PROASSURANCE CORP
Form 10-K
February 21, 2019
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United States
Securities and Exchange Commission
Washington, D.C. 20549
FORM 10-K
(Mark One)
ý Annual report pursuant to section 13 or 15(d) of the Securities Exchange Act of 1934 [Fee Required]
for the fiscal year ended December 31, 2018,
or
¨ Transition report pursuant to section 13 or 15(d) of the Securities Exchange Act of 1934 [No Fee Required]
for the transition period from to .
Commission file number: 001-16533
ProAssurance Corporation
(Exact name of registrant as specified in its charter)

Delaware	63-1261433
(State of incorporation or organization)	(I.R.S. Employer Identification No.)
100 Brookwood Place, Birmingham, AL	35209
(Address of principal executive offices)	(Zip Code)

(205) 877-4400
(Registrant’s Telephone Number, Including Area Code)
Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange On Which Registered
Common Stock, par value $0.01 per share	New York Stock Exchange

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 ý 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 ý
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 ý No ¨
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ý No ¨
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405) 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, a 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. (Check one):

Large accelerated filer	ý	Accelerated filer	¨
Non-accelerated filer	¨ (Do not check if a smaller reporting company)	Smaller reporting company	¨
Emerging growth company	¨		

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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 Section13(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 ý

The aggregate market value of voting stock held by non-affiliates of the registrant at June 30, 2018 was $1,865,211,215.

As of February 15, 2019, the registrant had outstanding approximately 53,640,178 shares of its common stock.

Documents incorporated by reference in this Form 10-K

(i) The definitive proxy statement for the 2019 Annual Meeting of the Stockholders of ProAssurance Corporation (File No. 001-16533) is incorporated by reference into Part III of this report.

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Glossary of Terms and Acronyms

When the following terms and acronyms appear in the text of this report, they have the meanings indicated below.

Term	Meaning
ACA	The Affordable Care Act
ALAE	Allocated loss adjustment expense
AOCI	Accumulated other comprehensive income (loss)
ASU	Accounting Standards Update
BEAT	Base erosion anti-abuse tax
Board	Board of Directors of ProAssurance Corporation
BOLI	Business owned life insurance
CIMA	Cayman Islands Monetary Authority
Council of Lloyd's	The governing body for Lloyd's of London
CODM	Chief Operating Decision Maker
COSO	Committee of Sponsoring Organizations of the Treadway Commission
Commutation	An agreement between a ceding insurer and the reinsurer that provides for the valuation, payment, and complete discharge of all obligations between the parties under a particular reinsurance contract
DDR	Death, disability and retirement
Dodd-Frank Act	The Dodd-Frank Wall Street Reform and Consumer Protection Act
DPAC	Deferred policy acquisition costs
Eastern Re	Eastern Re, LTD, S.P.C.
EBUB	Earned but unbilled premium
EEA	European Economic Area
ERM	Enterprise Risk Management
FAL	Funds at Lloyd's
FASB	Financial Accounting Standards Board
FHLB	Federal Home Loan Bank
FHLMC	Federal Home Loan Mortgage Corporation
FIO	Federal Insurance Office
FNMA	Federal National Mortgage Association
GAAP	Generally accepted accounting principles in the United States of America
GDPR	General Data Protection Regulation
GILTI	Global intangible low-taxed income
GNMA	Government National Mortgage Association
HCPL	Healthcare professional liability
IBNR	Incurred but not reported
Inova Re	Inova Re, LTD, S.P.C.
IRS	Internal Revenue Service
LAE	Loss adjustment expense
LIBOR	London Interbank Offered Rate
LLC	Limited liability company
Lloyd's	Lloyd's of London market
LP	Limited partnership
LPT	Loss portfolio transfer
Medical technology liability	Medical technology and life sciences products liability
Model Holding Co. Law	Model Insurance and Holding Company System Regulatory Act and Regulation

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Term	Meaning
NAIC	National Association of Insurance Commissioners
NAV	Net asset value
NFIP	National Flood Insurance Program
NOL	Net operating loss
NRSRO	Nationally recognized statistical rating organization
NYDFS	New York Department of Financial Services
NYSE	New York Stock Exchange
OCI	Other comprehensive income (loss)
ORSA	Risk Management and Own Risk and Solvency Assessment Model Act
OTTI	Other-than-temporary impairment
PCAOB	Public Company Accounting Oversight Board
PICA	Podiatry Insurance Company of America
ProAssurance Plan	Non-qualified deferred compensation plan
ProAssurance Savings Plan	Defined contribution savings and retirement plan
Revolving Credit Agreement	ProAssurance's $250 million revolving credit agreement
ROE	Return on equity
SAB	Staff Accounting Bulletin, which reflects the SEC staff's views regarding accounting-related disclosure practices
SAP	Statutory accounting principles
SEC	Securities and Exchange Commission
SPA	Special Purpose Arrangement
SPC	Segregated portfolio cell
Specialty P&C	Specialty Property and Casualty
Syndicate 1729	Lloyd's of London Syndicate 1729
Syndicate 6131	Lloyd's of London Syndicate 6131, a Special Purpose Arrangement with Lloyd's of London Syndicate 1729
Syndicate Credit Agreement	Unconditional revolving credit agreement with the Premium Trust Fund of Syndicate 1729
TCJA	Tax Cuts and Jobs Act H.R.1 of 2017
TRIA	Federal Terrorism Risk Insurance Act
U.K.	United Kingdom of Great Britain and Northern Ireland
ULAE	Unallocated loss adjustment expense
VIE	Variable interest entity

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General Information

Throughout this report, references to ProAssurance, “we,” “us,” “our” or the "Company" refer to ProAssurance Corporation and its consolidated subsidiaries. Because ProAssurance is an insurance holding company and certain terms and phrases common to the insurance industry are used in this report that carry special and specific meanings, we encourage you to read the Glossary of Selected Insurance and Related Financial Terms posted on our website on the Investor Relations page under Other Information (www.proassurance.com/glossary).

Caution Regarding Forward-Looking Statements

Any statements in this Form 10-K that are not historical facts are specifically identified as forward-looking statements. These statements are based upon our estimates and anticipation of future events and are subject to significant risks, assumptions and uncertainties that could cause actual results to vary materially from the expected results described in the forward-looking statements. Forward-looking statements are identified by words such as, but not limited to, "anticipate," "believe," "estimate," "expect," "hope," "hopeful," "intend," "likely," "may," "optimistic," "possible," "potential," "preliminary," "project," "should," "will" and other analogous expressions. There are numerous factors that could cause our actual results to differ materially from those in the forward-looking statements. Thus, sentences and phrases that we use to convey our view of future events and trends are expressly designated as forward-looking statements as are sections of this Form 10-K that are identified as giving our outlook on future business.

Forward-looking statements relating to our business include among other things: statements concerning future liquidity and capital requirements, investment valuation and performance, return on equity, financial ratios, net income, premiums, losses and loss reserve, premium rates and retention of current business, competition and market conditions, the expansion of product lines, the development or acquisition of business in new geographical areas, the availability of acceptable reinsurance, actions by regulators and rating agencies, court actions, legislative actions, payment or performance of obligations under indebtedness, payment of dividends and other matters.

These forward-looking statements are subject to significant risks, assumptions and uncertainties, including, among other things, the following factors that could affect the actual outcome of future events:

changes in general economic conditions, including the impact of inflation or deflation and unemployment;

our ability to maintain our dividend payments;

regulatory, legislative and judicial actions or decisions that could affect our business plans or operations, including the impact of Brexit;

the enactment or repeal of tort reforms;

formation or dissolution of state-sponsored insurance entities providing coverages now offered by ProAssurance which could remove or add sizable numbers of insureds from or to the private insurance market;

changes in the interest and tax rate environment;

resolution of uncertain tax matters and changes in tax laws, including the impact of the TCJA;

changes in laws or government regulations regarding financial markets or market activity that may affect our business;

changes in the ability of the U.S. government to meet its obligations that may affect the U.S. economy and our business;

performance of financial markets affecting the fair value of our investments or making it difficult to determine the value of our investments;

changes in requirements or accounting policies and practices that may be adopted by our regulatory agencies, the FASB, the SEC, the PCAOB or the NYSE that may affect our business;

changes in laws or government regulations affecting the financial services industry, the property and casualty insurance industry or particular insurance lines underwritten by our subsidiaries;

the effect on our insureds, particularly the insurance needs of our insureds, and our loss costs, of changes in the healthcare delivery system and/or changes in the U.S. political climate that may affect healthcare policy or our business;

consolidation of our insureds into or under larger entities which may be insured by competitors, or may not have a risk profile that meets our underwriting criteria or which may not use external providers for insuring or otherwise managing substantial portions of their liability risk;

uncertainties inherent in the estimate of our loss and loss adjustment expense reserve and reinsurance recoverable;
changes in the availability, cost, quality or collectability of insurance/reinsurance;

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the results of litigation, including pre- or post-trial motions, trials and/or appeals we undertake;
effects on our claims costs from mass tort litigation that are different from that anticipated by us;
allegations of bad faith which may arise from our handling of any particular claim, including failure to settle;
loss or consolidation of independent agents, agencies, brokers or brokerage firms;
changes in our organization, compensation and benefit plans;
changes in the business or competitive environment may limit the effectiveness of our business strategy and impact our revenues;
our ability to retain and recruit senior management;
the availability, integrity and security of our technology infrastructure or that of our third-party providers of technology infrastructure, including any susceptibility to cyber-attacks which might result in a loss of information or operating capability;
the impact of a catastrophic event, as it relates to both our operations and our insured risks;
the impact of acts of terrorism and acts of war;
the effects of terrorism-related insurance legislation and laws;
guaranty funds and other state assessments;
our ability to achieve continued growth through expansion into new markets or through acquisitions or business combinations;
changes to the ratings assigned by rating agencies to our insurance subsidiaries, individually or as a group;
provisions in our charter documents, Delaware law and state insurance laws may impede attempts to replace or remove management or may impede a takeover;
state insurance restrictions may prohibit assets held by our insurance subsidiaries, including cash and investment securities, from being used for general corporate purposes;
taxing authorities can take exception to our tax positions and cause us to incur significant amounts of legal and accounting costs and, if our defense is not successful, additional tax costs, including interest and penalties; and
expected benefits from completed and proposed acquisitions may not be achieved or may be delayed longer than expected due to business disruption; loss of customers, employees or key agents; increased operating costs or inability to achieve cost savings; and assumption of greater than expected liabilities, among other reasons.

Additional risks, assumptions and uncertainties that could arise from our membership in the Lloyd's market and our participation in Lloyd's Syndicates include, but are not limited to, the following:

members of Lloyd's are subject to levies by the Council of Lloyd's based on a percentage of the member's underwriting capacity, currently a maximum of 3%, but can be increased by Lloyd's;
Syndicate operating results can be affected by decisions made by the Council of Lloyd's which the management of Syndicate 1729 and Syndicate 6131 have little ability to control, such as a decision to not approve the business plan of Syndicate 1729 or Syndicate 6131, or a decision to increase the capital required to continue operations, and by our obligation to pay levies to Lloyd's;
Lloyd's insurance and reinsurance relationships and distribution channels could be disrupted or Lloyd's trading licenses could be revoked, making it more difficult for a Lloyd's Syndicate to distribute and market its products;
rating agencies could downgrade their ratings of Lloyd's as a whole; and
Syndicate 1729 and Syndicate 6131 operations are dependent on a small, specialized management team and the loss of their services could adversely affect the Syndicate’s business. The inability to identify, hire and retain other highly qualified personnel in the future could adversely affect the quality and profitability of Syndicate 1729’s or Syndicate 6131's business.

Our results may differ materially from those we expect and discuss in any forward-looking statements. The principal risk factors that may cause these differences are described in “Item 1A, Risk Factors” in this report.

We caution readers not to place undue reliance on any such forward-looking statements, which are based upon conditions existing only as of the date made, and advise readers that these factors could affect our financial performance and could cause actual results for future periods to differ materially from any opinions or statements expressed with respect to future periods in any current statements. Except as required by law or regulations, we do not undertake and specifically decline any obligation to publicly release the result of any revisions that may be made to any forward-looking statements to reflect events or circumstances after the date of such statements or to reflect the occurrence of anticipated or unanticipated events.

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PART I
ITEM 1. BUSINESS
Overview
ProAssurance Corporation is a holding company for property and casualty insurance companies. For the year ended December 31, 2018, our net premiums written totaled $835 million, and at December 31, 2018 we had total assets of $4.6 billion and $1.5 billion of shareholders' equity.
Our Mission
We exist to Protect Others
Our Vision
We will be the best in the world at understanding and providing solutions for the risks our customers encounter as healers, innovators, employers and professionals. Through an integrated family of specialty companies, products and services, we will be a trusted partner enabling those we serve to focus on their vital work. As the employer of choice, we embrace every day as a singular opportunity to reach for extraordinary outcomes, build and deepen superior relationships, and accomplish our mission with infectious enthusiasm and unbending integrity.
Our wholly owned insurance subsidiaries provide professional liability insurance for healthcare professionals and facilities, professional liability insurance for attorneys, liability insurance for medical technology and life sciences risks and workers' compensation insurance. We are also the majority capital provider for Syndicate 1729 which writes a range of property and casualty insurance and reinsurance lines. In addition, we are the sole (100%) capital provider of a SPA, Syndicate 6131, which began writing business effective January 1, 2018 and focuses on contingency and specialty property business.
Our executive offices are located at 100 Brookwood Place, Birmingham, Alabama 35209 and our telephone number is (205) 877-4400. Our stock trades on the NYSE under the symbol “PRA.” Our website is www.proassurance.com, and we maintain a dedicated Investor Relations section on that website (investor.proassurance.com) to provide specialized resources for investors and others seeking to learn more about us.
As part of our disclosure through the Investor Relations section of our website, we publish our annual report on Form 10-K, our quarterly reports on Form 10-Q and our current reports on Form 8-K and all other public SEC filings as soon as reasonably practicable after the report is electronically filed with, or furnished to, the SEC. These SEC filings can be found on our website at investor.proassurance.com/Docs. This section also includes information regarding stock trading by corporate insiders by providing access to SEC Forms 3, 4 and 5 when they are filed with the SEC. In addition to federal filings on our website, we make available other documents that provide important additional information about our financial condition and operations. Documents available on our website include the financial statements we file with state regulators (compiled under SAP as required by regulation), news releases that we issue, a listing of our investment holdings and certain investor presentations. The Governance section of our website provides copies of the charters for our governing committees and many of our governing policies. Printed copies of these documents may be obtained from our Investor Relations department, either by mail at P.O. Box 590009, Birmingham, Alabama 35259-0009, or by telephone at (205) 877-4400 or (800) 282-6242.
Our History
We were incorporated in Delaware in 2001 as the successor to Medical Assurance, Inc. in conjunction with its merger with Professionals Group, Inc. ProAssurance has a history of growth through acquisitions; the most significant and recent of which was the acquisition of Eastern Insurance Holdings, Inc., on January 1, 2014.
We provided the majority of the capital for Syndicate 1729 in November 2013, and Syndicate 1729 began active operations effective January 1, 2014. We provided 100% of the capital for a SPA, Syndicate 6131, in December 2017, and Syndicate 6131 began writing business effective January 1, 2018.
Our Strategy
Our main business objective is to generate attractive total return for our shareholders. The basic components of our strategy for achieving this objective are as follows:

- Provide specialized healthcare-centric expertise to meet evolving demands in the healthcare marketplace. Through our focus on healthcare, we provide traditional liability insurance products to healthcare providers. We also leverage our reach, expertise and financial strength to provide innovative and customized products to meet the risk management needs of larger healthcare organizations or groups.

- Provide superior workers' compensation products and services. We provide workers' compensation products and services that focus on increasing an organization's productivity while reducing costs. We do this by providing

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innovative programs and solutions that address the specific needs of our customers and return injured workers to wellness.

- Provide superior customer service. Our mission statement, "We exist to Protect Others," goes hand-in-hand with our corporate brand promise, "Treated Fairly." Our employees demonstrate our core values of integrity, leadership, relationships and enthusiasm every day and are focused on meeting the needs of our customers.
- Effectively manage capital. We carefully monitor use of our capital and consider various options for capital deployment, such as business expansion by our existing subsidiaries, opportunities that arise for mergers or acquisitions, share repurchases and payment of dividends.
- Pursue profitable underwriting opportunities. We emphasize profitability, not market share. Key elements of our approach are prudent risk selection using established underwriting guidelines, appropriate pricing, and adjusting our business mix as appropriate to effectively utilize capital and achieve market synergies.
- Emphasize risk management. We actively manage our enterprise risk by maintaining strong internal controls. We also emphasize the importance of risk management to our insureds and offer them training in the use of risk reduction tools and techniques.
- Manage claims effectively. Our experienced claims teams have industry and insurance expertise that, with our extensive local knowledge, allows us to resolve claims in an effective manner, considering the circumstances of each claim. When practicable, we utilize formalized claims management processes and protocols as a means of reducing claim costs.
- Maintain a conservative investment strategy. We believe that we follow a conservative investment strategy designed to emphasize the preservation of our capital and provide adequate liquidity for the prompt payment of claims. Our investment portfolio consists primarily of investment-grade, fixed-maturity securities of short-to medium-term duration.
- Maintain financial stability. We are committed to maintaining financial strength and adequate capital.

Organization and Segment Information

During the third quarter of 2018, we altered our internal management reporting structure and the financial results evaluated by our CODM; therefore, we changed our operating segments to align with how our CODM currently oversees the business, allocates resources and evaluates operating performance. As a result of the segment reorganization, we added an operating and reportable segment: Segregated Portfolio Cell Reinsurance.

We operate through multiple insurance organizations and report our operating results in five segments, as follows:

- Specialty P&C - This segment includes our professional liability business and medical technology liability business. Professional liability insurance is primarily offered to healthcare providers and institutions and to attorneys and their firms. Medical technology liability insurance is offered to medical technology and life sciences companies that manufacture or distribute products including entities conducting human clinical trials. The underwriting results of SPCs that assume healthcare professional liability business were previously reported in this segment and are now reported in our Segregated Portfolio Cell Reinsurance segment.
- Workers' Compensation Insurance - This segment includes our workers' compensation insurance business which is provided primarily to employers with 1,000 or fewer employees. Our workers' compensation products include guaranteed cost policies, policyholder dividend policies, retrospectively-rated policies, deductible policies and alternative market solutions. The underwriting results of SPCs that assume workers’ compensation business were previously reported in this segment and are now reported in our Segregated Portfolio Cell Reinsurance segment.
- Segregated Portfolio Cell Reinsurance - This segment reflects the operating results (underwriting profit or loss, plus investment results) of SPCs at Eastern Re and Inova Re, our Cayman Islands SPC operations. The SPCs assume workers' compensation insurance, healthcare professional liability insurance or a combination of the two from either our Workers' Compensation Insurance or Specialty P&C segments.
- Lloyd's Syndicates - This segment includes the operating results from our participation in Lloyd's of London Syndicates 1729 and 6131. Syndicate 6131 is a SPA that began writing business effective January 1, 2018. The results of this segment are normally reported on a quarter delay, except when information is available that is material to the current period. Syndicate 1729 underwrites risks over a wide range of property and casualty insurance and reinsurance lines in both the U.S. and international markets while Syndicate 6131 focuses on contingency and specialty property

business, also within the U.S. and international markets.

