireland, Italy, Greece, Spain or Brazil and $1.5 billion, or 8% of invested assets, from sovereign and non-sovereign issuers domiciled in other European countries, including supranationals.

General concern also exists about municipalities that experience financial difficulties during periods of adverse economic conditions. We manage the exposure to credit risk in our municipal bond portfolio by investing in high quality securities and by diversifying our holdings, which are typically either general obligation or revenue bonds related to essential products and services.

Impact of Inflation

Property and casualty insurance premiums are established before the amount of losses and loss adjustment expenses, or the extent to which inflation may affect such expenses, is known. Consequently, in establishing premiums, we attempt to anticipate the potential impact of inflation. We also consider inflation in the determination and review of reserves for losses and loss adjustment expenses and life and annuity benefits since portions of these reserves are expected to be paid over extended periods of time. This is especially true for our long-tailed lines of business. Although our life and annuity reinsurance business is in run-off, we must monitor the effects inflation and changing interest rates have on the related reserves. We regularly complete loss recognition testing to ensure that held reserves are sufficient to meet our future claim obligations in the current investment environment.

Brexit Developments

On June 23, 2016, the U.K. voted to exit the European Union (E.U.) (Brexit), and on March 29, 2017, the U.K. government delivered formal notice to the other E.U. member countries that it is leaving the E.U. A two-year period has now commenced during which the U.K. and the E.U. will negotiate the future terms of the U.K.'s relationship with the E.U., including the terms of trade between the U.K. and the E.U. Unless this period is extended, the U.K. will automatically exit the E.U., with or without an agreement in place, after two years. During this period the U.K. will remain a part of the E.U. After Brexit terms are agreed, Brexit could be implemented in stages over a multi-year period. No member country has left the E.U., and the rules for exit (contained in Article 50 of the Treaty on European Union) are brief. The U.K. and the E.U. have agreed to the financial settlement to be paid by the U.K. upon leaving the E.U.

Accordingly, there are significant uncertainties related to the political, monetary and economic impacts of Brexit, including related tax, accounting and financial reporting implications. Brexit could also lead to legal uncertainty and potentially a large number of new and divergent national laws and regulations, including new tax rules, as the U.K. determines which E.U. laws to replace or replicate.

The effects of Brexit will depend in part on any agreements the U.K. makes to retain access to E.U. markets either during a transitional period or more permanently. Brexit could impair or end the ability of both Markel International Insurance Company Limited (MIICL) and our Lloyd's syndicate to transact business in E.U. countries from our U.K. offices and MIICL's ability to maintain its current branches in E.U. member countries and in Switzerland. We have started the process to obtain regulatory approval to establish an insurance company in Germany in order to continue transacting E.U. business if U.K. access to E.U. markets ceases or is materially impaired. The Society of Lloyd's has announced that it will be setting up a new European insurance company in Brussels in order to maintain access to E.U. business for Lloyd's syndicates. Access to E.U. markets through a solution devised by the Society of Lloyd's may supplement, or serve as an alternative to, a new E.U.-based insurance carrier for business we transact in the E.U.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

Disclosure of Certain Activities Relating to Iran

Under the Iran Threat Reduction and Syria Human Rights Act of 2012, non-U.S. entities owned or controlled by U.S. persons have been prohibited from engaging in activities, transactions or dealings with Iran to the same extent as U.S. persons. Effective January 16, 2016, the Office of Foreign Assets Control of the U.S. Department of the Treasury adopted General License H, which authorizes non-U.S. entities that are owned or controlled by a U.S. person to engage in most activities with Iran permitted for other non-U.S. entities so long as they meet certain requirements.

Section 13(r) of the Securities Exchange Act of 1934 requires reporting of certain Iran-related activities that are now permitted under General License H, including underwriting, insuring and reinsuring certain activities related to the importation of refined petroleum products by Iran and vessels involved in the transportation of crude oil from Iran.

Certain of our non-U.S. insurance operations underwrite global marine hull policies and global marine hull war policies that provide coverage for vessels or fleets navigating into and out of ports worldwide, potentially including Iran. Under a global marine hull war policy, the insured is required to give notice before entering designated areas, including Iran. During the quarter ended December 31, 2017 we have received notice that one or more vessels covered by a global marine hull war policy were entering Iranian waters. However, no additional premium is required under global marine hull policies or global marine hull war policies for calling into Iran. During the quarter ended December 31, 2017, we have not been asked to cover a specific voyage into or out of Iran that would result in a separate, allocable premium for that voyage.

Certain of our non-U.S. reinsurance operations underwrite marine, energy, aviation and trade credit liability treaties on a worldwide basis and, as a result, it is possible that the underlying insurance portfolios may have exposure to the Iranian petroleum industry and its related products and service providers.

We provide two energy construction reinsurance contracts in Iran, two Iran-related marine liability contracts, two Iran-related marine cargo contracts and one Iran-related hull war contract. These contracts have been underwritten through our syndicate at Lloyd's and one of our non-U.S. insurance companies. We expect our portion of the annual premium for these contracts to be approximately $1 million in the aggregate. Except for these contracts, we are not aware of any premium apportionment with respect to underwriting, insurance or reinsurance activities of our non-U.S. insurance subsidiaries reportable under Section 13(r). Should any such risks have entered into the stream of commerce covered by the insurance portfolios underlying our reinsurance treaties, we believe that the premiums associated with such business would be immaterial.

Our non-U.S. insurance subsidiaries intend to continue to provide insurance and reinsurance for coverage of Iran-related risks, if at all, only to the extent permitted under, and in accordance with, General License H or other applicable economic or trade sanctions requirements or licenses.

Controls and Procedures

As of December 31, 2017, we carried out an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures pursuant to Securities Exchange Act Rule 13a-15 (Disclosure Controls). This evaluation was conducted under the supervision and with the participation of our management, including the Principal Executive Officer (PEO) and the Principal Financial Officer (PFO).

Our management, including the PEO and PFO, does not expect that our Disclosure Controls will prevent all error and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. These inherent limitations include the realities that judgments in decision making can be faulty, and that breakdowns can occur because of simple error or mistake. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions.

Based upon our controls evaluation, the PEO and PFO concluded that effective Disclosure Controls were in place to ensure that the information required to be disclosed in reports we file or submit under the Securities Exchange Act of 1934 is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms.

Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, we carried out an evaluation, under the supervision and with the participation of our management, including the PEO and the PFO, of the effectiveness of our internal control over financial reporting as of December 31, 2017. See Management's Report on Internal Control over Financial Reporting and our independent registered public accounting firm's attestation report on the effectiveness of our internal control over financial reporting.

During 2017, we completed the acquisitions of Costa Farms and State National Companies, Inc. (State National), whose combined assets and revenues represented approximately 15% of our consolidated assets and approximately 2% of our consolidated operating revenues as of and for the year ended December 31, 2017. We currently exclude, and are in the process of working to incorporate, Costa Farms and State National into our evaluation of internal controls over financial reporting.

There were no other changes in our internal control over financial reporting during the fourth quarter of 2017 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

MANAGEMENT'S DISCUSSION & ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (continued)

Safe Harbor and Cautionary Statement

This report contains statements concerning or incorporating our expectations, assumptions, plans, objectives, future financial or operating performance and other statements that are not historical facts. These statements are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Such statements may use words such as "anticipate," "believe," "estimate," "expect," "intend," "predict," "project" and similar expressions as they relate to us or our management.

There are risks and uncertainties that may cause actual results to differ materially from predicted results in forward-looking statements. Factors that may cause actual results to differ are often presented with the forward-looking statements themselves. Additional factors that could cause actual results to differ from those predicted are set forth under "Risk Factors" or are included in the items listed below:

- our expectations about future results of our underwriting, investing and other operations are based on current knowledge and assume no significant man-made or natural catastrophes, no significant changes in products or personnel and no adverse changes in market conditions;
- the effect of cyclical trends on our underwriting, investing and other operations, including demand and pricing in the insurance, reinsurance and other markets in which we operate;
- actions by competitors, including the application of new or "disruptive" technologies or business models and consolidation, and the effect of competition on market trends and pricing;
- we offer insurance and reinsurance coverage against terrorist acts in connection with some of our programs, and in other instances we are legally required to offer terrorism insurance; in both circumstances, we actively manage our exposure, but if there is a covered terrorist attack, we could sustain material losses;
- the frequency and severity of man-made and natural catastrophes (including earthquakes, fires and weather-related catastrophes) may exceed expectations, are unpredictable and, in the case of fires and weather-related catastrophes, may be exacerbated if, as many forecast, conditions in the oceans and atmosphere result in increased hurricane, flood, drought or other adverse weather-related activity;
- emerging claim and coverage issues, changing legal and social trends, and inherent uncertainties in the loss estimation process can adversely impact the adequacy of our loss reserves and our allowance for reinsurance recoverables;
- reinsurance reserves are subject to greater uncertainty than insurance reserves, primarily because of reliance upon the original underwriting decisions made by ceding companies and the longer lapse of time from the occurrence of loss events to their reporting to the reinsurer for ultimate resolution;
- changes in the assumptions and estimates used in establishing reserves for our life and annuity reinsurance book (which is in runoff), for example, changes in assumptions and estimates of mortality, longevity, morbidity and interest rates, could result in material increases in our estimated loss reserves for such business;
- adverse developments in insurance coverage litigation or other legal or administrative proceedings could result in material increases in our estimates of loss reserves;
- the failure or inadequacy of any loss limitation methods we employ;
- changes in the availability, costs and quality of reinsurance coverage, which may impact our ability to write or continue to write certain lines of business;
- the ability or willingness of reinsurers to pay balances due may be adversely affected by industry and economic conditions, deterioration in reinsurer credit quality and coverage disputes, and collateral we hold may not be sufficient to cover a reinsurer's obligation to us;
- after the commutation of ceded reinsurance contracts, any subsequent adverse development in the re-assumed loss reserves will result in a charge to earnings;
- regulatory actions can impede our ability to charge adequate rates and efficiently allocate capital;
- general economic and market conditions and industry specific conditions, including extended economic recessions or expansions; prolonged periods of slow economic growth; inflation or deflation; fluctuations in foreign currency exchange rates, commodity and energy prices and interest rates; volatility in the credit and capital markets; and other factors;