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- Corporate - This segment includes our investment operations, interest expense and U.S. income taxes, all of which are managed at the corporate level with the exception of investment assets solely allocated to either SPC operations or Lloyd's Syndicate operations. The results of investment assets solely allocated to SPC operations were previously reported in this segment and are now reported in our Segregated Portfolio Cell Reinsurance segment. This segment also includes non-premium revenues generated outside of our insurance entities and corporate expenses.

Gross Premiums Written

Gross premiums written for the years ended December 31, 2018, 2017 and 2016 were comprised as follows:

	Year Ended December 31					
($ in thousands)	2018		2017		2016	
Specialty P&C [1]	$577,196	60 %	$549,323	63 %	$535,725	64 %
Workers' Compensation Insurance	293,230	31 %	264,048	30 %	248,875	30 %
Segregated Portfolio Cell Reinsurance [2]	85,086	9 %	77,675	9 %	72,221	9 %
Lloyd's Syndicates [3]	88,746	9 %	70,224	8 %	65,157	8 %
Inter-segment revenues [2][3]	(86,947)	(9 %)	(86,394)	(10 %)	(86,964)	(11 %)
Total	$957,311	100%	$874,876	100%	$835,014	100%

[1] Primarily comprised of one-year term policies, but includes premium related to policies with a two-year term of $22.2 million in 2018, $27.4 million in 2017 and $21.9 million in 2016.

[2] Premiums in our Segregated Portfolio Cell Reinsurance segment are 100% assumed from either our Workers' Compensation Insurance or Specialty P&C segments. We eliminate this inter-segment revenue.

[3] Our written premium includes our participation in Syndicates 1729 and 6131, including casualty premium assumed by Syndicate 1729 from our Specialty P&C segment through a quota share reinsurance agreement. Syndicate 1729 did not renew the quota share reinsurance agreement with our Specialty P&C segment on January 1, 2018; however, gross premiums written for the year ended December 31, 2018 included one quarter of cession due to the previously mentioned quarter delay. We eliminate this inter-segment revenue.

Because our investments and other assets are predominately managed at the Corporate level we do not allocate assets to segments for financial reporting purposes. Additional detailed information regarding premium by individual product type within each of our insurance segments is provided in Item 7, Management's Discussion and Analysis, in the Results of Operations section, under the headings "Premiums Written."

Our insurance exposures are primarily within the U.S. As a result of our participation in Lloyd's Syndicates 1729 and 6131, we had net written premium of $29.3 million in 2018, $21.3 million in 2017 and $12.2 million in 2016 associated with insurance exposures outside of the U.S.

Specialty Property and Casualty Segment

Our Specialty P&C segment focuses on professional liability insurance and medical technology liability insurance. Professional liability insurance is primarily offered to healthcare providers and institutions and, to a lesser extent, to attorneys and their firms. Medical technology liability insurance is offered to medical technology and life sciences companies that manufacture or distribute products including entities conducting human clinical trials.

Professional Liability Insurance

Our professional liability business is primarily focused on providing professional liability insurance to healthcare providers. We target the full spectrum of the HCPL market, covering multiple categories of healthcare professionals and healthcare entities, including hospitals and other healthcare facilities. While most of our business is written in the standard market, we also offer professional liability insurance on an excess and surplus lines basis; and we offer alternative risk and self-insurance products on a custom basis.

Our custom alternative risk solutions include complex risk valuation solutions and a loss portfolio transfer program for large healthcare entities who, most commonly, are exiting a line of business, changing an insurance approach or simply preferring to transfer risk. Our custom alternative risk solutions also include a turnkey captive solution whereby all or a portion of the healthcare premium written is ceded to certain SPCs of our wholly owned Cayman Islands reinsurance subsidiaries, Eastern Re and Inova Re, which are reported in our Segregated Portfolio Cell Reinsurance segment. The portion not ceded to the SPCs is retained within our Specialty P&C segment. Our Specialty P&C segment does not currently participate in the cells that assume HCPL premium; therefore, the segment retains no underwriting profit or loss. Total alternative market gross premiums written in this segment were approximately $5.8 million and $4.3 million during 2018 and 2017, respectively.

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We utilize independent agencies and brokers as well as an internal sales force to write our HCPL business. For the year ended December 31, 2018, approximately 61% of our HCPL gross premiums written were produced through independent insurance agencies or brokers. The agencies and brokers we use typically sell through healthcare insurance specialists who are able to convey the factors that differentiate our professional liability insurance products. In 2018, our ten largest agents or brokers produced approximately 23% of our HCPL premium; individually, no one agency or broker produced more than 10% of our HCPL premium.

In marketing our professional liability products we emphasize our financial strength, product flexibility and excellent claims, underwriting and risk resource services. We market our insurance products through our direct sales force and through our agents as well as direct mailings and advertising in industry-related publications. We also are involved in professional societies and related organizations and support legislation that will have a positive effect on healthcare and legal liability issues. We maintain regional underwriting centers which permit us to consistently provide a high level of customer service to both small and large accounts.

We maintain claim processing centers where our internal claims personnel investigate and monitor the processing of our professional liability claims. We engage experienced, independent litigation attorneys in each venue to assist with the claims process as we believe this practice aids us in providing a defense that is aggressive, effective and cost-efficient. We evaluate the merit of each claim and determine the appropriate strategy for resolution of the claim, either seeking a reasonable good faith settlement appropriate for the circumstances of the claim or aggressively defending the claim. As part of the evaluation and preparation process for HCPL claims, we meet regularly with medical advisory committees in our key markets to examine claims, attempt to identify potentially troubling practice patterns and make recommendations to our staff.

We also provide professional liability coverage to attorneys in select areas of practice; and this is a less significant portion of our business, accounting for approximately 3% of our 2018 gross premiums written. Our legal professional liability business offers errors and omissions liability insurance policies for law firms engaged in the private practice of law. The program generally insures solo practitioner and smaller firms; over 97% of our insured attorneys are members of a firm employing five or fewer attorneys. The areas of practice of our insured firms include plaintiff, real estate, criminal defense and general corporate law. The program does not insure firms practicing in areas that are considered high hazard such as securities and intellectual property law.

Underwriting decisions for our legal professional liability coverage consider the firm’s areas of practice, the experience of the attorneys and the management controls and loss mitigation practices of the applicant. Our legal professional liability line of business operates in 32 states written through independent brokers. Brokers are appointed and must specialize in legal professional liability. The territory of appointed brokers is restricted to a state or a small number of states in order to maintain a level of exclusivity.

Medical Technology and Life Sciences Insurance

Our medical technology liability business offers products-completed operations liability as well as errors and omissions liability insurance policies for medical technology and life sciences companies. These companies manufacture or distribute products that are almost all regulated by the U.S. Food and Drug Administration or similar regulatory authorities in foreign jurisdictions. Products insured include imaging and non-invasive diagnostic medical devices, orthopedic implants, pharmaceuticals, clinical lab instruments, medical instruments and surgical supplies, dental products, and animal pharmaceuticals and medical devices. We also provide coverage for sponsors of clinical trials and contract manufacturers.

Underwriting decisions for our medical technology liability coverages consider the type of risk, the amount of coverage being sought, the expertise and experience of the applicant and the expected volume of product sales. Close to 100% of our medical technology liability business is written through independent brokers. In 2018, our top ten largest brokers generated approximately 49% of our medical technology liability gross written premium, with no one broker representing more than 10%. We do not appoint agents for our medical technology liability business. We strongly defend our medical technology liability claims, with a negotiated settlement being the most frequent means of resolution.

Workers' Compensation Insurance Segment

Our Workers' Compensation Insurance segment offers workers' compensation products in the Mid-Atlantic, Southeast, Midwest, Gulf South and New England regions of the continental U.S. Our workers' compensation business consists of two major business activities:

- Traditional workers' compensation insurance coverages provided to employers, generally those with 1,000 employees or less. Types of policies offered include guaranteed cost policies, policyholder dividend policies, retrospectively-rated policies and deductible policies.
- Alternative market workers' compensation solutions provided to individual companies, groups and associations whereby the workers' compensation premium written is 100% ceded to either the SPCs at Eastern Re or Inova Re, which are reported in our Segregated Portfolio Cell Reinsurance segment, or, to a limited extent, unaffiliated

captive insurers. Alternative market products include program design, fronting, claims administration, risk management, SPC rental, asset management and SPC management services. Of our total alternative market premiums written, approximately 95% in 2018 and 92% in 2017 was ceded to the SPCs operated through Eastern Re or Inova Re.

All of our workers' compensation products are distributed through a group of appointed independent agents.

We utilize an individual account underwriting strategy for our workers' compensation business that is focused on selecting quality accounts. Our goal is to underwrite a diverse book of business with respect to risk classification, hazard level and geographic location. We target accounts with strong return to wellness and safety programs in primarily low to middle hazard levels such as clerical offices, light manufacturing, healthcare, auto dealers and service industries and maintain a strong risk management unit in order to better serve our customers' needs. During 2017, we established our Eastern Specialty Risk unit, which focuses on higher hazard risks in select industries. New business written totaled $2.7 million and $4.6 million in this unit in 2018 and 2017, respectively.

We actively seek to reduce our workers' compensation loss costs by placing a concentrated focus on returning injured workers to wellness as quickly as possible. We emphasize early intervention and aggressive disability management, utilizing in-house and third-party specialists for case management, including medical cost management. Strategic vendor relationships have been established to reduce medical claim costs and include preferred provider, physical therapy, prescription drug and catastrophic medical services.

Segregated Portfolio Cell Reinsurance Segment

Our Segregated Portfolio Cell Reinsurance segment reflects the operating results (underwriting profit or loss, plus investment results) of SPCs at Eastern Re and Inova Re, our Cayman Islands SPC operations. The SPCs assume workers' compensation insurance, healthcare professional liability insurance or a combination of the two from the Workers' Compensation Insurance and Specialty P&C segments. Each SPC is owned, fully or in part, by an agency, group or association and the operating results of the SPCs are due to the participants of that cell. The SPC is operated solely for the benefit of cell participants of that particular cell, and the pool of assets of one SPC are statutorily protected from the creditors of any other SPC. The underwriting results and investment income of the SPCs are shared with the cell participants in accordance with the terms of the cell agreements. We participate to a varying degree in the results of certain SPCs and, for the SPCs in which we participate, our participation interest is as low as 25% and as high as 85% as of December 31, 2018. In addition, the Segregated Portfolio Cell Reinsurance segment includes the SPCs' investment results as the investments are solely for the benefit of the cell participants and investment results due to external cell participants are reflected in the SPC dividend expense. The segment operating results reflect our share of the underwriting and investment results of the SPCs in which we participate.

During the first quarter of 2018, we restructured our Cayman Islands SPC operations. Beginning in 2018, all new and renewing alternative market business previously ceded to the SPCs at Eastern Re, with the exception of one program, is now ceded to SPCs operated by a newly formed wholly owned Cayman Islands subsidiary, Inova Re. As part of the restructuring, all SPCs previously operated by Eastern Re, with the exception of one program, ceased assuming new and renewing business on or after January 1, 2018. The external cell participants' cumulative undistributed earnings and the results of all SPCs for the current period due to external cell participants continue to be reported as SPC dividends payable and SPC dividend expense, respectively.

The marketing and distribution of alternative market policies are the same as that of the segment from which the policy was assumed: Workers' Compensation Insurance or Specialty P&C segments.

Lloyd's Syndicates Segment

Our Lloyd's Syndicates segment includes operating results from our participation in Syndicates 1729 and 6131. The results of this segment are normally reported on a quarter delay, except when information is available that is material to the current period. Furthermore, investment results associated with investment assets solely allocated to Lloyd's Syndicate operations and certain U.S. paid administrative expenses are reported concurrently as that information is available on an earlier time frame. We have a total capital commitment to support Syndicate 1729 and Syndicate 6131 through 2019 of up to $200 million, referred to as FAL. The Board, through a non-binding resolution, extended this commitment through 2022. For the 2019 underwriting year, our FAL was comprised of investment securities deposited with Lloyd's which at December 31, 2018 had a fair value of approximately $142.7 million.

Lloyd's Syndicate 1729

We are the majority capital provider to Syndicate 1729 with the remaining capital provided by unrelated third parties, including private names and other corporate members. For the 2019 underwriting year, we slightly decreased our participation in the operating results of Syndicate 1729 from 62% to 61%. Syndicate 1729 covers a range of property and casualty insurance and reinsurance lines, primarily for risks within the U.S. as well as international markets, and for the 2019 underwriting year

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has a maximum underwriting capacity of £128 million (approximately $163.3 million at December 31, 2018), of which £78 million (approximately $99.5 million at December 31, 2018) is our allocated underwriting capacity as a corporate member.

Lloyd's Syndicate 6131

Beginning in the second quarter of 2018, our Lloyd's Syndicates segment includes the operating results of a SPA, Syndicate 6131, which began writing business effective January 1, 2018. A Lloyd's SPA is only allowed to underwrite one quota share reinsurance contract with another Lloyd's syndicate, which in this arrangement is Syndicate 1729. We are the sole (100%) capital provider to Syndicate 6131 which focuses on contingency and specialty property business, primarily for risks within the U.S. as well as international markets. For the 2019 underwriting year, Syndicate 6131 has a maximum underwriting capacity of £12 million (approximately $15.3 million at December 31, 2018).

Our Lloyd's Syndicates segment products are distributed principally through retail brokers and coverholders (i.e., only those authorized by our retail brokers to enter into a contract but only in accordance with specified terms), which consist primarily of premium written through open-market channels and delegated underwriting authority arrangements. Our Lloyd's Syndicates write business in the Lloyd's marketplace and have access to international markets across the world.

Corporate Segment

Our Corporate segment includes our investment operations, other than those reported in our Segregated Portfolio Cell Reinsurance and Lloyd's Syndicates segments, interest expense and U.S. income taxes. The segment also includes non-premium revenues generated outside of our insurance entities and corporate expenses. We apply a consistent management strategy to the entire investment portfolio managed at the corporate level. Accordingly, we report those investment results and net realized investment gains and losses within our Corporate segment. Our overall investment strategy is to maximize current income from our investment portfolio while maintaining safety, liquidity, duration targets and portfolio diversification. The portfolio is generally managed by professional third-party asset managers whose results we monitor and evaluate. The asset managers typically have the authority to make investment decisions within the asset classes they are responsible for managing, subject to our investment policy and oversight, including a requirement that available-for-sale securities in a loss position cannot be sold without specific authorization from us. See Note 3 of the Notes to Consolidated Financial Statements for more information on our investments.

Competition

The marketplace for all our lines of business is very competitive. Within the U.S. our competitors are primarily domestic insurance companies and range from large national insurers whose financial strength and resources may be greater than ours to smaller insurance entities that concentrate on a single state and as a result have an extensive knowledge of the local markets. Additionally, there are many providers, domestic and international, of alternative risk management solutions. Syndicate 1729 and Syndicate 6131, which are based in the U.K., face significant competition from other Lloyd's syndicates as well as other international and domestic insurance and reinsurance firms operating in the country of the insured. Competitive distinctions include pricing, size, name recognition, service quality, market commitment, market conditions, breadth and flexibility of coverage, method of sale, financial stability, ratings assigned by rating agencies and regulatory conditions.

The changing healthcare environment within the U.S. during the past few years is providing both increased competitive challenges and opportunities for our largest segment, the Specialty P&C segment. Many physicians now practice as employees of larger healthcare entities. Further, healthcare services are increasingly provided by professionals other than physicians and outside of a traditional hospital or clinic setting. Such trends are widely expected to continue. Larger healthcare entities have customer service and risk management needs that differ from the traditional solo or small physician groups. Larger entities are more likely to combine risks such as workers' compensation and professional liability when purchasing insurance and are also more likely to manage all or a part of their risk through alternative insurance mechanisms. We have addressed these issues by enhancing our existing hospital/physician insurance programs, expanding our coverage of healthcare providers other than physician or hospitals, expanding our coverages to include workers' compensation and product liability, and by enhancing our customer service capabilities, particularly with regard to the needs of larger accounts. We have also increased our focus on offering unique, joint or cooperative insurance programs that are attractive to larger healthcare entities.

The workers’ compensation industry is highly competitive in the geographic markets in which we operate and price competition, including the leveraging of workers’ compensation business by multi-line insurers, continues to impact our renewal retention rate and we expect the trend to continue in 2019. We believe our product offerings allow us to provide flexibility in offering workers’ compensation solutions to our customers at a competitive price. In addition, we believe that our claims handling and risk management services are attractive to our customers and provide us with a competitive advantage even when our pricing is higher than our competitors.

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For all of our business, we recognize the importance of providing our products at competitive rates, but we do not price our products at rates that will not permit us to meet our profit targets. We base our rates on current loss projections, maintaining a long-term focus even when this approach reduces our top line growth. We believe that our size, reputation for effective claims management, unique customer service focus, multi-state presence and broad spectrum of coverages offered provides us with competitive advantages, even as the needs of our insureds change.

Rating Agencies

Our claims paying ability is regularly evaluated and rated by three major rating agencies: A.M. Best, Fitch and Moody's. In developing their claims paying ratings, these agencies make an independent evaluation of an insurer's ability to meet its obligations to policyholders. See "Risk Factors" for a table presenting the claims paying ratings of our principal insurance operations.

Our ability to service current debt and potential debt is regularly evaluated and rated by four rating agencies: A.M. Best, S&P, Fitch and Moody's. These financial strength ratings reflect each agency's independent evaluation of our ability to meet our obligation to holders of our debt, if any. While financial strength ratings may be of greater interest to investors than our claims paying ratings, these ratings are not evaluations of our equity securities nor a recommendation to buy, hold or sell our equity securities.

Insurance Regulatory Matters

We are subject to regulation under the insurance and insurance holding company statutes of various jurisdictions, including the domiciliary states of our insurance subsidiaries and other states in which our insurance subsidiaries do business. Our insurance subsidiaries are primarily domiciled in the U.S. Our states of domicile include Alabama, Illinois, Michigan, Pennsylvania and Vermont. Our foreign jurisdictions include our reinsurance operations based in the Cayman Islands, a territory of the U.K., and, through our participation in Lloyd's Syndicates, our insurance and reinsurance operations based in the U.K.

United States

Our insurance subsidiaries are required to file detailed annual statements in their states of domicile, with the NAIC and, in some cases, with the state insurance regulators in each of the states in which they do business. The laws of the various states establish agencies with broad authority to regulate, among other things, licenses to transact business, premium rates for certain types of coverage, trade practices, agent licensing, policy forms, underwriting and claims practices, reserve adequacy, transactions with affiliates and insurer solvency. Such regulations may hamper our ability to meet operating or profitability goals, including preventing us from establishing premium rates for some classes of insureds that adequately reflect the level of risk assumed for those classes. Many states also regulate investment activities on the basis of quality, distribution and other quantitative criteria. States have also enacted legislation, typically based in whole or in part on NAIC model laws, which regulates insurance holding company systems, including acquisitions, the payment of dividends, the terms of affiliate transactions, enterprise risk and solvency management and other related matters.

Applicable state insurance laws, rather than federal bankruptcy laws, apply to the liquidation or reorganization of insurance companies.

Insurance companies are also subject to state and federal legislative and regulatory measures and judicial decisions. These could include new or updated definitions of risk exposure and limitations on business practices.

Insurance Regulation Concerning Change or Acquisition of Control

The insurance regulatory codes in each of the domiciliary states of our operating subsidiaries contain provisions (subject to certain variations) to the effect that the acquisition of "control" of a domestic insurer or of any person that directly or indirectly controls a domestic insurer cannot be consummated without the prior approval of the domiciliary insurance regulator. In general, a presumption of "control" arises from the direct or indirect ownership, control or possession with the power to vote or possession of proxies with respect to 10% (5% in Alabama) or more of the voting securities of a domestic insurer or of a person that controls a domestic insurer. Because of these regulatory requirements, any party seeking to acquire control of ProAssurance or any other domestic insurance company, whether directly or indirectly, would usually be required to obtain such approvals.

In addition, certain state insurance laws contain provisions that require pre-acquisition notification to state agencies of a change in control of a non-domestic insurance company admitted in that state. While such pre-acquisition notification statutes do not authorize the state agency to disapprove the change of control, such statutes do authorize certain remedies, including the issuance of a cease and desist order with respect to the non-domestic admitted insurers doing business in the state if certain conditions exist, such as undue market concentration.

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Insurance Regulation Concerning Cybersecurity

In March 2017, the New York Cybersecurity Regulation took effect for financial institutions, insurers and other companies regulated by the NYDFS. The intent of the regulation is to encourage the protection of consumer information, as well as the technology systems of NYDFS regulated entities. We are currently compliant with the regulation according to the transition periods as defined in the NYDFS Cybersecurity Regulation.

In October 2017, the NAIC adopted the Insurance Data Security Model Law, which created rules for insurers, agents and other licensed entities covering data security and investigation and notification of breach. In May 2018, the European Union implemented the GDPR, designed to protect data privacy of individuals within the European Union and the EEA. We are compliant with the GDPR due to the global nature of our business, including a small amount of international activity in our Specialty P&C segment. In addition, managing agents of Lloyd's syndicates are required to ensure that they meet the requirements of the GDPR and any local data protection regulation based on territories in which they operate. Syndicate 1729 and Syndicate 6131, including their managing agent, are compliant with the GDPR.

Additionally, South Carolina enacted the South Carolina Department of Insurance Data Security Act effective January 1, 2019. California's Consumer Privacy Act of 2018 will go into effect January 1, 2020, and Michigan's Data Security Act will go into effect January 20, 2021. Ohio enacted the Data Protection Act which went into effect November 2, 2018. These regulations require an information security program based on an ongoing risk assessment, overseeing third-party service providers, investigating data breaches and notifying regulators of a cybersecurity event. The GDPR and the California Consumer Privacy Act of 2018 grant individuals the right to request that a company delete or de-identify their personal information. We expect other states, including our states of domicile, to either adopt the NAIC's Insurance Data Security Model Law or enact their own data security regulations. We do not expect compliance with the Insurance Data Security Model Law, the South Carolina Department of Insurance Data Security Act, the California Consumer Privacy Act, Michigan's Data Security Act and Ohio's Data Protection Act to have a material impact on our financial condition or results of operations, as they closely resemble the NYDFS Cybersecurity Regulation.

Statutory Accounting and Reporting

Insurance companies are required to file detailed quarterly and annual reports with state insurance regulators in their state of domicile and each of the states in which they do business. Their business and accounts are subject to examination by such regulators at any time. The financial information in these reports is prepared in accordance with SAP. Insurance regulators periodically examine each insurer’s adherence to SAP, financial condition and compliance with insurance department rules and regulations.

Regulation of Dividends and Other Payments from Our Operating Subsidiaries

Our U.S. operating subsidiaries are subject to various state statutory and regulatory restrictions that limit the amount of dividends or distributions an insurance company may pay to its shareholders, including our insurance holding company, without prior regulatory approval. Generally, dividends may be paid only out of unassigned earned surplus. In every case, surplus subsequent to the payment of any dividends must be reasonable in relation to an insurance company’s outstanding liabilities and must be adequate to meet its financial needs.

State insurance holding company regulations generally require domestic insurers to obtain prior approval of extraordinary dividends. Insurance holding company regulations that govern our principal operating subsidiaries deem a dividend as extraordinary if the combined dividends and distributions to the parent holding company in any twelve-month period exceed prescribed thresholds. Such thresholds are statutorily prescribed by the state of domicile and currently are based on either net income for the prior fiscal year (reduced by realized capital gains in certain domiciliary states) or a percentage of unassigned surplus at the end of the prior fiscal year, depending upon the wording of the statute.

If insurance regulators determine that payment of a dividend or any other payments within a holding company group, (such as payments under a tax-sharing agreement or payments for employee or other services) would, because of the financial condition of the paying insurance company or otherwise, be a detriment to such insurance company’s policyholders, the regulators may prohibit such payments that would otherwise be permitted.

Risk-Based Capital and Risk Assessment

In order to enhance the regulation of insurer solvency, each state of domicile in accordance with an NAIC-defined formula specifies risk-based capital requirements for property and casualty insurance companies. At December 31, 2018, all of ProAssurance's insurance subsidiaries substantially exceeded the minimum required risk-based capital levels.

In late 2010, the NAIC adopted the Model Holding Co. Law. The Model Holding Co. Law, as compared to previous NAIC guidance, increases regulatory oversight of and reporting by insurance holding companies, including reporting related to non-insurance entities, and requires reporting of risks affecting the holding company group. Additionally, in 2012 the NAIC adopted ORSA, which requires insurers to maintain a framework for identifying, assessing, monitoring, managing and reporting on the “material and relevant risks” associated with the insurer's (or insurance group's) current and future business plans. ORSA requires larger insurers, generally those with annual written premium volume greater than $1 billion as a group or $500 million as an individual insurer, to file an internal assessment of solvency with insurance regulators annually beginning in 2015. Although no specific capital adequacy standard is currently articulated in ORSA, it is possible that such standard will be developed over time. The Model Holding Co. Law and ORSA will be binding only if adopted by state legislatures and/or state insurance regulatory authorities and actual regulations adopted by any state may differ from that adopted by the NAIC. As of December 31, 2018, all states have adopted the Model Holding Co. Law and 49 states have adopted ORSA. ProAssurance was not required to file an internal assessment of solvency under the ORSA criteria in 2018.

Also, the NAIC subsequently revised the Model Holding Co. Law to include provisions which allow regulatory supervision of the holding company group through supervisory colleges and which require reporting of risk and solvency assessments for the group. Certain states in which we operate adopted these revisions early and we began filing our risk and solvency assessment in 2014.

Investment Regulation

Our operating subsidiaries are subject to state laws and regulations that require diversification of investment portfolios and that limit the amount of investments in certain investment categories. Failure to comply with these laws and regulations may cause non-conforming investments to be treated as non-admitted assets for purposes of measuring statutory surplus and, in some instances, would require divestiture of investments. We monitor the practices used by our operating subsidiaries for compliance with applicable state investment regulations and take corrective measures when deficiencies are identified.

Assessment Funds

Admitted insurance companies are required to be members of guaranty associations which administer state guaranty funds. To fund the payment of claims (up to prescribed limits) against insurance companies that become insolvent, these associations levy assessments on all member insurers in a particular state on the basis of the proportionate share of the premiums written by member insurers in the covered lines of business in that state. Maximum assessments permitted by law in any one year generally vary between 1% and 2% of annual premiums written by a member in that state, although state regulations may permit larger assessments if insolvency losses reach specified levels. Some states permit member insurers to recover assessments paid through surcharges on policyholders or through full or partial premium tax offsets, while other states permit recovery of assessments through the rate filing process. In recent years, participation in guaranty funds has not had a material effect on our results of operations.

Certain states in which we write workers’ compensation insurance have established administrative and/or second injury funds that levy assessments against insurers that write business in their state. The assessments are generally based on insurer’s proportionate share of premiums or losses in a particular state, and the assessment rate can vary from year to year.

Shared Markets

State insurance regulations may force us to participate in mandatory property and casualty shared market mechanisms or pooling arrangements that provide certain insurance coverage to individuals or other entities that are otherwise unable to purchase such coverage in the commercial insurance marketplace. Our operating subsidiaries’ participation in such shared markets or pooling mechanisms is not material to our business at this time.

Federal Regulation

The Dodd-Frank Act was enacted in July 2010 and established additional regulatory oversight of financial institutions. To date, the Dodd-Frank Act has not materially affected our business. However, development of regulations is not complete, and there could yet be changes in the regulatory environment that affect the way we conduct our operations or the cost of compliance, or both.

One of the federal government bodies created by the Dodd-Frank Act was the FIO which in December 2013 released a proposal on insurance modernization and improvement of the system of insurance regulation in the U.S. Although the FIO is prohibited from directly regulating the business of insurance, it has authority to represent the U.S. in international insurance matters and has limited power to preempt certain types of state insurance laws. The proposal advocates significantly greater federal involvement in insurance regulation and identifies necessary reforms by the states to preclude further consideration of direct federal regulation. While the proposal does not necessarily imply that the federal government will displace state regulation completely, it does recommend more of a hybrid approach to insurance regulation. In response to the FIO proposal, the NAIC and a number of state legislatures have considered or adopted legislative proposals that alter and, in many cases,

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increase the authority of state agencies to regulate insurance companies and insurance holding company systems. We cannot predict whether the proposals will be adopted or what impact, if any, subsequently enacted laws might have on our business, financial condition or results of operations.

In June 2017, the U.S. House of Representatives passed the Financial CHOICE Act, which amends or repeals certain regulations in the Dodd-Frank Act, specifically modifying provisions related to insurance regulation. Revisions include the consolidation of two conflicting federal insurance positions into a single position established to advocate for the U.S. insurance industry at domestic and international levels, while preserving the traditional state-based system of insurance regulation. In March 2018, this legislation was passed by the U.S. Senate and signed into law by the President of the U.S. in May 2018.

Although the potential impacts of the Dodd-Frank Act and potential amendments to the Dodd-Frank Act, such as the Financial CHOICE Act, on the U.S. insurance industry are not clear, our business could be affected by changes to the U.S. system of insurance regulation.

In June 2012, Congress passed the Biggert-Waters Bill, which provided for a five-year renewal of the NFIP and, among other things, authorized the Federal Emergency Management Agency to carry out initiatives to determine the capacity of private insurers, reinsurers, and financial markets to assume a greater portion of the flood risk exposure in the U.S. and to assess the capacity of the private reinsurance market to assume some of the program's risk. In August 2017, the President of the U.S. signed an executive order revoking the establishment of a federal flood risk management standard. In November 2017, the U.S. House of Representatives adopted a bill to reauthorize the NFIP for five years and implement several reforms, including provisions designed to spur additional private insurer involvement in covering flood risk, but the U.S. Senate has yet to vote on the measure. Due to the 2017 hurricane season, Congress adopted a short-term extension to fund the NFIP through January 2018, which lapsed on January 19, 2018; however, Congress subsequently extended the program through February 2018. Since then, the NFIP has received multiple short-term extensions and currently expires in May 2019. We cannot predict whether the proposals will be adopted or what impact, if any, subsequently enacted laws might have on our business, financial condition or results of operations.

U.S. Department of the Treasury Report

In February 2017, the President of the U.S. issued an executive order that calls for a comprehensive review of laws, treaties, regulations, policies and guidance regulating the U.S. financial system, and requires the Secretary of the Treasury to consult with the heads of the member agencies of the Financial Stability Oversight Council to identify any laws, regulations or requirements that inhibit federal regulation of the financial system in a manner consistent with the core principles identified in the executive order. The Secretary's report on asset management and insurance was issued in October 2017 and recommended activities-based evaluations of systemic risk in the insurance industry rather than an entity-based approach. The report also supported primary regulation of the U.S. insurance industry by the states rather than the federal government. We cannot predict whether any of the recommendations will ultimately become laws, regulations or other requirements applicable to our business.

U.S. Tax Legislation

On December 22, 2017, the President of the U.S. signed the TCJA into law. The TCJA includes significant changes to the U.S. corporate income tax system, including a reduction in the federal corporate rate from 35% to 21% beginning after December 31, 2017, changes to loss reserve discounting factors, limitations on the deductibility of interest expense and executive compensation, and modifications of the taxation of non-U.S. subsidiaries. See further discussion of the impact of the TCJA on our results of operations and financial position provided in Item 7, Management's Discussion and Analysis, in the Critical Accounting Estimates section under the heading "Taxes" or Note 6 of the Notes to Consolidated Financial Statements.

Terrorism Risk Insurance Act

TRIA, initially enacted in 2002 and reauthorized in 2007 and 2015, ensures the availability of insurance coverage for certain acts of terrorism, as defined in the legislation. The 2015 reauthorization extended the program through 2020. TRIA currently provides that during 2019 a loss event must exceed $180 million to trigger coverage and that the federal government will reimburse 81% of an insurer's losses in excess of the insurer's deductible, up to the maximum annual federal liability of $100 billion. The event trigger will gradually increase to $200 million by 2020 and the reimbursement percentage will gradually decline to 80% by 2020. TRIA requires that we offer terrorism coverage to our commercial policyholders in our workers' compensation line of business, for which we may, when warranted, charge an additional premium. The policyholders may or may not accept such coverage.

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International

Cayman Islands

Our SPC business operates through our subsidiaries, Eastern Re and Inova Re, which are organized and licensed as Cayman Islands unrestricted Class B insurance companies. Eastern Re and Inova Re are subject to regulation by the CIMA. Applicable laws and regulations govern the types of policies that Eastern Re and Inova Re can insure or reinsure, the amount of capital they must maintain and the way it can be invested, and the payment of dividends without approval by the CIMA. Eastern Re and Inova Re are required to maintain minimum capital of approximately $200,000 and must receive approval from the CIMA before they can pay any dividends.

United Kingdom

Syndicate 1729 and Syndicate 6131 are regulated in the U.K. by the Prudential Regulation Authority and the Financial Conduct Authority. All Lloyd's Syndicates must also comply with the bylaws and regulations established by the Council of Lloyd's including submission and approval of an annual business plan and maintenance of stipulated capital levels. Also, the Council of Lloyd's may call or assess a percentage of a member's underwriting capacity (currently a maximum of 3%) as a contribution to Lloyd's Central Fund, which, similar to state guaranty funds in the U.S., meets policyholder obligations if a Lloyd's member is otherwise unable to do so.

The European Union's executive body, the European Commission, has implemented new capital adequacy and risk management regulations called Solvency II that applies to businesses within the European Union. Solvency II became effective January 1, 2016. Both Syndicate 1729 and Syndicate 6131 follow the Solvency II compliance guidelines set out by the Council of Lloyd's.

In June 2016, the U.K. approved a referendum to exit the European Union, commonly referred to as "Brexit", which resulted in volatility in global stock markets and currency exchange rates, and has increased political, economic and global market uncertainty. The formal process for Brexit was triggered in March 2017 by the filing of a notice to withdraw and the legal deadline for the U.K. to withdraw from the European Union is set for March 2019. The effects of Brexit will depend in part on any agreements the U.K. makes to retain access to European Union markets either during a transitional period or more permanently. Until the withdrawal is finalized, Lloyd's is currently permitted to operate without the need for additional licensing or authorization from each individual country. In November 2018, Lloyd's opened a new European insurance company in Brussels in order to maintain access to European Union business for the 2019 renewal season. Lloyd's Brussels is Lloyd's first Europe wide operation and will bring Lloyd's expertise closer to its customers and partners in Europe. Lloyd's Brussels will also be moving all legacy EEA business to Brussels by the end of 2020 via a Part VII portfolio transfer, which allows insurers and reinsurers to transfer portfolios of insurance business from one legal entity to another, subject to court approval. We cannot predict the nature and extent of the impact that Brexit will have on regulation, interest rates, currency exchange rates and financial markets.

Employees

At December 31, 2018, we had 991 employees, none of whom were represented by a labor union. We consider our employee relations to be good.

Enterprise Risk Management

As a large property and casualty insurance provider, we are exposed to many risks stemming from both our insurance operations and the environments in which we operate. Since certain risks can be correlated with other risks, an event or a series of events can impact multiple areas of the Company simultaneously and have a material effect on the Company's results of operations, financial position and/or liquidity. In response to these exposures we have implemented an ERM program. Our ERM program consists of numerous processes and controls that have been designed by our senior management with oversight by our Board and implemented across our organization. We utilize ERM to identify potential risks from all aspects of our operations and to evaluate these risks in a manner that is both prudent and balanced. Our primary objective is to develop a risk appetite that creates and preserves value for all of our stakeholders.

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ITEM 1A. RISK FACTORS.

There are a number of factors, many beyond our control, which may cause results to differ significantly from our expectations. Through our ERM program, as previously discussed, we have attempted to identify and understand the nature, caliber and sensitivity of material foreseeable risks, mitigate or avoid those risks and determine a course of action necessary to address such risks. These risk factors fall under the following three categories: Insurance, Financial and Operational. Any factor described in this report could by itself, or together with one or more other factors, have a negative effect on our business, results of operations and/or financial condition. There may be factors not described in this report that could also cause results to differ from our expectations.

Insurance

Insurance market conditions may alter the effectiveness of our current business strategy and impact our revenues.

The property and casualty insurance business is highly competitive. We compete in a fragmented market comprised of many insurers, ranging from smaller single state monoline insurers who have an extensive knowledge of local markets to large national insurers who offer multiple product lines and whose financial strength and resources may be greater than ours. In many instances, coverage we offer is also available through mutual entities whose ROE objectives may be lower than ours. Also, there are many opportunities for self-insurance and for participation in an alternative risk transfer mechanism, such as a captive insurer or a risk retention group.

Competition in the property and casualty insurance business is based on many factors, including premiums charged and other terms and conditions of coverage, services provided, financial ratings assigned by independent rating agencies, claims services, reputation, geographic scope, local presence, agent and client relationships, financial strength and the experience of the insurance company in the line of insurance to be written. Actions of competitors could adversely affect our ability to attract and retain business at current premium levels, impact our market share and reduce the profits that would otherwise arise from operations.