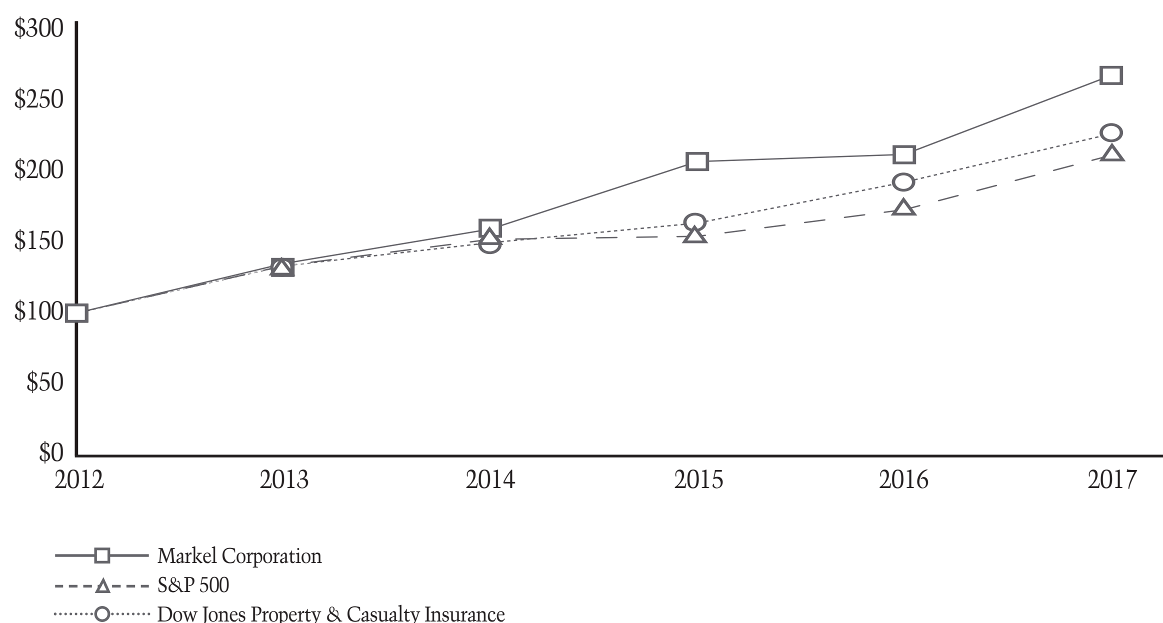
- economic conditions, actual or potential defaults in municipal bonds or sovereign debt obligations, volatility in interest and foreign currency exchange rates and changes in market value of concentrated investments can have a significant impact on the fair value of our fixed maturity and equity securities, as well as the carrying value of our other assets and liabilities, and this impact may be heightened by market volatility;
- economic conditions may adversely affect our access to capital and credit markets;
- the effects of government intervention, including material changes in the monetary policies of central banks, to address financial downturns and economic and currency concerns;
- the impacts that political and civil unrest and regional conflicts may have on our businesses and the markets they serve or that any disruptions in regional or worldwide economic conditions generally arising from these situations may have on our businesses, industries or investments;
- the impacts that health epidemics and pandemics may have on our business operations and claims activity;
- the impact on our businesses of the repeal, in part or in whole, or modification of U.S. health care reform legislation and regulations;
- changes in U.S. tax laws or in the tax laws of other jurisdictions in which we operate and adjustments we may make in our operations in response to those changes;
- a failure of our enterprise systems, or those of third parties upon which we may rely, or a failure to comply with data protection or privacy regulations;
- our acquisitions may increase our operational and control risks for a period of time;
- we may not realize the contemplated benefits, including cost savings and synergies, of our acquisitions;
- any determination requiring the write-off of a significant portion of our goodwill and intangible assets;
- the loss of services of any executive officer or other key personnel could adversely impact one or more of our operations;
- our substantial international operations and investments expose us to increased political, operational and economic risks, including foreign currency exchange rate and credit risk;
- the vote by the United Kingdom to leave the European Union, which could have adverse consequences for our businesses, particularly our London-based international insurance operations;
- our ability to raise third party capital for existing or new investment vehicles and risks related to our management of third party capital;
- the effectiveness of our procedures for compliance with existing and ever increasing guidelines, policies and legal and regulatory standards, rules, laws and regulations;
- the impact of economic and trade sanctions and embargo programs on our businesses, including instances in which the requirements and limitations applicable to the global operations of U.S. companies and their affiliates are more restrictive than those applicable to non-U.S. companies and their affiliates;
- regulatory changes, or challenges by regulators, regarding the use of certain issuing carrier or fronting arrangements;
- our dependence on a limited number of brokers for a large portion of our revenues;
- adverse changes in our assigned financial strength or debt ratings could adversely impact us, including our ability to attract and retain business, the amount of capital our insurance subsidiaries must hold and the availability and cost of capital;
- the political, legal, regulatory, financial, tax and general economic impacts, and others we cannot anticipate, of Brexit; and
- a number of additional factors may adversely affect our Markel Ventures operations, and the markets they serve, and negatively impact their revenues and profitability, including, among others: adverse weather conditions, plant disease and other contaminants; changes in government support for education, healthcare and infrastructure projects; changes in capital spending levels; changes in the housing market; liability for environmental matters; volatility in the market prices for their products; and volatility in commodity prices and interest and foreign currency exchange rates.