Because we are a property and casualty insurer, our business may suffer as a result of unforeseen catastrophe losses.

As a property and casualty insurer, we are exposed to claims arising out of catastrophes, primarily through our workers' compensation and Lloyd's Syndicate operations. Catastrophes can be caused by various events, including hurricanes, tsunamis, tornadoes, windstorms, earthquakes, hailstorms, explosions, flooding, severe winter weather and fires and may include man-made events, such as terrorist attacks or a widespread financial crisis. The incidence, frequency and severity of catastrophes are inherently unpredictable. While we use historical data and modeling tools to assess our potential exposure to catastrophic losses under various conditions and probability scenarios, such assessments do not necessarily accurately predict future losses or accurately measure our potential exposure. The extent of losses from a catastrophe is a function of both the total amount of insured exposure in the area affected by the event and the severity of the event.

Our loss exposure for a terrorist act meeting the TRIA definition is mitigated by our coverage provided by this program as described in Part I under the heading "Insurance Regulatory Matters." Congress has the ability to alter or repeal the provisions of TRIA at its discretion, and if altered or repealed our exposure could increase and result in premium increases for those types of coverages. Workers' compensation coverages cannot exclude damages related to an act of terrorism and if TRIA were repealed or the benefits were substantially reduced, this might affect our ability to offer these coverages at a reasonable rate.

Insurance companies are not permitted to reserve for a catastrophe until it has occurred. Although we purchase reinsurance protection for risks we believe bear a significant level of catastrophe exposure, actual losses resulting from a catastrophic event or events may exceed our reinsurance protection. Furthermore, for significant catastrophic exposure, the inability or unwillingness of the reinsurer to make timely payments under the terms of the reinsurance agreement could impact our liquidity. It is therefore possible that a catastrophic event or multiple catastrophic events could have a material adverse effect on our financial position, results of operations and liquidity.

Our results of operations and financial condition may be affected if actual insured losses differ from our loss reserves or if actual amounts recoverable under reinsurance agreements differ from our estimated recoverables.

We establish reserves as balance sheet liabilities representing our estimates of amounts needed to resolve reported and unreported losses and pay related loss adjustment expenses. Our largest liability is our reserve for losses and loss adjustment expenses. Due to the size of our reserve for losses and loss adjustment expenses, even a small percentage adjustment to our reserve can have a material effect on our results of operations for the period in which the change is made.

The process of estimating loss reserves is complex. Significant periods of time may elapse between the occurrence of an insured loss, the reporting of the loss by the insured and payment of that loss. Ultimate loss costs, even for claims with similar characteristics, can vary significantly depending upon many factors including but not limited to the nature of the claim, including whether the claim is an individual or a mass tort claim, the personal situation of the claimant or the claimant’s family,

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the outcome of jury trials, the legislative and judicial climate where the insured event occurred, general economic conditions and, for claims involving bodily injury, the trend of healthcare costs. Consequently, the loss cost estimation process requires actuarial skill and the application of judgment and such estimates require periodic revision. As part of the reserving process, we review the known facts surrounding reported claims as well as historical claims data and consider the impact of various factors such as:

- for reported claims, the nature of the claim and the jurisdiction in which the claim occurred;
- trends in paid and incurred loss development;
- trends in claim frequency and severity;
- emerging economic and social trends;
- trends in healthcare costs for claims involving bodily injury;
- inflation and levels of employment; and
- changes in the regulatory, legal and political environment.

This process assumes that past experience, adjusted for the effects of current developments and anticipated trends, is an appropriate, but not necessarily accurate, basis for predicting future events. There is no precise method for evaluating the impact of any specific factor on the adequacy of reserves, and actual results are likely to differ from original estimates. We evaluate our reserves each period and increase or decrease reserves as necessary based on our estimate of future claims payments. An increase to reserves has a negative effect on our results of operations in the period of increase; a reduction to reserves has a positive effect on our results of operations in the period of reduction.

Our loss reserves also may be affected by court decisions that expand liability of our policies after they have been issued. In addition, a significant jury award or series of awards against one or more of our insureds could require us to pay large sums of money in excess of our reserved amounts. Due to uncertainties inherent in the jury system, any case that is litigated to a jury verdict has the potential to incur a loss that has a material adverse effect on our results of operations.

We purchase reinsurance to mitigate the effect of large losses. Our receivable from reinsurers on unpaid losses and loss adjustment expenses represents our estimate of the amount of our reserve for losses that will be recoverable under our reinsurance programs. We base our estimate of funds recoverable upon our expectation of ultimate losses and the portion of those losses that we estimate to be allocable to reinsurers based upon the terms and conditions of our reinsurance agreements. Given the uncertainty of the ultimate amounts of our losses, our estimates of losses and related amounts recoverable may vary significantly from the eventual outcome. Also, we estimate premiums ceded under reinsurance agreements wherein the premium due to the reinsurer, subject to certain maximums and minimums, is based in part on losses reimbursed or to be reimbursed under the agreement. Due to the size of our reinsurance balances, changes to our estimate of the amount of reinsurance that is due to us could have a material effect on our results of operations in the period for which the change is made.

We use analytical models to assist our decision-making in key areas such as pricing and reserving and may be adversely affected if actual results differ materially from the model outputs and related analyses.

We use various modeling techniques and data analytics to analyze and estimate exposures, loss trends and other risks associated with our assets and liabilities. This includes both proprietary and third party modeled outputs and related analyses to assist us in decision-making and maintain a competitive advantage. The modeled outputs and related analyses from both proprietary and third parties are subject to various assumptions, uncertainties, model design errors and the inherent limitations of any statistical analysis, including those arising from the use of historical internal and industry data and assumptions. In addition, the effectiveness of any model can be degraded by operational risks including, but not limited to, the improper use of the model. Consequently, actual results may differ materially from our modeled results. The profitability and financial condition of the Company substantially depends on the extent to which our actual experience is consistent with assumptions we use in our models and ultimate model outputs. If, based upon these models or other factors, we misprice our products or fail to appropriately estimate the risks we are exposed to, our business, financial condition, results of operations or liquidity may be adversely affected.

We are exposed to and may face adverse developments involving mass tort claims arising from coverages provided to our insureds.

Establishing claim and claim adjustment expense reserves for mass tort claims is subject to uncertainties due to many factors, including expanded theories of liability, geographical location and jurisdiction of the lawsuits. Moreover, it is difficult to estimate our ultimate liability for such claims due to evolving judicial interpretations of various tort theories of liability and defense theories, such as federal preemption and joint and several liability, as well as the application of insurance coverage to these claims.

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If market conditions cause reinsurance to be more costly or unavailable, we may be required to bear increased risk or reduce the level of our underwriting commitments.

As part of our overall risk and capacity management strategy, we purchase reinsurance for significant amounts of risk underwritten by our insurance subsidiaries. Market conditions beyond our control determine the availability and cost of the reinsurance. We may be unable to maintain current reinsurance coverage or to obtain other reinsurance coverage in adequate amounts and at favorable rates. If we are unable to renew our expiring coverage or to obtain new reinsurance coverage, either our net exposure to risk would increase or, if we are unwilling to bear an increase in net risk exposures, we would need to reduce the amount of our underwritten risk.

Our claims handling could result in a bad faith claim against us.

We have been sued from time to time for allegedly acting in bad faith during our handling of a claim. The damages claimed in actions for bad faith may include amounts owed by the insured in excess of the policy limits as well as consequential and punitive damages. Awards above policy limits are possible whenever a case is taken to trial. These actions have the potential to have a material and adverse effect on our financial condition and results of operations.

If we are unable to maintain favorable financial strength ratings, it may be more difficult for us to write new business or renew our existing business.

Independent rating agencies assess and rate the claims-paying ability and the financial strength of insurers based upon criteria established by the agencies. Periodically the rating agencies evaluate us to confirm that we continue to meet the criteria of previously assigned ratings. The financial strength ratings assigned by rating agencies to insurance companies represent independent opinions of financial strength and ability to meet policyholder and debt obligations and are not directed toward the protection of equity investors.

Our principal operating subsidiaries hold favorable claims paying ratings with A.M. Best, Fitch and Moody’s. Claims-paying ratings are used by agents, brokers and customers as an important means of assessing the financial strength and quality of insurers. If our financial position deteriorates or the rating agencies significantly change the rating criteria that are used to determine ratings, we may not maintain our favorable financial strength ratings from the rating agencies. A downgrade or involuntary withdrawal of any such rating could limit or prevent us from writing desirable business.

The following table presents the claims paying ratings of our core insurance subsidiaries as of February 15, 2019.

	Rating Agency [1]		
	A.M. Best (www.ambest.com)	Fitch (www.fitchratings.com)	Moody’s (www.moodys.com)
ProAssurance Indemnity Company, Inc.	A+ (Superior)	A (Strong)	A2
ProAssurance Casualty Company	A+ (Superior)	A (Strong)	A2
ProAssurance Specialty Insurance Company, Inc.	A+ (Superior)	A (Strong)	NR
Podiatry Insurance Company of America	A+ (Superior)	A (Strong)	A2
PACO Assurance Company, Inc.	A- (Excellent)	A (Strong)	NR
Noetic Specialty Insurance Company	A+ (Superior)	A (Strong)	NR
Medmarc Casualty Insurance Company	A+ (Superior)	A (Strong)	NR
Lloyd's Syndicate 1729 and Syndicate 6131 [2]	A (Excellent)	AA- (Strong)	NR
Eastern Alliance Insurance Company	A (Excellent)	A (Strong)	A3
Allied Eastern Indemnity Company	A (Excellent)	A (Strong)	A3
Eastern Advantage Assurance Company	A (Excellent)	A (Strong)	NR
Eastern Re Ltd., SPC	A (Excellent)	NR	NR
Inova Re Ltd., SPC	NR	NR	NR

(1) NR indicates that the subsidiary has not been rated by the listed rating agency.

(2) Rating provided is the rating applicable to all Lloyd's syndicates.

In addition to the evaluation of our claims paying ability, four rating agencies evaluate and rate our ability to service current debt and potential debt. These financial strength ratings reflect each agency’s independent evaluation of our ability to meet our obligation to holders of our debt, if any. While these ratings may be of greater interest to investors than our claims-paying ratings, these are not ratings of our equity securities nor a recommendation to buy, hold or sell our equity securities.

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Our business could be adversely affected by the loss or consolidation of independent agents, agencies, brokers or brokerage firms.

We heavily depend on the services of independent agents and brokers in the marketing of our insurance products. We face competition from other insurance companies for their services and allegiance. These agents and brokers may choose to direct business to competing insurance companies.

As a member of the Lloyd's market and a capital provider to Lloyd's Syndicate 1729 and Syndicate 6131 we are subject to certain risks which could affect us.

As a participant in Lloyd's Syndicates, we are subject to certain risks and uncertainties, including the following:

- reliance on insurance and reinsurance brokers and distribution channels to distribute and market products;
- obligation to pay levies to Lloyd's;
- obligations to maintain funds to support underwriting activities and risk-based capital requirements that are assessed periodically by Lloyd's and subject to variation;
- ability to maintain liquidity to fund claims payments, when due;
- ability to obtain reinsurance and retrocessional coverage to protect against adverse loss activity;
- reliance on ongoing approvals from Lloyd's and various regulators to conduct business, including a requirement that Annual Business Plans be approved by Lloyd's before the start of underwriting for each account year;
- financial strength ratings are derived from the rating assigned to Lloyd's, although they have limited ability to directly affect the overall Lloyd's rating; and
- reliance on Lloyd's trading licenses in order to underwrite business outside the U.K.

Financial

We cannot guarantee that our reinsurers will pay in a timely fashion or at all and as a result we could experience losses.

We transfer part of our risks to reinsurance companies in exchange for part of the premium we receive in connection with the risk. Although our reinsurance agreements make the reinsurer liable to us to the extent the risk is transferred, our liability to our policyholders remains our responsibility. Reinsurers may periodically dispute our demand for reimbursement from them based upon their interpretation of the terms of our agreements or may fail to pay us for financial or other reasons. If reinsurers refuse or fail to pay us or fail to pay on a timely basis, our financial results and/or cash flows could be adversely affected and could have a material effect on our results of operations in the period in which uncollectible amounts are identified.

At December 31, 2018 our receivable from reinsurers on unpaid losses and loss adjustment expenses was $344 million and our receivable from reinsurers on paid losses and loss adjustment expenses was $12 million. As of December 31, 2018, no reinsurer, on an individual basis, had an estimated net amount due which exceeded $36 million.

If our businesses do not perform well, we may be required to recognize an impairment of our goodwill or intangible assets, which could have a material adverse effect on our results of operations and financial condition.

We review our definite–lived intangible assets for impairment when events or changes in circumstances indicate that the carrying value may not be recoverable from estimated future cash flows. We test goodwill and intangible assets with indefinite lives for impairment at least annually. If we determine that such goodwill or intangible assets are impaired, we would be required to write down the goodwill or the intangible asset by the amount of the impairment, with a corresponding charge to net income. Such write downs could have a material adverse effect on our results of operations or financial position.

Our investment results will fluctuate as interest rates change.

Our investment portfolio is primarily comprised of interest-earning assets, marked to fair value each period. Thus, prevailing economic conditions, particularly changes in market interest rates, may significantly affect our results of operations. Significant movements in interest rates potentially expose us to lower yields or lower asset values. Changes in market interest rate levels generally affect our net income to the extent that reinvestment yields are different than the yields on maturing securities. Changes in interest rates also can affect the value of our interest-earning assets, which are principally comprised of fixed and adjustable-rate investment securities. Generally, the values of fixed-rate investment securities fluctuate inversely with changes in interest rates. Interest rate fluctuations could affect our shareholders’ equity, income and/or cash flows.

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Our investments are subject to credit, prepayment and other risks.

A significant portion of our total assets ($3.3 billion or 73%) at December 31, 2018 are financial instruments whose value can be significantly affected by economic and market factors beyond our control including, among others, the unemployment rate, the strength of the domestic housing market, the price of oil, changes in interest rates and spreads, consumer confidence, investor confidence regarding the economic prospects of the entities in which we invest, corrective or remedial actions taken by the entities in which we invest, including mergers, spin-offs and bankruptcy filings, the actions of the U.S. government, and global perceptions regarding the stability of the U.S. economy. Adverse economic and market conditions could cause investment losses or OTTIs of our securities, which could affect our financial condition, results of operations or cash flows.

At December 31, 2018 approximately 13% of our investment portfolio was invested in mortgage and asset-backed securities. We utilize ratings determined by NRSROs (Moody's, Standard & Poor's and Fitch) as an element of our evaluation of the creditworthiness of our securities. The ratings are subject to error by the agencies; therefore, we may be subject to additional credit exposure should the rating be misstated.

Our asset-backed securities are also subject to prepayment risk. A prepayment is the unscheduled return of principal. When rates decline, the propensity for refinancing may increase and the period of time we hold our asset-backed securities may shorten due to prepayments. Prepayments may cause us to reinvest cash proceeds at lower yields than the retired security. Conversely, as rates increase, and motivations for prepayments lessen, the period of time over which our asset-backed securities are repaid may lengthen, causing us to not reinvest cash flows at the higher available yields.

At December 31, 2018 the fair value of our state/municipal portfolio was $293.8 million (amortized cost basis of $289.5 million). While our state/municipal portfolio had a high credit rating (AA on average), which indicates a strong ability to pay, there is no assurance that there will not be a credit related event which would cause fair values to decline. An economic downturn could lessen tax receipts and other revenues in many states and their municipalities. With U.S. corporate tax rates decreasing, the overall attractiveness of owning municipal bonds may decline and impact the market valuations.

Our tax credit partnership interests are subject to risks related to the potential forfeiture of the tax credits and all or a portion of the previously claimed tax credits. Loss of all or a portion of the tax credits might occur if the property owner fails to meet the specified requirements of planning and constructing or, in the case of the qualified affordable housing project tax credits, fails to operate the property as required or below expected capacity. With U.S. corporate tax rates decreasing, the utilization of our tax credits may take longer than anticipated. While this would not impact the amount of tax credits we receive, a delay in recognition could be impactful from an economic perspective due to the time value of money. Additionally, the value of losses embedded in our tax credits could decrease due to a lower deduction value, which would reduce the carrying value of the partnership interests and could result in an OTTI. At December 31, 2018 the carrying value of our tax credit partnership interests was approximately $69.4 million.

In a period of market illiquidity and instability, the fair values of our investments are more difficult to assess and our assessments may prove to be greater or less than amounts received in actual transactions.

At December 31, 2018 and in accordance with applicable GAAP, we valued 95% of our investments at fair value and the remaining 5% at cost, equity, or cash surrender value. See Notes 1, 2 and 3 of the Notes to Consolidated Financial Statements for additional information.

We determine the fair value of our investments using quoted exchange or over-the-counter prices, when available. At December 31, 2018, we valued approximately 20% of our investments in this manner. When exchange or over-the-counter quotes are not available, we estimate fair values based on broker dealer quotes and various other valuation methodologies, which may require us to choose among various input assumptions and utilize judgment. At December 31, 2018 approximately 66% of our investments were valued in this manner. When markets exhibit significant volatility, there is more risk that we may utilize a quoted market price, broker dealer quote, valuation technique or input assumption that results in a fair value estimate that is either over or understated as compared to actual amounts that would be received upon disposition of the security. At December 31, 2018 approximately 9% of our investments are investment funds which measure fund assets at fair value on a recurring basis and provide us with a NAV for our interest. As a practical expedient, we consider the NAV provided to approximate the fair value of the interest. NAV is provided by the asset managers and in some cases estimates are used for valuation and are subject to variations depending on those estimates. Our funds valued at NAV have various redemption requirements and lock-up provisions (see Note 2 of the Notes to the Consolidated Financial Statements for further information).

Our ability to issue additional debt or letters of credit or other types of indebtedness on terms consistent with current debt is subject to market conditions, economic conditions at the time of proposed issuance, results of ratings reviews and the inclusion in certain bond indices of past and future issues. Also, certain of our current debt agreements and loans require a specific debt to capital ratio, and the issuance of debt by one of our insurance subsidiaries requires regulatory approval, both of which may limit or prohibit the issuance of additional debt.

During 2013, we issued $250 million of unsecured Senior Notes Payable due in 2023 at a 5.3% interest rate. There is no guarantee that additional debt could be issued on similar terms in the future as rates available to us may change due to changes in the economic climate or shifts in the yield curve may occur or an increase in our level of debt may result in rating agencies lowering our debt rating. Additionally, our Revolving Credit Agreement requires that our consolidated debt to capital ratio (0.16 to 1.0 at December 31, 2018) be 0.35 to 1.0 or less.

During 2017, two of our insurance subsidiaries entered into ten-year mortgage loans. These mortgage loans require each of the subsidiaries to have a leverage ratio of consolidated funded debt to consolidated total capitalization (principally, SAP consolidated net worth plus consolidated funded debt) be 0.35 to 1.0 or less. Furthermore, our insurance subsidiaries must obtain regulatory approval before incurring additional debt.

The interest rates on our mortgage loans and Revolving Credit Agreement are priced using a spread over LIBOR, which may be phased out in the future.

LIBOR is the basic rate of interest used in lending between banks on the London interbank market and is widely used as a reference for setting interest rates on loans globally. The terms of certain of our debt agreements include interest rates which are calculated based on LIBOR.

On July 27, 2017, the United Kingdom’s Financial Conduct Authority, which regulates LIBOR, announced that it intends to phase out LIBOR by the end of 2021. It is unclear if at that time whether or not LIBOR will cease to exist or if new methods of calculating LIBOR will be established such that it continues to exist after 2021. The U.S. Federal Reserve, in conjunction with the Alternative Reference Rates Committee, a steering committee comprised of large U.S. financial institutions, announced replacement of U.S. dollar LIBOR with a new index calculated by short-term repurchase agreements, backed by U.S. Treasury securities called the Secured Overnight Financing Rate (“SOFR”). The first publication of SOFR was released in April 2018 and was subsequently codified by the FASB in October 2018. The updated codification added the overnight index swap rate ("OIS") based on the SOFR to the list of U.S. benchmark interest rates that are eligible to be hedged. As a result, entities may designate changes in the OIS rate as the hedged risk in hedges of interest rate risk for fixed-rate financial instruments beginning in January 2019. If LIBOR ceases to exist, we may need to renegotiate our mortgage loans and Revolving Credit Agreement that utilize LIBOR as a factor in determining the interest rate to replace LIBOR with the new standard that is established.

Resolution of uncertain tax matters and changes in tax laws or taxing authority interpretations of tax laws could result in actual tax benefits or deductions that are different than we have estimated, both with regard to amounts recognized and the timing of recognition. Such differences could affect our results of operations or cash flows.

Our provision for income taxes, our recorded tax liabilities and net deferred tax assets, including any valuation allowances, are recorded based on estimates. These estimates require us to make significant judgments regarding a number of factors, including, among others, the applicability of various federal and state laws, the interpretations given to those tax laws by taxing authorities, courts and the Company, the timing of future income and deductions, and our expected levels and sources of future taxable income. We believe our tax positions are supportable under current tax laws and that our estimates are prepared in accordance with GAAP. Additionally, from time to time, due to changes in economic and/or political conditions, there are changes in tax laws and interpretations of tax laws which could significantly change our estimates of the amount of tax benefits or deductions expected to be available to us in future periods. Specifically, recent changes in federal tax law included a reduction in the U.S. corporate income tax rate, changes to the cost of cross border reinsurance, changes to the overall tax base and a limitation on the deductibility of certain executive compensation in future periods. Changes to our prior estimates in these cases would be reflected in the period changed and could have a material effect on our effective tax rate, financial position, results of operations and cash flows. As the Company has reinsurance operations domiciled in the Cayman Islands, changes in the tax laws of the Cayman Islands as well as the recent change in U.S. federal tax law regarding outbound cross border affiliate reinsurance could result in the loss of profitability of that business.

We are subject to U.S. federal and various state income taxes as well as U.K. related taxes. We are periodically under examination by federal, state and local authorities regarding income tax matters and our tax positions could be successfully challenged; the costs of defending our tax positions could be considerable. Our estimate of our potential liability for known uncertain tax positions is reflected in our financial statements. As of December 31, 2018 we had a federal income tax receivable of approximately $3.5 million. We also had a liability for unrecognized current tax benefits of $3.6 million, and we had a net deferred tax asset of approximately $29.1 million.

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New or changes in existing accounting standards, practices and/or policies, as well as subjective assumptions, estimates and judgments by management related to complex accounting matters could significantly affect our financial results or our ability to maintain investor confidence and shareholder value.
GAAP and related accounting pronouncements, implementation guidelines and interpretations with regard to a wide range of matters that are relevant to our business, such as revenue recognition, lease accounting, estimation of losses, determination of fair value, asset impairment (particularly investment securities and goodwill) and tax matters, are highly complex and involve many subjective assumptions, estimates and judgments. Changes in these rules or their interpretation or changes in underlying assumptions, estimates or judgments could significantly change our reported or expected financial performance or financial condition. See Note 1 of the Notes to Consolidated Financial Statements for a description of our significant accounting policies.
ProAssurance is primarily a holding company of insurance subsidiaries which are required to comply with SAP. SAP and its components are subject to review by the NAIC and state insurance departments. The NAIC Accounting Practices and Procedures Manual provides that a state insurance department may allow insurance companies that are domiciled in that state to depart from SAP by granting them permitted non-SAP accounting practices. This permission may permit a competitor or competitors to use a more favorable accounting policy.
It is uncertain whether or how SAP might be revised or whether any revisions will have a positive or negative effect. It is also uncertain whether any changes to SAP or its components or any permitted non-SAP accounting practices granted to our competitors will negatively affect our financial results or operations. See the full discussion on regulatory matters in Item I under the heading "Insurance Regulatory Matters."
Our interpretation, integration and/or compliance with new or changes to existing pronouncements by GAAP or SAP could materially impact us as a publicly traded company as it relates to investor confidence and shareholder value.
Operational
Changes in healthcare policy could have a material effect on our operations.
The ACA was enacted in March 2010, and many but not all of its provisions have become effective. To date, we do not believe that the primary provisions of ACA have directly affected our business. However, regulations to implement the law may be revised and the effect of currently enacted provisions may evolve over time. Specifically, presidential and congressional elections in the U.S. could result in significant changes in, and uncertainty with respect to, legislation, regulation and government policy. While it is not possible to predict whether and when any such changes will occur, proposals discussed by the current U.S. administration included the repeal or material amendment of the ACA. Thus, the ACA may yet have unanticipated or indirect effects on our business or alter the risk and cost environments in which we and our insureds operate. These risks include: further increases in the number of physicians choosing to practice as a part of a larger healthcare organization that utilizes a self-insurance or alternative risk management solution for its HCPL needs; use of electronic medical records may lead to additional medical malpractice litigation or increase the cost of litigation; patient dissatisfaction may increase due to greater strain on the patient-physician relationship; overall healthcare costs may increase which would increase loss costs for claims involving bodily injury; and additional health conditions may be identified as work-related which could increase the number of workers' compensation claims. Conversely, it is anticipated that there will be growth in the number of ancillary healthcare providers that will become customers for HCPL products. We are unable to predict with any certainty the effect that ACA or future related legislation will have on our insureds or our business.
Changes due to financial reform legislation could have a material effect on our operations.
The Dodd-Frank Act, enacted in July 2010 established additional regulatory oversight of financial institutions. While regulations are still in development for various portions of the Dodd-Frank Act, to date the Act has not materially affected our business. As detailed regulations are developed to implement the provisions of the Dodd-Frank Act, there may be changes in the regulatory environment that affect the way we conduct our operations or the cost of regulatory compliance, or both.
One of the federal government bodies created by the Dodd-Frank Act was the FIO which, in December 2013, released a proposal on insurance modernization and improvement of the system of insurance regulation in the U.S. Although the FIO is prohibited from directly regulating the business of insurance, it has authority to represent the U.S. in international insurance matters and has limited power to preempt certain types of state insurance laws. The proposal

advocates significantly greater federal involvement in insurance regulation and identifies necessary reforms by the states to preclude further consideration of direct federal regulation. While the proposal does not necessarily imply that the federal government will displace state regulation completely, it does recommend more of a hybrid approach to insurance regulation. We cannot predict whether the proposals will be adopted or what impact, if any, enacted laws may have on our business, financial condition or results of operations.

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During 2017, the U.S. House of Representatives passed the Financial CHOICE Act, which would amend or repeal certain regulations in the Dodd-Frank Act, specifically modifying provisions related to insurance regulation. Revisions include the consolidation of two conflicting federal insurance positions into a single position established to advocate for the U.S. insurance industry at domestic and international levels, while preserving the traditional state-based system of insurance regulation. In March 2018, this legislation was passed by the U.S. Senate and signed into law by the President of the U.S. in May 2018.

Although the potential impacts of the Dodd-Frank Act and potential amendments to the Dodd-Frank Act, such as the Financial CHOICE Act, on the U.S. insurance industry are not clear, our business could be affected by changes to the U.S. system of insurance regulation.

The passage of tort reform or other legislation, and the subsequent review of such laws by the courts could have a material impact on our operations.

Tort reforms generally restrict the ability of a plaintiff to recover damages by, among other limitations, eliminating certain claims that may be heard in a court, limiting the amount or types of damages, changing statutes of limitation or the period of time to make a claim, and limiting venue or court selection. A number of states in which we do business previously enacted tort reform legislation in an effort to reduce escalating loss trends.

Challenges to tort reform have been undertaken in most states where tort reforms have been enacted, and in some states the reforms have been fully or partially overturned. Additional challenges to tort reform may be undertaken. We cannot predict with any certainty how state appellate courts will rule on these laws. While the effects of tort reform have been generally beneficial to our business in states where these laws have been enacted, there can be no assurance that such reforms will be ultimately upheld by the courts. Furthermore, if tort reforms are effective, the business of providing professional liability insurance may become more attractive, thereby causing an increase in competition. In addition, the enactment of tort reforms could be accompanied by legislation or regulatory actions that may be detrimental to our business because of expected benefits which may or may not be realized. These expectations could result in regulatory or legislative action limiting the ability of professional liability insurers to maintain rates at adequate levels.

Coverage mandates or other expanded insurance requirements could also be imposed. States may also consider state-sponsored insurance entities that could remove our potential insureds from the private insurance market.

We continue to monitor developments on a state-by-state basis and make business decisions accordingly.

Our performance is dependent on the business, economic, regulatory and legislative conditions of states where we have a significant amount of business.

Our top five states, Pennsylvania, Alabama, Indiana, Texas and Michigan, represented 39% of our direct premiums written for the year ended December 31, 2018. Moreover, on a combined basis, Pennsylvania, Alabama and Indiana accounted for 30% of our direct premiums written for each of the years ended December 31, 2018, 2017 and 2016. Unfavorable business, economic or regulatory conditions in any of these states could have a disproportionately greater effect on us than they would if we were less geographically concentrated.

From time to time we may identify opportunities for growth through acquisitions. However, approval of acquisitions may not be granted or conditions of approval may adversely alter the expected value and benefits of the acquisition. In addition, expected benefits from acquisitions may not be achieved or may be delayed longer than expected.

Growth through the acquisition of other companies or books of business is opportunistic and sporadic. If we are able to identify a target for acquisition, state insurance regulation concerning change or acquisition of control could delay or prevent us from completing the acquisition. State insurance regulatory codes provide that the acquisition of “control” of a domestic insurer or of any person that directly or indirectly controls a domestic insurer cannot be consummated without the prior approval of the domiciliary insurance regulator. There is no assurance that we will receive such approval from the respective insurance regulator or that such approvals will not be conditioned in a manner that materially and adversely affects the aggregate economic value and business benefits expected to be obtained and cause us to not complete the acquisition.

The Company performs thorough due diligence before agreeing to a merger or acquisition; however, there is no guarantee that the procedures we perform will adequately identify all potential weaknesses or liabilities of the target company or potential risks to the consolidated entity.

There is also no guarantee that businesses acquired in the future will be successfully integrated. Ineffective integration of our businesses and processes may result in substantial costs or delays and adversely affect our ability to compete. The process of integrating an acquired company or business can be complex and costly, and may create unforeseen operating difficulties and expenditures. Potential problems that may arise include but are not limited to: business disruption, loss of customers and employees, the ineffective integration of underwriting, claims handling and actuarial practices, an increase in the inherent

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uncertainty of reserve estimates for a period of time until stable trends reestablish themselves within the combined organization, diversion of management time and resources to acquisition integration challenges, the cultural challenges associated with integrating employees, increased operating costs, assumption of greater than expected liabilities, or inability to achieve cost savings.

Furthermore, claims may be asserted by either the policyholders or shareholders of any acquired entity related to payments or other issues associated with the acquisition and merger into the consolidated entity. Such claims may prove costly or difficult to resolve or may have unanticipated consequences.

Our success is dependent upon our ability to effectively design and execute our business strategy.

The Company depends upon the skill and work product of our officers and employees in executing our business strategy. While management and the Board monitor the strategic direction of the Company, strategic changes could be made that are not supportable by our capital base.

Our success is dependent upon our ability to adequately and appropriately serve our customers.

The operations of the Company are heavily dependent upon the delivery of superior customer service across a broad customer base, by which negative feedback from agents, brokers, insureds or internal staff could result in a loss of revenue for the Company.

Our business could be affected by the loss of one or more of our senior executives.

We are heavily dependent upon our senior management, and the loss of services of our senior executives could adversely affect our business. Our success has been, and will continue to be, dependent on our ability to retain the services of existing key employees and to attract and retain additional qualified personnel in the future. The loss of the services of key employees or senior managers, or the inability to identify, hire and retain other highly qualified personnel in the future, could adversely affect the quality and profitability of our business operations. Our Board regularly reviews succession planning relating to our Chief Executive Officer as well as other senior officers.

Provisions in our charter documents, Delaware law and state insurance law may impede attempts to replace or remove management or may impede a takeover, which could adversely affect the value of our common stock.

Our certificate of incorporation, bylaws and Delaware law contain provisions that may have the effect of inhibiting a non-negotiated merger or other business combination. We currently have no preferred stock outstanding, and no present intention to issue any shares of preferred stock. In addition, our Corporate Governance Principles provide that the Board, subject to its fiduciary duties, will not issue any series of preferred stock for any defense or anti-takeover purpose, for the purpose of implementing any stockholders rights plan, or with features intended to make any acquisition more difficult or costly without obtaining stockholder approval. However, because the rights and preferences of any series of preferred stock may be set by the Board in its sole discretion, the rights and preferences of any such preferred stock may be superior to those of our common stock and thus may adversely affect the rights of the holders of common stock.

The voting structure of common stock and other provisions of our certificate of incorporation are intended to encourage a person interested in acquiring us to negotiate with and to obtain the approval of the Board in connection with a transaction. However, certain of these provisions may discourage our future acquisition, including an acquisition in which stockholders might otherwise receive a premium for their shares. As a result, stockholders who might desire to participate in such a transaction may not have the opportunity to do so.

In addition, state insurance laws provide that no person or entity may directly or indirectly acquire control of an insurance company unless that person or entity has received approval from the insurance regulator. An acquisition of control of ProAssurance would be presumed if any person or entity acquires 10% (5% in Alabama) or more of our outstanding common stock, unless the applicable insurance regulator determines otherwise. These provisions apply even if the offer may be considered beneficial by stockholders.

We are a holding company and are dependent on dividends and other payments from our operating subsidiaries, which may be subject to dividend restrictions.

We are a holding company whose principal source of funds is cash dividends and other permitted payments from operating subsidiaries. If our subsidiaries are unable to make payments to us, or are able to pay only limited amounts, we may be unable to make payments on our indebtedness, meet other holding company financial obligations, or pay dividends to shareholders. The payment of dividends by these operating subsidiaries is subject to restrictions set forth in the insurance laws and regulations of their respective states of domicile, as discussed in Item I under the heading "Insurance Regulatory Matters."

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Regulatory requirements or changes to regulatory requirements could have a material effect on our operations.
Our insurance businesses are subject to extensive regulation by state insurance authorities in each state in which they operate. Regulation is intended for the benefit of policyholders rather than shareholders. In addition to the amount of dividends and other payments that can be made to a holding company by insurance subsidiaries, these regulatory authorities have broad administrative and supervisory power relating to:

- licensing requirements;
- trade practices;
- capital and surplus requirements;
- investment practices; and
- rates charged to insurance customers.

These regulations may impede or impose burdensome conditions on rate changes or other actions that we may desire to take in order to enhance our results of operations. In addition, we may incur significant costs in the course of complying with regulatory requirements. Most states also regulate insurance holding companies like us in a variety of matters such as acquisitions, solvency and risk assessment, changes of control and the terms of affiliated transactions. Also, certain states sponsor insurance entities which affect the amount and type of liability coverages purchased in the sponsoring state. Changes to the number of state sponsored entities of this type could result in a large number of insureds changing the amount and type of coverage purchased from private insurance entities such as ProAssurance.
We own two subsidiaries domiciled in the Cayman Islands and subject to the laws of the Cayman Islands and regulations promulgated by the CIMA. Failure to comply with these laws, regulations and requirements could result in consequences ranging from a regulatory examination to a regulatory takeover of our Cayman Islands subsidiaries, which could potentially impact profitability of alternative market solutions offered through these subsidiaries.
Syndicate 1729 and Syndicate 6131 are regulated in the U.K. by the Prudential Regulation Authority and the Financial Conduct Authority. All Lloyd's Syndicates must also comply with the bylaws and regulations established by the Council of Lloyd's. Failure to comply with bylaws and regulations could affect our ability to underwrite as a Lloyd's Syndicate in the future and therefore affect our profitability. Changes in bylaws and regulations could also affect the profitability of the operations.
The European Union's executive body, the European Commission, has implemented new capital adequacy and risk management regulations called Solvency II that apply to businesses within the European Union. Solvency II became effective January 1, 2016. Syndicate 1729 and Syndicate 6131 follow the Solvency II compliance guidelines set out by the Council of Lloyd's.
The U.K.'s referendum vote in favor of leaving the European Union could have a material effect on our operations.
In June 2016, the U.K. approved a referendum to exit the European Union, commonly referred to as "Brexit" as described in Part I under the heading "Insurance Regulatory Matters." The possible exit of the U.K. from the European Union could result in significant macroeconomic deterioration including, but not limited to, a decrease in global stock exchange indices and an increase in foreign exchange volatility (in particular a further weakening of the pound sterling against the U.S. dollar). The full effects of Brexit are uncertain and will depend on any agreements the U.K. may make to retain access to European Union markets. However, we do not expect Brexit to have a material effect on our Lloyd's Syndicate operations as Lloyd's has opened a new European insurance company in Brussels in order to maintain access to European Union business for the 2019 renewal season (see further discussion in Part I under the heading "Insurance Regulatory Matters").
The assessments that we are required to pay to state associations may increase or our participation in mandatory risk retention pools could be expanded and our results of operations and financial condition could suffer as a result.
Each state in which we operate has separate insurance guaranty fund laws requiring admitted property and casualty insurance companies doing business within their respective jurisdictions to be members of their guaranty associations. These associations are organized to pay covered claims (as defined and limited by the various guaranty association statutes) under insurance policies issued by insurance companies that have become insolvent. Most guaranty association laws enable the associations to make assessments against member insurers to obtain funds to pay covered claims after a member insurer becomes insolvent. These associations levy assessments (up to prescribed limits) on all

member insurers in a particular state on the basis of the proportionate share of the premiums written by member insurers in the covered lines of business in that state. Maximum assessments generally vary between 1% and 2% of annual premiums written by a member in that state. Some states permit member insurers to recover assessments paid through surcharges on policyholders or through full or partial premium tax offsets, while other states permit recovery of assessments through the rate filing process. We had no significant guaranty fund recoupments or assessments in 2018, 2017 or 2016. Our practice is to accrue for insurance insolvencies when notified of