Our premium volume, underwriting and investment results and results from our other operations have been and will continue to be potentially materially affected by these factors. By making forward-looking statements, we do not intend to become obligated to publicly update or revise any such statements whether as a result of new information, future events or other changes. Readers are cautioned not to place undue reliance on any forward-looking statements, which speak only as at their dates.

OTHER INFORMATION

Performance Graph

The following graph compares the cumulative total return (based on share price) on our common stock with the cumulative total return of companies included in the S&P 500 Index and the Dow Jones Property & Casualty Insurance Companies Index. This information is not necessarily indicative of future results.



	Years Ended December 31,					
	2012[1]	2013	2014	2015	2016	2017
Markel Corporation	$ 100	$ 134	$ 158	$ 204	$ 209	$ 263
S&P 500	100	132	151	153	171	208
Dow Jones Property & Casualty Insurance	100	132	148	162	190	223

[1] $100 invested on December 31, 2012 in our common stock or the listed index. Includes reinvestment of dividends.

Market and Dividend Information

Our common stock trades on the New York Stock Exchange under the symbol MKL. The number of shareholders of record as of February 6, 2018 was approximately 350. The total number of shareholders, including those holding shares in street name or in brokerage accounts, is estimated to be in excess of 140,000. Our current strategy is to retain earnings and, consequently, we have not paid and do not expect to pay a cash dividend on our common stock.

High and low common stock prices as reported on the New York Stock Exchange composite tape for 2017 were $1,157.30 and $887.40, respectively. See note 24 of the notes to consolidated financial statements for additional common stock price information.

Common Stock Repurchases

The following table summarizes our common stock repurchases for the quarter ended December 31, 2017.

Issuer Purchases of Equity Securities

Period	(a) Total Number of Shares Purchased	(b) Average Price Paid per Share	(c) Total Number of Shares Purchased as Part of Publicly Announced Plans or Program[1]	(d) Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs (in thousands)
October 1, 2017 through October 31, 2017	3,630	$ 1,076.61	3,630	$ 149,229
November 1, 2017 through November 30, 2017	3,465	$ 1,082.03	3,465	$ 145,480
December 1, 2017 through December 31, 2017	3,135	$ 1,120.67	3,135	$ 141,967
Total	10,230	$ 1,091.95	10,230	$ 141,967

[1] The Board of Directors approved the repurchase of up to $300 million of our common stock pursuant to a share repurchase program publicly announced on November 21, 2013 (the Program). Under the Program, we may repurchase outstanding shares of our common stock from time to time in privately negotiated or open market transactions, including under plans complying with Rule 10b5-1 under the Securities Exchange Act of 1934. The Program has no expiration date but may be terminated by the Board of Directors at any time.

Available Information and Shareholder Relations

This document represents Markel Corporation's Annual Report and Form 10-K, which is filed with the Securities and Exchange Commission.

Information about Markel Corporation, including exhibits filed as part of this Form 10-K, may be obtained by writing Mr. Bruce Kay, Investor Relations, at the address of the corporate offices listed below, or by calling (800) 446-6671.

We make available free of charge on or through our website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports as soon as reasonably practicable after such material is electronically filed with or furnished to the Securities and Exchange Commission. Our website address is www.markelcorp.com.

Transfer Agent

American Stock Transfer & Trust Co., LLC, Operations Center, 6201 15th Avenue, Brooklyn, NY 11219 (800) 937-5449

Code of Conduct

We have adopted a code of business conduct and ethics (Code of Conduct) which is applicable to all directors and associates, including executive officers. We have posted the Code of Conduct on our website at www.markelcorp.com. We intend to satisfy applicable disclosure requirements regarding amendments to, or waivers from, provisions of our Code of Conduct by posting such information on our website. Shareholders may obtain printed copies of the Code of Conduct by writing Mr. Bruce Kay, Investor Relations, at the address of the corporate offices listed below, or by calling (800) 446-6671.

Annual Shareholders' Meeting

Shareholders of Markel Corporation are invited to attend the Annual Meeting to be held at Altria Theater, 6 North Laurel Street, Richmond, Virginia at 4:30 p.m., May 14, 2018.

Corporate Offices

Markel Corporation, 4521 Highwoods Parkway, Glen Allen, Virginia 23060-6148 (804) 747-0136 (800) 446-6671

DIRECTORS AND EXECUTIVE OFFICERS

Directors

Alan I. Kirshner
Chairman of the Board

J. Alfred Broaddus, Jr.
Private Investor

K. Bruce Connell
Retired Executive Vice President and Group Chief Underwriting Officer XL Capital Ltd.

Thomas S. Gayner
Co-Chief Executive Officer

Stewart M. Kasen
Retired President and Chief Executive Officer S & K Famous Brands, Inc.