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assessments. We are not able to reasonably estimate assessments or develop a meaningful range of possible assessments prior to notice because the guaranty funds do not provide sufficient information for development of such estimates or ranges.
Certain states in which we write workers' compensation insurance have established administrative and/or second injury funds that levy assessments against insurers that write business in their state. The assessments are generally based on an insurer's proportionate share of premiums or losses in a particular state, and the assessment rate can vary from year to year.
Risk pooling mechanisms have been established in certain states that offer insurance coverage to individuals or entities who are otherwise unable to purchase coverage from private insurers. Authorized property and casualty insurers in these states are generally required to share in the underwriting results of these pooled risks, which are typically adverse. Should our mandatory participation in such pools be increased or if the assessments from such pools increased, our results of operations and financial condition would be negatively affected, although that was not the case in 2018, 2017 or 2016.
Our Board may decide that our financial condition does not allow the continued payment of a quarterly cash dividend, or requires that we reduce the amount of our quarterly cash dividend.
Our Board approved a cash dividend policy in September 2011, and we most recently paid a $0.81 per share dividend for the three months ended December 31, 2018, which included a $0.50 special dividend. However, any decision to pay future cash dividends is subject to the Board's final determination after a comprehensive review of the Company's financial performance, future expectations and other factors deemed relevant by the Board.
We are subject to numerous NYSE and SEC regulations including insider trading regulations, Regulation FD, and regulations requiring timely and accurate reporting of our operating results as well as certain events and transactions. Noncompliance with these regulations could subject us to enforcement actions by the NYSE or the SEC, and could affect the value of our shares and our ability to raise additional capital.
The Company carefully adheres to NYSE and SEC requirements as the loss of trading privileges on the NYSE or an SEC enforcement action could have a significant financial impact on the Company. Failure to comply with various SEC reporting and record keeping requirements could result in a decline in the value of our stock or a decline in investor confidence which could directly impact our ability to efficiently raise capital. Failure to adhere to NYSE requirements could result in fines, trading restrictions or delisting.
The operations of the Company are heavily reliant upon the Company's reputation as an ethical business organization providing needed services to its customers.
The Company's positive reputation is critical to its role as an insurance provider and as a publicly traded company. The Board adopted a Code of Ethics and Conduct and management is heavily focused on the integrity of our employees and third-party suppliers, agents or brokers. Illegal, unethical or fraudulent activities perpetrated by an employee or one of our third-party agencies or brokers for personal gain could expose the Company to a potential financial loss.
A natural disaster or pandemic event, or closely related series of events, could cause loss of lives or a substantial loss of property or operational ability at one or more of the Company's facilities.
The Company's disaster preparedness encompasses our Business Continuity Plan, Disaster Recovery Plan, Operations Plan and Pandemic Response Plan. Our disaster preparedness is focused on maintaining the continuity of the Company's data processing and telephone capabilities as well as the use of alternate and temporary facilities in the event of a natural disaster or medical event. The Company's plans are reviewed during the insurance department examinations of the statutory insurance companies. While the Company has plans in place to respond to both short- and long-term disaster scenarios, the loss of certain key operating facilities or data processing capabilities could have a significant impact on Company operations.
The operations of the Company are dependent upon the security, integrity and availability of our internal technology infrastructure and that of certain third parties. Any significant disruption of these infrastructures could result in unauthorized access to Company data or reduce our ability to conduct business effectively, or both.
The Company is dependent upon its technology infrastructure and that of certain third parties to operate and report financial and other Company information accurately and timely. We collect, use, store or transmit an increasingly

large amount of confidential, proprietary and other information in connection with the operation of our business. Therefore, the Company has focused resources on securing and preserving the integrity of our data processing systems and related data. Despite our efforts to ensure the integrity of our systems, we are increasingly exposed to the risk that our technology infrastructure could be subject to cyber-attacks and unauthorized access, such as physical and electronic break-ins or unauthorized tampering.

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The Company also evaluates the integrity and security of the technology infrastructure of third parties that access, process or store data that the Company considers to be significant. While we review and assess our third party providers' cybersecurity controls, as appropriate, and make changes to our business processes to manage these risks, there is no guarantee that measures taken to date will completely prevent possible disruption, damage or destruction by intentional or unintentional acts or events such as cyber-attacks, viruses, sabotage, human error, system failure or the occurrence of numerous other human or natural events.

Disruption, damage or destruction of any of our systems or data could cause our normal operations to be disrupted or unauthorized internal or external knowledge or misuse of confidential Company data could occur, all of which could be harmful to the Company from a financial, legal and reputational perspective. We continually enhance our cyber and information security in order to identify and neutralize emerging threats and improve our ability to prevent, detect and respond to attempts to gain unauthorized access to our data and systems. We regularly add additional security measures to our computer systems and network infrastructure to mitigate the possibility of cybersecurity breaches, including firewalls and penetration testing. However, it is impossible to defend against every risk being posed by changing technologies. The Company has a formal process in place for identifying, handling and disclosing of cybersecurity incidents. In addition, the Company's Board and Audit Committee are involved in the oversight of our cybersecurity policies and procedures and are continually updated on material cybersecurity risks and cybersecurity issues, if any, faced by executive management. To date, the Company has not suffered any material harm or loss relating to cyber-attacks or other security breaches at the Company or its third parties.

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ITEM 1B. UNRESOLVED STAFF COMMENTS.

None.

ITEM 2. PROPERTIES.

We own three office properties, one of which is unencumbered. Our properties in Birmingham, AL and Franklin, TN are encumbered by ten-year mortgage loans entered into during 2017 for the purpose of recapitalization of these properties:

	Square Footage of Properties		
Property Location	Occupied by ProAssurance	Leased or Available for Lease	Total
Birmingham, AL*	120,000	45,000	165,000
Franklin, TN	52,000	51,000	103,000
Okemos, MI	53,000	—	53,000

* Corporate Headquarters

ITEM 3. LEGAL PROCEEDINGS.

Our insurance subsidiaries are involved in various legal actions, a substantial number of which arise from claims made under insurance policies. While the outcome of all legal actions is not presently determinable, management and its legal counsel are of the opinion that these actions will not have a material adverse effect on our financial position or results of operations. See Note 9 of the Notes to Consolidated Financial Statements included herein.

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EXECUTIVE OFFICERS OF PROASSURANCE CORPORATION

The executive officers of ProAssurance Corporation serve at the pleasure of the Board. We have a knowledgeable and experienced management team with established track records in building and managing successful insurance operations. Following is a brief description of each executive officer of ProAssurance, including their principal occupation, and relevant background with ProAssurance and former employers.

W. Stancil Starnes	Mr. Starnes was appointed as Chief Executive Officer in 2007 and has served as the Chairman of the Board since 2008. Mr. Starnes served as President of ProAssurance from 2012 to December 2018. Mr. Starnes previously served as President, Corporate Planning and Administration of Brasfield & Gorrie, Inc., a large national commercial contractor. Prior to 2006, Mr. Starnes served as the Senior and Managing Partner of the law firm of Starnes & Atchison, LLP, where he was extensively involved with ProAssurance and its predecessors in the defense of healthcare professional liability claims for over 25 years. Mr. Starnes served as a director of Infinity Property and Casualty Corporation, a public insurance holding company, from 2008 to May 2017 where he served on the Audit and Investment Committees. Mr. Starnes currently serves on the Board of Trustees for the University of Alabama. He also serves on the Board of Directors of National Commerce Corporation, located in Birmingham, Alabama, where he serves as Chairman of the Nominating and Corporate Governance Committee, Chairman of the Pricing Committee and is a member of the Compensation Committee. (Age 70)
Edward L. Rand, Jr.	Mr. Rand was appointed as Chief Operating Officer and President of ProAssurance in 2018. Mr. Rand was appointed as an Executive Vice President in 2014. Mr. Rand also has served as President of our Medmarc subsidiary since 2016. Mr. Rand has previously served as Chief Financial Officer and Senior Vice President of Finance. Prior to joining ProAssurance, Mr. Rand was the Chief Accounting Officer and Head of Corporate Finance for PartnerRe Ltd. Prior to that time Mr. Rand served as the Chief Financial Officer of Atlantic American Corporation. (Age 52)
Howard H. Friedman	Mr. Friedman was appointed as President of our Healthcare Professional Liability Group in 2014, and is also our Chief Underwriting Officer and Chief Actuary. Mr. Friedman has previously served as a Co-President of our Professional Liability Group, Chief Financial Officer, Corporate Secretary, and as the Senior Vice President of Corporate Development. Mr. Friedman joined our predecessor in 1996. Mr. Friedman is an Associate of the Casualty Actuarial Society and a member of the American Academy of Actuaries. (Age 60)
Dana S. Hendricks	Ms. Hendricks was appointed as our Chief Financial Officer in 2018. Ms. Hendricks has previously served as Senior Vice President of Business Operations for our PICA subsidiary. Prior to that time, Ms. Hendricks served PICA as Vice President of Finance and Corporate Controller. Prior to joining PICA in 2001, Ms. Hendricks held various finance and data analysis positions with American General Life & Accident Insurance Company. Ms. Hendricks is a Certified Public Accountant. (Age 51)
Jeffrey P. Lisenby	Mr. Lisenby was appointed as an Executive Vice President in 2014 and is also our General Counsel, Corporate Secretary and head of the corporate Legal Department. Mr. Lisenby has previously served as Senior Vice President. Prior to joining ProAssurance, Mr. Lisenby practiced law privately in Birmingham, Alabama. Mr. Lisenby is a member of the Alabama State Bar and the United States Supreme Court Bar and is a Chartered Property Casualty Underwriter. (Age 50)
Frank B. O’Neil	Mr. O’Neil was appointed as our Senior Vice President and Chief Communications Officer in 2001. Mr. O’Neil has previously served as our Senior Vice President of Corporate Communications, having joined our predecessor in 1987. (Age 65)

Michael L. Boguski	Mr. Boguski is President of our Eastern subsidiary. Prior to the acquisition of Eastern, Mr. Boguski served as President and Chief Executive Officer of Eastern, and first joined Eastern in 1997. (Age 56)
Ross E. Taubman	Dr. Taubman is President and Chief Medical Officer of our PICA subsidiary. Prior to joining PICA, Dr. Taubman practiced podiatry for 26 years. During that time, Dr. Taubman served as Treasurer, Vice-President and President of the Maryland Podiatric Medical Association. Dr. Taubman also served as President of The American Podiatric Medical Association (APMA) from 2008 through 2009, and served in a number of executive leadership positions for the APMA. Dr. Taubman is a diplomate in the American Board of Podiatric Surgery. (Age 61)

We have adopted a Code of Ethics and Conduct that applies to our directors and executive officers, including but not limited to our principal executive officers and principal financial officer. We also have share ownership guidelines in place to ensure that management maintains a significant portion of their personal investments in the stock of ProAssurance. Both our Code of Ethics and Conduct and our Share Ownership Guidelines are available on the Governance section of our website. Printed copies of these documents may be obtained from our Investor Relations department either by mail at P.O. Box 590009, Birmingham, Alabama 35259-0009, or by telephone at (205) 877-4400 or (800) 282-6242.

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ITEM 4. MINE SAFETY DISCLOSURES.

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES.

At February 15, 2019, ProAssurance Corporation had 3,028 stockholders of record and 53,640,178 shares of common stock outstanding. ProAssurance's common stock currently trades on the NYSE under the symbol "PRA."

	2018		2017	
Quarter	High	Low	High	Low
First	$56.00	$47.35	$61.85	$53.90
Second	$48.20	$35.35	$62.45	$57.80
Third	$49.40	$35.50	$61.80	$51.30
Fourth	$46.28	$37.18	$63.00	$55.00

	Dividends Declared		Dividends Paid	
Quarter	2018	2017	2018	2017
First	$0.31	$0.31	$5.00	$5.00
Second	$0.31	$0.31	$0.31	$0.31
Third	$0.31	$0.31	$0.31	$0.31
Fourth*	$0.81	$5.00	$0.31	$0.31

* Includes a special dividend of $0.50 and $4.69 per common share declared in 2018 and 2017, respectively.

The Board declared a quarterly dividend in each quarter of 2018 and 2017. Each dividend was paid in the month following the quarter in which it was declared. The Board also declared special dividends of $0.50 and $4.69 per common share during the fourth quarters of 2018 and 2017, respectively, each of which were paid in January of the following year. Any decision to pay regular or special cash dividends in the future is subject to the Board's final determination after a comprehensive review of financial performance, future expectations and other factors deemed relevant by the Board.

ProAssurance's insurance subsidiaries are subject to restrictions on the payment of dividends to the parent. Information regarding restrictions on the ability of the insurance subsidiaries to pay dividends is incorporated herein by reference from the paragraphs under the heading "Insurance Regulatory Matters–Regulation of Dividends and Other Payments from Our Operating Subsidiaries" in Item 1 of this Form 10-K.

Securities Authorized for Issuance Under Equity Compensation Plans

The following table provides information regarding ProAssurance's equity compensation plans as of December 31, 2018.

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights		Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
	(a)	(b)		(c)
Equity compensation plans approved by security holders	582,409	$—	*	1,976,325
Equity compensation plans not approved by security holders	—	—		—

* No outstanding options as of December 31, 2018. Other outstanding share units have no exercise price.

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Issuer Purchases of Equity Securities

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs* (In thousands)
October 1 - 31, 2018	—	N/A	—	$109,643
November 1 - 30, 2018	—	N/A	—	$109,643
December 1 - 31, 2018	—	N/A	—	$109,643
Total	—	$—	—	

* Under its current plan begun in November 2010, the Board has authorized $600 million for the repurchase of common shares or the retirement of outstanding debt. This is ProAssurance's only plan for the repurchase of common shares, and the plan has no expiration date.

ITEM 6. SELECTED FINANCIAL DATA.

	Year Ended December 31				
($ in thousands, except per share data)	2018	2017	2016	2015	2014
Selected Financial Data					
Gross premiums written	$957,311	$874,876	$835,014	$812,218	$779,609
Net premiums earned	$818,853	$738,531	$733,281	$694,149	$699,731
Net investment income	$91,884	$95,662	$100,012	$108,660	$125,557
Equity in earnings (loss) of unconsolidated subsidiaries	$8,948	$8,033	$(5,762)	$3,682	$3,986
Net realized investment gains (losses)	$(43,488)	$16,409	$34,875	$(41,639)	$14,654
Other income	$9,833	$7,514	$7,808	$7,227	$8,398
Total revenues	$886,030	$866,149	$870,214	$772,079	$852,326
Net losses and loss adjustment expenses	$593,210	$469,158	$443,229	$410,711	$363,084
Net income	$47,057	$107,264	$151,081	$116,197	$196,565
Net income per share:					
Basic	$0.88	$2.01	$2.84	$2.12	$3.32
Diluted	$0.88	$2.00	$2.83	$2.11	$3.30
Weighted average shares outstanding:					
Basic	53,598	53,393	53,216	54,795	59,285
Diluted	53,749	53,611	53,448	55,017	59,525
Balance Sheet Data, as of December 31					
Total investments	$3,349,382	$3,686,528	$3,925,696	$3,650,130	$4,009,707
Total assets (1)	$4,600,726	$4,929,197	$5,065,181	$4,906,021	$5,167,375
Reserve for losses and loss adjustment expenses	$2,119,847	$2,048,381	$1,993,428	$2,005,326	$2,058,266
Debt less debt issuance costs (1)	$287,757	$411,811	$448,202	$347,858	$248,215
Total liabilities (1)	$3,077,724	$3,334,402	$3,266,479	$2,947,667	$3,009,431
Total capital	$1,523,002	$1,594,795	$1,798,702	$1,958,354	$2,157,944
Total capital per share of common stock outstanding	$28.39	$29.83	$33.78	$36.88	$38.17
Common stock outstanding, period end	53,637	53,457	53,251	53,101	56,534

(1) For all periods presented, debt is shown net of unamortized debt issuance costs which were previously reported as a part of other assets.

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ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

The following discussion should be read in conjunction with the Consolidated Financial Statements and Notes to those statements which accompany this report. Throughout the discussion we use certain terms and abbreviations, which can be found in the Glossary of Terms and Acronyms at the beginning of this report. In addition, a glossary of insurance terms and phrases is available on the investor section of our website. Throughout the discussion, references to "ProAssurance," "PRA," "Company," "we," "us" and "our" refer to ProAssurance Corporation and its consolidated subsidiaries. The discussion contains certain forward-looking information that involves significant risks, assumptions and uncertainties. As discussed under the heading "Caution Regarding Forward-Looking Statements," our actual financial condition and operating results could differ significantly from these forward-looking statements.

ProAssurance Overview

ProAssurance Corporation is a holding company for property and casualty insurance companies. Our wholly owned insurance subsidiaries provide professional liability insurance for healthcare professionals and facilities, professional liability insurance for attorneys, liability insurance for medical technology and life sciences risks and workers' compensation insurance. We are also the majority capital provider for Syndicate 1729 and the sole capital provider for Syndicate 6131 at Lloyd's of London.

We operate in five segments which are based on our internal management reporting structure for which financial results are regularly evaluated by our CODM to determine resource allocation and assess operating performance. During the third quarter of 2018, we reorganized our segment reporting and as a result, the number of our segments increased from four to five, described as follows:

- Specialty P&C - This segment includes our professional liability business and medical technology liability business. Professional liability insurance is primarily offered to healthcare providers and institutions and, to a lesser extent, to attorneys and their firms. Medical technology liability insurance is offered to medical technology and life sciences companies that manufacture or distribute products including entities conducting human clinical trials. The underwriting results of SPCs that assume healthcare professional liability business were previously reported in this segment and are now reported in our Segregated Portfolio Cell Reinsurance segment.
- Workers' Compensation Insurance - This segment includes our workers' compensation insurance business which is provided primarily to employers with 1,000 or fewer employees. Our workers' compensation products include guaranteed cost, policyholder dividend policies, retrospectively-rated policies, deductible policies and alternative market solutions. The underwriting results of SPCs that assume workers' compensation business were previously reported in this segment and are now reported in our Segregated Portfolio Cell Reinsurance segment.
- Segregated Portfolio Cell Reinsurance - This segment reflects the operating results (underwriting profit or loss, plus investment results) of SPCs at Eastern Re and Inova Re, our Cayman Islands SPC operations. The SPCs assume workers' compensation insurance, healthcare professional liability insurance or a combination of the two from our Workers' Compensation Insurance and Specialty P&C segments.
- Lloyd's Syndicates - This segment includes the operating results from our participation (62% for 2018) in Lloyd's of London Syndicate 1729 and our 100% participation in Syndicate 6131, which is a SPA that began writing business effective January 1, 2018. For the 2019 underwriting year, we slightly decreased our participation in the operating results of Syndicate 1729 from 62% to 61%. The results of this segment are normally reported on a quarter delay, except when information is available that is material to the current period. Syndicate 1729 underwrites risks over a wide range of property and casualty insurance and reinsurance lines in both the U.S. and international markets while Syndicate 6131 focuses on contingency and specialty property business, also within the U.S. and international markets.
- Corporate - This segment includes our investment operations, other than those reported in our Segregated Portfolio Cell Reinsurance and Lloyd's Syndicates segments, interest expense and U.S. income taxes. The results of investment assets solely allocated to SPC operations were previously reported in this segment and are now reported in our Segregated Portfolio Cell Reinsurance segment. This segment also includes non-premium revenues generated outside of our insurance entities and corporate expenses.