Lemuel E. Lewis
Retired Executive Vice President and Chief Financial Officer Landmark Communications, Inc.

Anthony F. Markel
Vice Chairman

Steven A. Markel
Vice Chairman

Darrell D. Martin
Retired Executive Vice President and Chief Financial Officer Markel Corporation

Michael O'Reilly
Retired Vice Chairman and Chief Financial Officer The Chubb Corporation

Michael J. Schewel
Vice President, General Counsel and Secretary Tredegar Corporation

Jay M. Weinberg
Retired Chairman Emeritus Hirschler Fleischer, a professional corporation

Richard R. Whitt, III
Co-Chief Executive Officer

Debora J. Wilson
Retired President and Chief Executive Officer The Weather Channel

Executive Officers

Alan I. Kirshner
Executive Chairman since January 2016. Chairman of the Board since 1986. Chief Executive Officer from 1986 to December 2015. Director since 1978. Age 82.

Anthony F. Markel
Vice Chairman of Markel Corporation and the Board since May 2008. President and Chief Operating Officer from March 1992 to April 2008. Director since 1978. Age 76.

Steven A. Markel
Vice Chairman of Markel Corporation and the Board since March 1992. Director since 1978. Age 69.

Thomas S. Gayner
Co-Chief Executive Officer since January 2016. President and Chief Investment Officer from May 2010 to December 2015. Chief Investment Officer from January 2001 to December 2015. President, Markel-Gayner Asset Management Corporation, a subsidiary, since December 1990. Director from 1998 to 2004. Director since August 2016. Age 56.

Richard R. Whitt, III
Co-Chief Executive Officer since January 2016. President and Co-Chief Operating Officer from May 2010 to December 2015. Senior Vice President and Chief Financial Officer from May 2005 to May 2010. Director since August 2016. Age 54.

Britton L. Glisson
Chief Administrative Officer since February 2009. President, Global Insurance from November 2014 to December 2017. President, Markel Insurance Company, a subsidiary, from October 1996 to March 2009. Age 61.

Bradley J. Kiscaden
Executive Vice President and Chief Actuarial Officer since July 2012. Chief Actuarial Officer since March 1999. Age 55.

Anne G. Waleski
Executive Vice President and Chief Financial Officer since May 2014. Vice President and Chief Financial Officer since May 2010. Treasurer from August 2003 to November 2011. Age 51.

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

Annual report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the fiscal year ended December 31, 2017

Commission File Number 001-15811

MARKEL CORPORATION
(Exact name of registrant as specified in its charter)

A Virginia Corporation
IRS Employer Identification No. 54-1959284

4521 Highwoods Parkway, Glen Allen, Virginia 23060-6148
(Address of principal executive offices) (Zip code)

Registrant's telephone number, including area code:
(804) 747-0136

Securities registered pursuant to Section 12(b) of the Act:
Common Stock, no par value
New York Stock Exchange, Inc.
(title of each class and name of the exchange on which registered)

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes [X] No [ ]

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.
Yes [ ] No [X]

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes [X] No [ ]

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes [X] No [ ]

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. [ ]

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.
Large accelerated filer [X] Accelerated filer [ ]
Non-accelerated filer [ ] Smaller reporting company [ ]
Emerging growth company [ ]

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. [ ]

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes [ ] No [X]

The aggregate market value of the shares of the registrant's Common Stock held by non-affiliates as of June 30, 2017 was approximately $13,238,000,000.

The number of shares of the registrant's Common Stock outstanding at February 6, 2018: 13,900,897.

Documents Incorporated By Reference

The portions of the registrant's Proxy Statement for the Annual Meeting of Shareholders scheduled to be held on May 14, 2018, referred to in Part III.

Index and Cross References-Form 10-K Annual Report

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*Portions of Item 10 and Items 11, 12, 13 and 14 will be incorporated by reference from the Registrant's Proxy Statement for its 2018 Annual Meeting of Shareholders pursuant to instructions G(1) and G(3) of the General Instructions to Form 10-K.

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	(2) Schedules have been omitted since they either are not required or are not applicable, or the information called for is shown in the Consolidated Financial Statements and Notes thereto.	
	(3) See Index to Exhibits for a list of Exhibits filed as part of this report	
	b. See Index to Exhibits and Item 15a(3)	
	c. See Index to Financial Statements and Item 15a(2)	
16.	Form 10-K Summary	**NONE**