All prior period segment information has been recast to conform to the current period presentation and the segment reorganization had no impact on previously reported consolidated financial results. Additional information regarding our segments is included in Note 16 of the Notes to Consolidated Financial Statements, Part I and the Segment Operating Results sections that follow.

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Growth Opportunities and Outlook

Over the long-term we expect our growth to come primarily through controlled expansion of our existing operations. In addition, from time to time, we may identify opportunities for growth through the acquisition of other insurers, service providers or books of business. Growth through acquisition is often opportunistic and cannot be predicted.

We operate in very competitive markets and face strong competition from other insurance companies for all of our insurance products. HCPL insurance represents the largest product line in our gross premiums written (49% in 2018, excluding tail) and the healthcare market has been trending toward the formation of larger medical practice groups and the employment of physicians by hospitals. Large medical groups and facilities frequently manage their healthcare professional liability exposure outside of the traditional first dollar insurance marketplace using self-insured mechanisms and other risk sharing arrangements. In response to these trends, we offer products designed to provide greater risk sharing options to hospitals and large physician groups.

In 2014, we strengthened our position in the healthcare liability space by acquiring Eastern, a provider of workers' compensation insurance which currently represents the second largest product line in our gross premiums written (31% in 2018, including alternative market premiums). The workers’ compensation industry is highly competitive in the geographic markets in which we operate and multi-line insurers continue to increase their leverage of workers’ compensation business in their product offerings. We believe our workers' compensation products allow us to provide flexibility in offering solutions to our customers at a competitive price. In addition, we believe that our claims handling and risk management services are attractive to our customers and provide us with a competitive advantage even when our pricing is higher than our competitors.

We have also been a consistent acquirer of other physician insurers, completing four acquisitions between 2009 and 2013 as well as acquiring an agency largely focused on the professional liability needs of allied healthcare providers, an insurer focused on the legal professional liability market and a mutual company that focused on medical technology liability insurance for companies that manufacture or distribute medical products.

Late in 2013, we completed the process of establishing a corporate member of Lloyd's of London, an internationally recognized specialist insurance market, by providing the majority of the capital to Syndicate 1729. Syndicate 1729 covers a range of property and casualty insurance and reinsurance lines and began active operations effective January 1, 2014. For the 2019 underwriting year, we slightly decreased our participation in the operating results of Syndicate 1729 from 62% to 61%. Syndicate 1729 has a maximum underwriting capacity of £128 million (approximately $163.3 million at December 31, 2018) for the 2019 underwriting year, of which £78 million (approximately $99.5 million at December 31, 2018) is our allocated underwriting capacity as a corporate member.

Late in 2017, we began providing 100% of the capital for the newly formed SPA, Syndicate 6131. Syndicate 6131, which began writing business effective January 1, 2018, serves as a quota share reinsurer to Syndicate 1729 and focuses on contingency and specialty property business. For the 2019 underwriting year, Syndicate 6131 has a maximum underwriting capacity of £12 million (approximately $15.3 million at December 31, 2018). We have a total capital commitment to support our Lloyd's Syndicate operations through 2019 of up to $200 million, referred to as FAL. The Board, through a non-binding resolution, extended this commitment through 2022. See further discussion in our Segment Operating Results - Lloyd's Syndicates section that follows.

We believe our emphasis on the fair treatment of our insureds and other important stakeholders through our commitment to “Treated Fairly” has enhanced our market position and differentiated us from other insurers. We will continue to practice our values of integrity, leadership, relationships and enthusiasm in all of our activities. We will honor these values in the execution of “Treated Fairly” to perform our Mission and realize our Vision. We believe that as we reach more customers with this message we will continue to improve retention and add new insureds.

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Key Performance Measures

We have sustained our financial stability during difficult market conditions through responsible underwriting, pricing and loss reserving practices and through conservative investment practices. We are committed to maintaining prudent operating and financial leverage and to conservatively investing our assets. We recognize the importance that our customers and producers place on the financial strength of our insurance subsidiaries and we manage our business to protect our financial security.

In evaluating our performance, we consider a number of performance measures, including the following:

- The net loss ratio which is calculated as net losses incurred divided by net premiums earned and is a component of underwriting profitability.
- The underwriting expense ratio which is calculated as underwriting, policy acquisition and operating expenses incurred divided by net premiums earned and is a component of underwriting profitability.
- The combined ratio which is the sum of the net loss ratio and the underwriting expense ratio and measures underwriting profitability.
- The investment income ratio which is calculated as net investment income divided by net premiums earned and measures the contribution investment earnings provide to our overall profitability.
- The operating ratio which is the combined ratio, less the investment income ratio. This ratio provides the combined effect of underwriting profitability and investment income.
- The tax ratio which is calculated as total income tax expense divided by income (loss) before income taxes and measures our effective tax rate.
- ROE which is calculated as net income divided by the average of beginning and ending shareholders’ equity. This ratio measures our overall after-tax profitability and shows how efficiently capital is being used.
- Book value per share which is calculated as total shareholders’ equity at the balance sheet date divided by the total number of common shares outstanding. This ratio measures the net worth of the company to shareholders on a per-share basis. The declaration of dividends decreases book value per share. Growth in book value per share, adjusted for dividends declared, is an indicator of overall profitability.

We particularly focus on our combined ratio and investment returns, both of which directly affect our ROE and growth in our book value. We currently target a dynamic ROE of 700 basis points above the 10-year U.S. Treasury rate, which at December 31, 2018 was approximately 9.7%.

Our emphasis on rate adequacy, selective underwriting, effective claims management and prudent investments is a key factor in our ability to achieve our ROE target. We closely monitor premium revenues, losses and loss adjustment costs, and underwriting and policy acquisition expenses. Our overall investment strategy is to focus on maximizing current income from our investment portfolio while maintaining safety, liquidity, duration and portfolio diversification. While we engage in activities that generate other income, these activities, such as insurance agency services, do not constitute a significant use of our resources or a significant source of revenues or profits.

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Critical Accounting Estimates

Our Consolidated Financial Statements are prepared in conformity with GAAP. Preparation of these financial statements requires us to make estimates and assumptions that affect the amounts we report on those statements. We evaluate these estimates and assumptions on an ongoing basis based on current and historical developments, market conditions, industry trends and other information that we believe to be reasonable under the circumstances. There can be no assurance that actual results will conform to our estimates and assumptions; reported results of operations may be materially affected by changes in these estimates and assumptions.

Management considers the following accounting estimates to be critical because they involve significant judgment by management and those judgments could result in a material effect on our financial statements.

Reserve for Losses and Loss Adjustment Expenses

The largest component of our liabilities is our reserve for losses and loss adjustment expenses ("reserve for losses" or "reserve"), and the largest component of expense for our operations is incurred losses and loss adjustment expenses (also referred to as “losses and loss adjustment expenses,” “incurred losses,” “losses incurred” and “losses”). Incurred losses reported in any period reflect our estimate of losses incurred related to the premiums earned in that period as well as any changes to our previous estimate of the reserve required for prior periods.

As of December 31, 2018 our reserve is comprised almost entirely of long-tail exposures. The estimation of long-tailed losses is inherently difficult and is subject to significant judgment on the part of management. Due to the nature of our claims, our loss costs, even for claims with similar characteristics, can vary significantly depending upon many factors, including but not limited to the specific characteristics of the claim and the manner in which the claim is resolved. Long-tailed insurance is characterized by the extended period of time typically required both to assess the viability of a claim and potential damages, if any, and to reach a resolution of the claim. The claims resolution process may extend to more than five years. The combination of continually changing conditions and the extended time required for claim resolution results in a loss cost estimation process that requires actuarial skill and the application of significant judgment, and such estimates require periodic modification.

Our reserve is established by management after taking into consideration a variety of factors including premium rates, claims frequency and severity, historical paid and incurred loss development trends, the expected effect of inflation, general economic trends, the legal and political environment and the conclusions reached by our internal and consulting actuaries. We update and review the data underlying the estimation of our reserve for losses each reporting period and make adjustments to loss estimation assumptions that we believe best reflect emerging data. Both our internal and consulting actuaries perform an in-depth review of our reserve for losses on at least a semi-annual basis using the loss and exposure data of our insurance subsidiaries.

We partition our reserves by accident year, which is the year in which the claim becomes our liability. As claims are incurred (reported) and claim payments are made, they are aggregated by accident year for analysis purposes. We also partition our reserves by reserve type: case reserves and IBNR reserves. Case reserves are established by our claims departments based upon the particular circumstances of each reported claim and represent our estimate of the future loss costs (often referred to as expected losses) that will be paid on reported claims. Case reserves are decremented as claim payments are made and are periodically adjusted upward or downward as estimates regarding the amount of future losses are revised; reported loss for an individual claim is the case reserve at any point in time plus the claim payments that have been made to date. IBNR reserves represent our estimate in the aggregate of future development on losses that have been reported to us and our estimate of losses that have been incurred but not reported to us.

Our reserving process can be broadly grouped into three areas: the establishment of the reserve for the current accident year (the initial reserve), the re-estimation of the reserve for prior accident years (development of prior accident years) and the establishment of the initial reserve for risks assumed in business combinations, applicable only in periods in which acquisitions occur (the acquired reserve). A summary of the activity in our net reserve for losses during 2018, 2017 and 2016 is provided under the heading "Losses" in the Liquidity and Capital Resources and Financial Condition section that follows.

Current Accident Year - Initial Reserve

Considerable judgment is required in establishing our initial reserve for any current accident year period, as there is limited data available upon which to base our estimate. Our process for setting an initial reserve considers the unique

characteristics of each product, but in general we rely heavily on the loss assumptions that were used to price business, as our pricing reflects our analysis of loss costs that we expect to incur relative to the insurance product being priced.
Specialty P&C Segment. Loss costs within this segment are impacted by many factors including but not limited to the nature of the claim, including whether or not the claim is an individual or a mass tort claim, the personal situation of the claimant or the claimant's family, the outcome of jury trials, the legislative and judicial climate where any potential litigation

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may occur, general economic conditions and, for claims involving bodily injury, the trend of healthcare costs. Within our Specialty P&C segment, for our HCPL business (75% of our consolidated gross reserve for losses and loss adjustment expenses as of December 31, 2018), we set an initial reserve using the average loss ratio used in our pricing, plus an additional provision in consideration of the historical loss volatility we and others in the industry have experienced. The current accident year reserve also includes provisions for any loss portfolio transfers we enter into during the current period. For our HCPL business our target loss ratio during recent accident years has ranged from 77% to 80% and the provision for loss volatility has ranged from 8 to 10 percentage points, producing an overall average initial loss ratio for our HCPL business of approximately 90%. Changes in observed claim frequency and/or severity can result in variations from these levels. The reasons for the variability in loss provisions from period to period have included additional loss activity within our excess and surplus lines business, provisions for losses in excess of policy limits, adjustments to ULAE, adjustment to the reserve for the DDR provisions in our policies and additional losses recorded for particular exposures, such as mass torts. These specific adjustments are made if we believe the results for a given accident year are likely to vary from those anticipated by our pricing. We believe use of a provision for volatility appropriately considers the inherent risks and limitations of our rate development process and the historic volatility of professional liability losses (the industry has experienced accident year loss ratios as high as 138% and as low as 54% over the past 30 years) and produces a reasonable best estimate of the reserve required to cover actual ultimate unpaid losses. A similar practice is followed for our legal professional liability business (3% of our consolidated gross reserve for losses and loss adjustment expenses as of December 31, 2018).

The risks insured in our medical technology liability business (4% of our consolidated gross reserve for losses and loss adjustment expenses as of December 31, 2018) are more varied, and policies are individually priced based on the risk characteristics of the policy and the account. The insured risks range from startup operations to large multinational entities and the larger entities often have significant deductibles or self-insured retentions. Reserves are established using our most recently developed actuarial estimates of losses expected to be incurred based on factors which include results from prior analysis of similar business, industry indications, observed trends and judgment. Claims in this line of business primarily involve bodily injury to individuals and are affected by factors similar to those of our HCPL line of business. For the medical technology liability business, we also establish an initial reserve using a loss ratio approach, including a provision in consideration of historical loss volatility that this line of business has exhibited.

Workers' Compensation Insurance Segment. Many factors affect the ultimate losses incurred for our workers' compensation coverages (11% of our consolidated gross reserve for losses and loss adjustment expenses as of December 31, 2018) including but not limited to the type and severity of the injury, the age and occupation of the injured worker, the estimated length of disability, medical treatment and related costs, and the jurisdiction and workers' compensation laws of the state of the injury occurrence. We use various actuarial methodologies in developing our workers’ compensation reserve, combined with a review of the exposure base generally based upon payroll of the insured. For the current accident year, given the lack of seasoned information, the different actuarial methodologies produce results with significant variability; therefore, more emphasis is placed on supplementing results from the actuarial methodologies with trends in exposure base, medical expense inflation, general inflation, severity, and claim counts, among other things, to select an expected loss ratio.

Segregated Portfolio Cell Reinsurance Segment. The factors that affect the ultimate losses incurred for the workers' compensation and healthcare professional liability coverages assumed by the SPCs at Eastern Re and Inova Re (3% of our consolidated gross reserve for losses and loss adjustment expenses as of December 31, 2018) are consistent with that of our Workers’ Compensation Insurance and Specialty P&C segments, respectively.

Lloyd's Syndicates Segment. Due to the relatively short history of Syndicate 1729 (January 1, 2014) we are influenced by historical claims experience of the Lloyd's market for similar risks in estimating the appropriate initial reserves for our Lloyd's Syndicates segment (4% of our consolidated gross reserve for losses and loss adjustment expenses as of December 31, 2018). We expect loss ratios to fluctuate from quarter to quarter as Syndicate 1729 writes more business and the book begins to mature. Loss ratios can also fluctuate due to the timing of earned premium adjustments. Such adjustments may be the result of premiums for certain policies and assumed reinsurance contracts being reported subsequent to the coverage period and may be subject to adjustment based on loss experience.

Premium and exposure for some of Syndicate 1729's insurance policies and reinsurance contracts are initially estimated and subsequently recorded over an extended period of time as reports are received under delegated underwriting authority programs. When reports are received, the premium, exposure and corresponding loss estimates are revised accordingly. Changes in loss estimates due to premium or exposure fluctuations are incurred in the accident year in which the premium is earned.

For significant property catastrophe exposures, Syndicate 1729 uses third-party catastrophe models to accumulate a listing of potentially affected policies. Each identified policy is given an estimate of loss severity based upon a combination of factors including the probable maximum loss of each policy, market share analytics, underwriting judgment, client/broker estimates and historical loss trends for similar events. These models are inherently uncertain, reliant upon key assumptions and management judgment and are not always a representation of actual events and ensuing potential loss exposure. Determination of actual losses may take an extended period of time until claims are reported and resolved, including coverage litigation.

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Syndicate 6131, which began writing business effective January 1, 2018, follows a process similar to Syndicate 1729 for the establishment of initial reserves. Loss assumptions by risk category incorporated into the 2018 business plan submitted to Lloyd's were influenced by historical claims experience of the Lloyd's market for similar risks. We expect the loss ratios of Syndicate 6131 to fluctuate from quarter to quarter as Syndicate 6131 assumes more business from Syndicate 1729 and the book begins to mature.

Development of Prior Accident Years

In addition to setting the initial reserve for the current accident year, each period we reassess the amount of reserve required for prior accident years.

The foundation of our reserve re-estimation process is an actuarial analysis that is performed by both our internal and consulting actuaries. This very detailed analysis projects ultimate losses based on partitions which include line of business, geography, coverage layer and accident year. The procedure uses the most representative data for each partition, capturing its unique patterns of development and trends. In all there are over 200 different partitions of our business for purposes of this analysis. We believe that the use of consulting actuaries provides an independent view of our loss data as well as a broader perspective on industry loss trends.

For the Specialty P&C, Workers' Compensation Insurance and Segregated Portfolio Cell Reinsurance segments, the analysis performed by the consulting actuaries analyzes each partition of our business in a variety of ways and uses multiple actuarial methodologies in performing these analyses, including:

- Bornhuetter-Ferguson (Paid and Reported) Method
- Paid Development Method
- Reported Development Method
- Average Paid Value Method
- Average Reported Value Method
- Backward Recursive Development Method
- The Adjusted Reported and the Adjusted Paid Methods

A brief description of each method follows.

Bornhuetter-Ferguson Method. We use both the Paid and the Reported Bornhuetter-Ferguson methods. The Paid method assigns partial weight to initial expected losses for each accident year (initial expected losses being the first established case and IBNR reserves for a specific accident year) and partial weight to paid to date losses. The Reported method assigns partial weight to the initial expected losses and partial weight to current expected losses. The weights assigned to the initial expected losses decrease as the accident year matures.

Paid Development and Reported Development Methods. These methods use historical, cumulative losses (paid losses for the Paid Development Method, reported losses for the Reported Development Method) by accident year and develop those actual losses to estimated ultimate losses based upon the assumption that each accident year will develop to estimated ultimate cost in a manner that is analogous to prior years, adjusted as deemed appropriate for the expected effects of known changes in the claim payment environment (and case reserving environment for the Reported Development Method); and to the extent necessary, supplemented by analyses of the development of broader industry data.

Average Paid Value and Average Reported Value Methods. In these methods, average claim cost data (paid claim cost for the Average Paid Value Method and reported claim cost for the Reported Value Method) is developed to an ultimate average cost level by report year based on historical data. Claim counts are similarly developed to an ultimate count level. The average claim cost (after rounding and adjustment, if necessary, to accommodate report year data that is not considered to be predictive) is then multiplied by the ultimate claim counts by report year to derive ultimate loss and ALAE.

Backward Recursive Development Method. This method is an extrapolation of the movements in case reserve adequacy in order to estimate unpaid loss costs. Historical data showing incremental changes to case reserves over progressive time periods is used to derive factors that represent the ratio of case reserve values at successive maturities. Historical claims payment data showing the additional payments in progressive time periods is used to derive factors that represent the portion of a case reserve paid in the following period. Starting from the most mature period, after which all of the case reserve is paid and the case reserve is exhausted, the next prior ultimate development factor for the prior case reserve can be calculated as the case factor times the established ultimate development factor plus the paid factor. For each successive prior maturity, the ultimate development factor is calculated similarly. The result of multiplying the ultimate development factor times the case reserve is the total indicated unpaid amount.