Exhibit Index

Exhibit No.	Document Description
3(i)	Amended and Restated Articles of Incorporation (incorporated by reference from Exhibit 3.1 in the Registrant's report on Form 8-K filed with the Commission May 13, 2011)
3(ii)	Bylaws, as amended (incorporated by reference from Exhibit 3.1 in the Registrant's report on Form 8-K filed with the Commission November 20, 2015)
4.1	Indenture dated as of June 5, 2001 between Markel Corporation and The Chase Manhattan Bank, as Trustee (incorporated by reference from Exhibit 4.1 in the Registrant's report on Form 8-K filed with the Commission June 5, 2001)
4.2	Form of Third Supplemental Indenture dated as of August 13, 2004 between Markel Corporation and JPMorgan Chase Bank (formerly known as The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission August 11, 2004)
4.3	Form of Fifth Supplemental Indenture dated as of September 22, 2009 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission September 21, 2009)
4.4	Form of Sixth Supplemental Indenture dated as of June 1, 2011 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission May 31, 2011)
4.5	Form of Seventh Supplemental Indenture dated as of July 2, 2012 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission June 29, 2012)
4.6	Form of Eighth Supplemental Indenture dated as of March 8, 2013 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission March 7, 2013)
4.7	Form of Ninth Supplemental Indenture dated as of March 8, 2013 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.3 in the Registrant's report on Form 8-K filed with the Commission March 7, 2013)
4.8	Form of Tenth Supplemental Indenture dated as of April 5, 2016 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission March 31, 2016)
4.9	Form of Eleventh Supplemental Indenture dated as of November 2, 2017 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.2 in the Registrant's report on Form 8-K filed with the Commission November 2, 2017)
4.10	Form of Twelfth Supplemental Indenture dated as of November 2, 2017 between Markel Corporation and The Bank of New York Mellon (as successor to The Chase Manhattan Bank), as Trustee, including form of the securities as Exhibit A (incorporated by reference from Exhibit 4.3 in the Registrant's report on Form 8-K filed with the Commission November 2, 2017)
4.11	Indenture dated as of September 1, 2010, among Alterra Finance LLC, Alterra Capital Holdings Limited and The Bank of New York Mellon, as Trustee (incorporated by reference from Exhibit 4.14 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended June 30, 2013)
4.12	First Supplemental Indenture, dated as of September 27, 2010 between Alterra Finance LLC, Alterra Capital Holdings Limited and The Bank of New York Mellon, as Trustee, including the form of the securities as Exhibit A (incorporated by reference from Exhibit 4.15 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended June 30, 2013)
4.13	Form of Second Supplemental Indenture dated as of June 30, 2014 among Alterra Finance LLC, Alterra Capital Holdings Limited and the Bank of New York Mellon, as Trustee (incorporated by reference from Exhibit 4.16 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended June 30, 2014)
4.14	Form of Guaranty Agreement by Markel Corporation dated as of June 30, 2014 in connection with the Alterra Finance LLC 6.25% Senior Notes due 2020 (incorporated by reference from Exhibit 4.17 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended June 30, 2014)

The registrant hereby agrees to furnish to the Securities and Exchange Commission, upon request, a copy of all other instruments defining the rights of holders of long-term debt of the registrant and its subsidiaries.

Exhibit No.	Document Description
10.1	Form of Credit Agreement dated as of August 1, 2014 among Markel Corporation, Markel Bermuda Limited, Alterra Reinsurance USA Inc., Alterra Finance LLC, Alterra USA Holdings Limited, the lenders party from time to time thereto, and Wells Fargo Bank, National Association, Administrative Agent, a Fronting Bank and Swingline Lender ("Wells Fargo Credit Agreement") (incorporated by reference from Exhibit 4.1 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended June 30, 2014)
10.2	First Amendment to Credit Agreement dated as of November 13, 2015, to the Wells Fargo Credit Agreement (incorporated by reference from Exhibit 10.2 in the Registrant's report on Form 10-K filed with the Commission for the year ended December 31, 2015)
10.3	Second Amendment to Credit Agreement dated as of November 2, 2017, to the Wells Fargo Credit Agreement (incorporated by reference from Exhibit 10.1 in the Registrant's report on Form 8-K filed with the Commission November 7, 2017)
10.4	Form of Amended and Restated Employment Agreement with Alan I. Kirshner (incorporated by reference from Exhibit 10.2 in the Registrant's report on Form 10-K filed with the Commission for the year ended December 31, 2008)*

Exhibit No.	Document Description
10.5	Amended and Restated Employment Agreement with Steven A. Markel (incorporated by reference from Exhibit 10.1 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended September 30, 2015)*
10.6	Amendment dated as of December 31, 2017 to Amended and Restated Employment Agreement with Steven A. Markel* **
10.7	Form of Amended and Restated Employment Agreement with Anthony F. Markel (incorporated by reference from Exhibit 10.4 in the Registrant's report on Form 10-K filed with the Commission for the year ended December 31, 2008)*
10.8	Form of Executive Employment Agreement with Thomas S. Gayner, Richard R. Whitt, III, F. Michael Crowley, Britton L. Glisson, Anne G. Waleski and Bradley J. Kiscaden (incorporated by reference from Exhibit 10.5 in the Registrant's report on Form 10-K filed with the Commission for the year ended December 31, 2008)*
10.9	Letter Agreement dated November 16, 2017 between Markel Corporation and F. Michael Crowley (incorporated by reference from Exhibit 10.1 in the Registrant's report on Form 8-K filed with the Commission May 11, 2017)*
10.10	Markel Corporation Executive Bonus Plan (incorporated by reference from Exhibit 10.1 in the Registrant's report on Form 8-K filed with the Commission May 14, 2015)*
10.11	Markel Corporation Voluntary Deferred Compensation Plan (incorporated by reference from Exhibit 10.14 in the Registrant's report on Form 10-K filed with the Commission for the year ended December 31, 2015)*
10.12	Employee Stock Purchase and Bonus Plan (incorporated by reference from Exhibit 10.9 in the Registrant's report on Form 10-K filed with the Commission for the year ended December 31, 2008)*
10.13	2016 Employee Stock Purchase and Bonus Plan (incorporated by reference from Exhibit 10.2 in the Registrant's report on Form 8-K filed with the Commission May 19, 2016)*
10.14	Markel Corporation Omnibus Incentive Plan (incorporated by reference from Appendix B in the Registrant's Proxy Statement and Definitive 14A filed with the Commission April 2, 2003)*
10.15	Form of Restricted Stock Unit Award Agreement for Executive Officers (revised 2010) (incorporated by reference from Exhibit 10.2 filed with the Commission in the Registrant's report on Form 10-Q for the quarter ended March 31, 2010)
10.16	Form of Amended and Restated May 2010 Restricted Stock Unit Award Agreement for Executive Officers (incorporated by reference from Exhibit 10.1 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended June 30, 2010)*
10.17	May 2010 Restricted Stock Units Deferral Election Form (incorporated by reference from Exhibit 10.2 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended June 30, 2010)*
10.18	Markel Corporation 2012 Equity Incentive Compensation Plan (incorporated by reference from Appendix A in the Registrant's Proxy Statement and Definitive 14A filed with the Commission March 16, 2012)*
10.19	Form of Time Based Restricted Stock Unit Award Agreement for Executive Officers for the 2012 Equity Incentive Compensation Plan (incorporated by reference from Exhibit 10.22 in the Registrant's report on Form 10-K filed with the Commission for the year ended December 31, 2012)*
10.20	Form of Performance Based Restricted Stock Unit Award Agreement for Executive Officers for the 2012 Equity Incentive Compensation Plan (incorporated by reference from Exhibit 10.23 in the Registrant's report on Form 10-K filed with the Commission for the year ended December 31, 2012)*
10.21	Restricted Stock Units Deferral Election Form for the 2012 Equity Incentive Compensation Plan (incorporated by reference from Exhibit 10.24 in the Registrant's report on Form 10-K filed with the Commission for the year ended December 31, 2012)*
10.22	Form of Restricted Stock Unit Award Agreement for Executive Officers under the Markel Corporation 2012 Equity Incentive Compensation Plan (incorporated by reference from Exhibit 10.1 in the Registrant's report on Form 8-K filed with the Commission May 17, 2013)*
10.23	Form of Performance Based Restricted Stock Unit Award Agreement for Executive Officers for the 2012 Equity Incentive Compensation Plan (revised 2016) (incorporated by reference from Exhibit 10.1 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended March 31, 2016)*
10.24	Form of Time Based (Cliff Vesting) Restricted Stock Unit Award Agreement for Executive Officers for the 2012 Equity Incentive Compensation Plan (revised 2016) (incorporated by reference from Exhibit 10.2 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended March 31, 2016)*
10.25	Form of Time Based (Graded Vesting) Restricted Stock Unit Award Agreement for Executive Officers for the 2012 Equity Incentive Compensation Plan (revised 2016) (incorporated by reference from Exhibit 10.3 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended March 31, 2016)*
10.26	2016 Equity Incentive Compensation Plan (incorporated by reference from Exhibit 10.1 in the Registrant's report on Form 8-K filed with the Commission May 19, 2016)*
10.27	Form of Performance Based Restricted Stock Unit Award Agreement for Executive Officers for the 2016 Equity Incentive Compensation Plan (incorporated by reference from Exhibit 10.3 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended June 30, 2016)*
10.28	Form of Time Based (Cliff Vesting) Restricted Stock Unit Award Agreement for Executive Officers for the 2016 Equity Incentive Compensation Plan (incorporated by reference from Exhibit 10.4 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended June 30, 2016)*
10.29	Form of Time Based (Graded Vesting) Restricted Stock Unit Award Agreement for Executive Officers for the 2016 Equity Incentive Compensation Plan (incorporated by reference from Exhibit 10.5 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended June 30, 2016)*
10.30	Form of Restricted Stock Award Agreement for Outside Directors for the 2016 Equity Incentive Compensation Plan (incorporated by reference from Exhibit 10.6 in the Registrant's report on Form 10-Q filed with the Commission for the quarter ended June 30, 2016)*
10.31	Form of Performance-Based Restricted Stock Unit Award Agreement for Executive Officers for the 2016 Equity Incentive Compensation Plan (revised May 2017) (incorporated by reference from Exhibit 10.1 in the Registrant's report on Form 8-K filed with the Commission May 17, 2017)*
10.32	Aspen Holdings, Inc. Amended and Restated 2008 Stock Option Plan (incorporated by reference from Exhibit 99.1 in the Registrant's Registration Statement on Form S-8 (Reg. No. 333-170047))*

Exhibit No.	Document Description
21	Certain Subsidiaries of Markel Corporation**
23	Consent of KPMG LLP**
31.1	Certification of Principal Executive Officer Pursuant to Rule 13a-14(a)/ 15d-14(a)**
31.2	Certification of Principal Financial Officer Pursuant to Rule 13a-14(a)/ 15d-14(a)**
32.1	Certification of Principal Executive Officer furnished Pursuant to 18 U.S.C. Section 1350**
32.2	Certification of Principal Financial Officer furnished Pursuant to 18 U.S.C. Section 1350**
101	The following consolidated financial statements from Markel Corporation's Annual Report on Form 10-K for the year ended December 31, 2017, filed on February 23, 2018, formatted in XBRL: (i) Consolidated Balance Sheets, (ii) Consolidated Statements of Income and Comprehensive Income, (iii) Consolidated Statements of Changes in Equity, (iv) Consolidated Statements of Cash Flows and (v) Notes to Consolidated Financial Statements.**

* Indicates management contract or compensatory plan or arrangement
** Filed with this report

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

MARKEL CORPORATION

/s/ Alan I. Kirshner
Alan I. Kirshner
Executive Chairman
(Principal Executive Officer)
February 23, 2018

/s/ Anne G. Waleski
Anne G. Waleski
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)
February 23, 2018

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signatures	Title	Date
/s/ Alan I. Kirshner Alan I. Kirshner	Executive Chairman, Chairman of the Board (Principal Executive Officer)	February 23, 2018
/s/ Anthony F. Markel Anthony F. Markel	Director, Vice Chairman	February 23, 2018
/s/ Steven A. Markel Steven A. Markel	Director, Vice Chairman	February 23, 2018
/s/ Anne G. Waleski Anne G. Waleski	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 23, 2018
/s/ Nora N. Crouch Nora N. Crouch	Chief Accounting Officer (Principal Accounting Officer)	February 23, 2018
/s/ J. Alfred Broaddus, Jr. J. Alfred Broaddus, Jr.	Director	February 23, 2018
/s/ K. Bruce Connell K. Bruce Connell	Director	February 23, 2018
/s/ Thomas S. Gayner Thomas S. Gayner	Director	February 23, 2018
/s/ Stewart M. Kasen Stewart M. Kasen	Director	February 23, 2018
/s/ Lemuel E. Lewis Lemuel E. Lewis	Director	February 23, 2018
/s/ Darrell D. Martin Darrell D. Martin	Director	February 23, 2018
/s/ Michael O'Reilly Michael O'Reilly	Director	February 23, 2018
/s/ Michael J. Schewel Michael J. Schewel	Director	February 23, 2018
/s/ Jay M. Weinberg Jay M. Weinberg	Director	February 23, 2018
/s/ Richard R. Whitt, III Richard R. Whitt, III	Director	February 23, 2018
/s/ Debora J. Wilson Debora J. Wilson	Director	February 23, 2018

Headquarters

Glen Allen, VA

Insurance

Asia Pacific
Singapore · Hong Kong · Dubai, United Arab Emirates · Kuala Lumpur, Malaysia · Labuan, Malaysia · Tokyo, Japan · Mumbai, India

Bermuda
Hamilton, Bermuda

Canada
Calgary, Canada · Montreal, Canada · Toronto, Canada · Vancouver, Canada

Europe
Barcelona, Spain · Dublin, Ireland · Madrid, Spain · Munich, Germany · Pierrefitte-en-Auge, France · Rotterdam, Netherlands · Stockholm, Sweden · Zurich, Switzerland

Latin America
Bogotá, Colombia · Buenos Aires, Argentina · Rio de Janeiro, Brazil

United Kingdom
Birmingham, England · Brinkworth, England · Bristol, England · Croydon, England · Leeds, England · London, England · Manchester, England · Reigate, England · Rugby, England · Sheffield, England

United States
Alpharetta, GA · Austin, TX · Bedford, TX · Chicago, IL · Cranston, RI · Deerfield, IL · Denver, CO · Geneva, IL · Glen Allen, VA · Henderson, NV · Hawley, PA · Houston, TX · Kansas City, MO · Kennesaw, GA · Marietta, GA · New York, NY · Omaha, NE · Ontario, CA · Pewaukee, WI · Plano, TX · Pleasanton, CA · Red Bank, NJ · San Antonio, TX · San Diego, CA · San Francisco, CA · Scottsdale, AZ · Summit, NJ · Tampa, FL · Warrenton, VA · Westminster, CA · Windsor, CT · Woodland Hills, CA

Markel Ventures

Europe
Gorinchem, Netherlands

United States
Baltimore, MD · Bethlehem, PA · Cape Girardeau, MO · Fairfield, NJ · Gainesville, GA · Glen Allen, VA · Miami, FL · Reading, PA · Richmond, VA · Temple, TX

Markel Corporation
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Glen Allen, Virginia 23060
(800) 446-6671
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