The Adjusted Reported and the Adjusted Paid Methods. These methods are based on the premise that the relative change in a given accident year's adjusted reported loss estimates (Adjusted Reported Method) or adjusted paid losses (Adjusted Paid Method) from one evaluation point to the next is similar to changes observed for earlier accident years at the same evaluation points. In the Adjusted Reported Method reported loss estimates are adjusted to reflect a common case reserve adequacy basis. In the Adjusted Paid Method, the historical paid loss experience is adjusted to reflect a common claim settlement rate basis. We principally use these methods to evaluate reserves for our legal liability coverages. Generally, methods such as the Bornhuetter-Ferguson method are used on more recent accident years where we have less data on which to base our analysis. As time progresses and we have an increased amount of data for a given accident year, we begin to give more confidence to the development and average methods, as these methods typically rely more heavily on our own historical data. These methods emphasize different aspects of loss reserve estimation and provide a variety of perspectives for our decisions.

Certain of the methodologies utilized to estimate the ultimate losses for each partition of our reserves consider the actual amounts paid. Paid data is particularly influential when a large portion of known claims have been closed, as is the case for older accident years. In selecting a point estimate for each partition, management considers the extent to which trends are emerging consistently for all partitions and known industry trends. Thus, actual, rather than estimated severity trends are given more consideration. If actual severity trends are lower than those estimated at the time that reserves were previously established, the recognition of favorable development is indicated. This is particularly true for older accident years where our actuarial methodologies give more weight to actual loss costs (severity).

The various actuarial methods discussed above are applied in a consistent manner from period to period. In addition, we perform statistical reviews of claims data such as claim counts, average settlement costs and severity trends when establishing our reserves.

We utilize the selected point estimates of ultimate losses to develop estimates of ultimate losses recoverable from reinsurers, based on the terms and conditions of our reinsurance agreements. An overall estimate of the amount receivable from reinsurers is determined by combining the individual estimates. Our net reserve estimate is the gross reserve point estimate less the estimated reinsurance recovery.

For our Workers’ Compensation Insurance segment and for the workers' compensation exposures in our Segregated Portfolio Cell Reinsurance segment, we utilize the reported development method, paid development method and Bornhuetter-Ferguson method, to develop our reserve for each accident year. The actuarial review includes the stratification of claims data (lost time claims, medical only claims) using different variations that allow us to identify trends that may not be readily identifiable if the data was evaluated only in the aggregate. Reported and paid loss development factors are key assumptions in the reserve estimation process and are based on our historical reported and paid loss development patterns. As accident years mature, the various actuarial methodologies produce more consistent loss estimates.

For our Lloyd's Syndicates segment we rely on the analysis of actual loss experience on the book of business written by Syndicate 1729 to determine loss development by accident year.

Acquired Reserve

The acquisition of Eastern on January 1, 2014 increased our loss reserve by $153.2 million which represented the fair value of Eastern's loss reserve at the time of the acquisition. The fair value of the reserve for losses and loss adjustment expenses and related reinsurance recoverables was based on an actuarial estimate of the expected future net cash flows, a reduction of those cash flows for the time value of money determined utilizing the U.S. Treasury Yield Curve, and a risk adjustment to reflect the net present value of profit that an investor would demand in return for the assumption of the associated risks. Expected net cash flows were derived from the expected loss payment patterns included in an actuarial analysis of Eastern's reserve performed as of December 31, 2013. The fair value of the reserve, including the risk margin discussed above, exceeded the undiscounted loss reserve previously established by Eastern by $9.3 million; this fair value adjustment is being amortized over the average expected life of the reserve of 6 years. The unamortized fair value adjustment included in the acquired reserve as of December 31, 2018 was $1.5 million.

Use of Judgment

Even though the actuarial process is highly technical, it is also highly judgmental, both as to the selection of the data used in the various actuarial methodologies (e.g., initial expected loss ratios and loss development factors) and in the interpretation of the output of the various methods used. Each actuarial method generally returns a different value and for the more recent accident years the variations among the various methodologies can be significant. For each partition of our reserves, we evaluate the results of the various methods, along with the supplementary statistical data regarding such factors as closed with and without indemnity ratios, claim severity trends, the expected duration of such trends, changes in the legal and legislative environment and the current economic environment to develop a point estimate based upon management's judgment and past experience. The series of selected point estimates is then combined to produce an overall point estimate for ultimate losses.

Given the potential for unanticipated volatility for long-tailed lines of business, we are cautious in giving full credibility to emerging trends that, when more fully mature, may lead to the recognition of either favorable or adverse development of our losses. There may be trends, both positive and negative, reflected in the numerical data both within our own information and in the broader marketplace that mitigate or reverse as time progresses and additional data becomes available. This is particularly true for our HCPL business which has historically exhibited significant volatility as previously discussed.

HCPL. Over the past several years the most influential factor affecting the analysis of our HCPL reserves and the related development recognized has been the change in the severity of claims. The severity trend is an explicit component of our pricing models, whereas in our reserving process the severity trend's impact is implicit. Our estimate of this trend and our expectations about changes in this trend impact a variety of factors, from the selection of expected loss ratios to the ultimate point estimates established by management.

Because of the implicit and wide-ranging nature of severity trend assumptions on the loss reserving process, it is not practical to specifically isolate the impact of changing severity trends. However, because severity is an explicit component of our HCPL pricing process we can better isolate the impact that changing severity can have on our loss costs and loss ratios in regards to our pricing models for this business component. Our current HCPL pricing models assume a severity trend of approximately 3% in most states and products. We have observed potentially higher severity trends in our case reserve estimates but these have not yet been confirmed by actual claim payments. If the severity trend were to be higher by 1 percentage point, the impact would be an increase in our expected loss ratio for this business of 3.2 percentage points, based on current claim disposition patterns. An increase in the severity trend of 3 percentage points would result in a 10.1 percentage point increase in our expected loss ratio. Due to the long-tailed nature of our claims and the previously discussed historical volatility of loss costs, selection of a severity trend assumption is a subjective process that is inherently likely to prove inaccurate over time. Given the long tail and volatility, we are generally cautious in making changes to the severity assumptions within our pricing models. All open claims and accident years are generally impacted by a change in the severity trend, which compounds the effect of such a change.

Although the future degree and impact of the ultimate severity trend remains uncertain due to the long-tailed nature of our business, we have given consideration to observed loss costs in setting our rates. For our HCPL business this practice had generally resulted in rate reductions as claim frequency declined and remained at historically low levels. For example, on average, excluding our podiatry business acquired in 2009, we had gradually reduced the premium rates we charged on our standard physician renewal business (our largest HCPL line) by approximately 17% from the beginning of 2006 to December 31, 2016. However, from the beginning of 2017 to December 31, 2018, the average charged rates on our standard physician renewal business have increased by 4% and we anticipate further rate increases due to indications of increasing loss severity. Loss ratios for recent accident years have thus remained fairly constant because expected loss changes have been reflected in our rates; however, we have recognized a higher current accident year net loss ratio during 2018 due to those recent severity indications.

Workers' Compensation. The projection of changes in claim severity trend has not historically been an influential factor affecting our analysis of workers' compensation reserves, as claims are typically resolved more quickly than the industry norm. As previously mentioned, the determination and calculation of loss development factors, in particular, the selection of tail factors which are used to extend the projection of losses beyond historical data, requires considerable judgment.

Loss Development

We recognized net favorable reserve development of $92.1 million for the year ended December 31, 2018, of which $77.1 million related to our Specialty P&C segment, $8.0 million related to our Workers' Compensation Insurance segment and $9.0 million related to our Segregated Portfolio Cell Reinsurance segment, slightly offset by unfavorable development of $2.0 million related to our Lloyd's Syndicates segment.

Net favorable development recognized within our Specialty P&C segment was primarily attributable to the favorable resolution of HCPL claims during the period and an evaluation of established case reserves and paid claims data that indicated that the average severity trend associated with the remaining HCPL claims is less than we had previously estimated, principally related to accident years 2011 through 2014. The favorable development in our Specialty P&C segment for the year ended December 31, 2018 included $13.3 million attributable to our medical technology liability line of business and $10.9 million attributable to our legal professionals liability line of business.

Net favorable development recognized within the Workers' Compensation Insurance segment reflected overall favorable trends in claim closing patterns primarily in the 2015 and 2016 accident years.
Net favorable development recognized within our Segregated Portfolio Cell Reinsurance segment primarily reflected better than expected claim trends in the 2015, 2016 and 2017 accident years. The improved claim trends reflected lower frequency and severity than anticipated at the time the reserves were established.
Net unfavorable development recognized within our Lloyd's Syndicates segment was driven by higher than expected losses and development on certain large claims which resulted in unfavorable development with respect to a previous year of account. See further discussion in our Segment Operating Results - Lloyd's Syndicates section that follows.

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Loss Development by Line of Business

Professional Liability

Our professional liability line of business includes both our HCPL and legal professional lines, with our HCPL line representing the largest component of our reserve. In support of our concern that the decline in frequency will result in a higher severity trend for our HCPL claims, we saw our closed-with-indemnity-payment ratio (i.e., the number of claims closed with an indemnity or loss payment as compared to the total number of closed claims) for our claims increase from 10% in 2005 to 15% in 2018.

While this trend has been in keeping with our expectations, the anticipated increase in severity incorporated into our loss assumptions has not occurred. Rather, we have experienced lower than expected severity which has been the primary driver of the favorable development recognized in recent years.

The following table presents additional information about the loss development for our professional liability line of business:

($ in thousands)		2018		2017		2016	
Accident Years	Estimated Ultimate Losses, Net of Reinsurance, December 31, 2018	Reserve Development (favorable) unfavorable	% of Known Claims Closed	Reserve Development (favorable) unfavorable	% of Known Claims Closed	Reserve Development (favorable) unfavorable	% of Known Claims Closed
2018	$ 447,267	N/A	18.0 %	N/A	N/A	N/A	N/A
2017	$ 403,256	$ 13,637	46.4 %	N/A	20.4 %	N/A	N/A
2016	$ 403,185	$ 10,648	66.4 %	$ 3,413	48.2 %	N/A	17.6 %
2015	$ 395,158	$ (1,268)	80.8 %	$ 1,510	68.7 %	$ 304	47.5 %
2014	$ 352,845	$ (16,627)	89.4 %	$ (15,782)	82.3 %	$ (11,358)	71.8 %
2013	$ 371,888	$ (20,398)	94.7 %	$ (23,164)	90.4 %	$ (10,501)	83.4 %
2012	$ 388,945	$ (13,403)	97.4 %	$ (17,187)	95.3 %	$ (24,988)	92.0 %
2011	$ 377,782	$ (13,940)	97.8 %	$ (18,277)	96.4 %	$ (15,977)	94.0 %
2010	$ 380,469	$ (4,268)	99.1 %	$ (17,224)	98.7 %	$ (14,532)	97.6 %
2009	$ 335,851	$ (5,558)	99.5 %	$ (8,380)	99.0 %	$ (19,920)	98.4 %
Prior to 2009	$ 7,209,070	$ (12,616)		$ (14,128)		$ (28,674)	

An extended period of time is required to get a more precise estimate of the loss cost for a given accident year. As an example, looking at the 2013 accident year for our professional liability reserves, we had resolved 83.4% of the known claims by the end of 2016, 90.4% of the known claims by the end of 2017, and 94.7% of the known claims by the end of 2018. These statistics are based on the number of reported claims; since many non-meritorious claims are resolved early, percentages of ultimate loss payments known at the same points in time are considerably lower. A similar pattern can be seen in each open accident year as demonstrated in the above table.

As a writer of third-party liability insurance, we have historically resolved more than 85% of our physician and hospital professional liability claims with no indemnity payment. As an accident year matures, the number of claims resolved with indemnity payments progressively increases. In a similar fashion, we typically expend more in loss adjustment expenses (legal fees) as claims mature.

At December 31, 2018, 2017 and 2016 management reserve estimates for the three most recent prior accident years (which have closed claim percentages at or below 85%) were influenced by the initial reserve estimate set for these years, moderated to reflect consideration of better than anticipated claims experience observed during the periods. Estimates for older accident years with higher percentages of closed claims were more heavily influenced by the more moderate severity trend, particularly with regard to claims closed during the periods.

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This can be seen in looking at both the absolute amount of favorable reserve development recognized for the less developed accident years as well as the size of such development when compared to established ultimates for those same accident years at the end of the preceding calendar year. The following table provides this information for years ended December 31, 2018, 2017 and 2016 with respect to the three then most recent prior accident years:

($ in millions)	2018	2017	2016
Prior accident years	2015-2017	2014-2016	2013-2015
Net favorable (unfavorable) development recognized for the specified years	$ (23.0)	$ 10.9	$ 21.6
Development as a % of established ultimates, prior calendar year end	(2.0%)	0.9%	2.3%

Medical Technology Liability

Our medical technology liability line of business has not experienced the change in claim frequency previously described for HCPL. However, the nature of the risks insured and volatility of the loss experience in this line of business has produced more variable loss development, as presented in the following table:

($ in thousands)		2018		2017		2016	
Accident Years	Estimated Ultimate Losses, Net of Reinsurance, December 31, 2018	Reserve Development (favorable) unfavorable	% of Known Claims Closed	Reserve Development (favorable) unfavorable	% of Known Claims Closed	Reserve Development (favorable) unfavorable	% of Known Claims Closed
2018	$ 14,105	N/A	52.4 %	N/A	N/A	N/A	N/A
2017	$ 14,228	$(695)	72.2 %	N/A	42.2 %	N/A	N/A
2016	$ 12,473	$(1,114)	62.8 %	$(537)	53.3 %	N/A	26.4 %
2015	$ 10,832	$(1,511)	64.6 %	$(1,755)	79.5 %	$(440)	60.0 %
2014	$ 11,971	$(1,526)	93.2 %	$(187)	92.5 %	$(845)	81.7 %
2013	$ 5,312	$(1,526)	98.7 %	$(2,622)	96.4 %	$(2,400)	87.7 %
2012	$ 9,867	$585	98.8 %	$(1,251)	96.9 %	$(1,826)	90.5 %
2011	$ 9,608	$(5,273)	99.8 %	$92	73.9 %	$(1,591)	72.0 %
2010	$ 24,330	$1,449	99.6 %	$(1,385)	96.3 %	$(800)	90.6 %
2009	$ 20,876	$(753)	99.7 %	$(1,178)	95.7 %	$(1,382)	92.2 %
Prior to 2009	$ 534,144	$(2,927)		$(1,250)		$(2,229)	

Approximately $5.7 million of the $13.3 million total net favorable development recognized in 2018 related to the 2013 to 2016 accident years. The development for the 2013 to 2016 accident years represents a 12.3% reduction to the ultimates established for those reserves at December 31, 2017. Approximately $5.8 million of the $10.1 million total net favorable development recognized in 2017 related to the 2012 to 2015 accident years. The development for the 2012 to 2015 accident years represents a 12.1% reduction to the ultimates established for those reserves at December 31, 2016. Approximately $5.8 million of the $11.5 million total net favorable development recognized in 2016 related to the 2011 to 2013 accident years. The development for the 2011 to 2013 accident years represents a 14.3% reduction to the ultimates established for those reserves at December 31, 2015.

In 2018, 2017 and 2016 the development was largely attributable to favorable results from claims closed during the year. As time has elapsed we have recognized that actual loss experience has on average been better than estimated.

We have been cautious in recognizing the improvement, but as claims have matured and claims are closed or have become more certain for the remaining open claims, we have revised reserve estimates. We believe the need for a cautious approach is required as outcomes are uncertain and results can be significantly affected by outcomes for a small number of cases.

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Workers' Compensation

Claims in our workers’ compensation line of business have historically closed at a faster rate than in our HCPL or medical technology liability lines of business. This faster disposition rate, along with a lower net retention after the application of reinsurance, has resulted in less volatility in loss estimates on a net basis. However, a change in the number of individually-severe claims can create volatility in a given accident year. The following table presents additional information about the loss development for our workers' compensation line of business:

($ in thousands)		2018		2017		2016	
Accident Years	Estimated Ultimate Losses, Net of Reinsurance, December 31, 2017	Reserve Development (favorable) unfavorable	% of Known Claims Closed	Reserve Development (favorable) unfavorable	% of Known Claims Closed	Reserve Development (favorable) unfavorable	% of Known Claims Closed
2018	$ 139,426	N/A	40.0 %	N/A	N/A	N/A	N/A
2017	$ 138,468	$(4,203)	80.8 %	N/A	37.0 %	N/A	N/A
2016	$ 123,146	$(8,257)	91.8 %	$(7,546)	82.5 %	N/A	41.3 %
2015	$ 125,202	$(1,998)	95.3 %	$(5,773)	92.4 %	$(3,452)	82.6 %
2014	$ 121,310	$(92)	98.4 %	$(1,428)	97.0 %	$77	92.5 %
2013	$ 113,293	$(227)	99.2 %	$441	98.3 %	$944	97.1 %
2012	$ 94,875	$(565)	99.5 %	$(308)	99.3 %	$(577)	98.4 %
2011	$ 91,101	$(60)	99.3 %	$241	99.0 %	$156	98.9 %
2010	$ 71,824	$(54)	99.4 %	$(42)	99.4 %	$(820)	99.3 %
Prior to 2010	$ 401,859	$(11)		$1,710		$(782)	

In 2018, we recognized $9.0 million of net favorable development in our Segregated Portfolio Cell Reinsurance segment and $8.0 million of net favorable development in our Workers' Compensation Insurance segment. In 2017, we recognized $8.5 million of net favorable development in our Segregated Portfolio Cell Reinsurance segment and $5.7 million of net favorable development in our Workers' Compensation Insurance segment. In 2016, we recognized $4.6 million of net favorable development in our Segregated Portfolio Cell Reinsurance segment and $1.6 million of net favorable development in our Workers' Compensation Insurance segment. In each of the years ended December 31, 2018, 2017 and 2016, net favorable development in our Workers' Compensation Insurance segment included $1.6 million related to the amortization of the purchase accounting fair value adjustment.

Variability of Loss Reserves

As previously noted, the number of data points and variables considered and the subjective process followed in establishing our loss reserve makes it impractical to isolate individual variables and demonstrate their impact on our estimate of loss reserves. However, to provide a better understanding of the potential variability in our reserves, we have modeled implied reserve ranges around our single point net reserve estimates for our various lines of business assuming different confidence levels. The ranges have been developed by aggregating the expected volatility of losses across partitions of our business to obtain a consolidated distribution of potential reserve outcomes. The aggregation of this data takes into consideration correlations among our geographic and specialty mix of business. The result of the correlation approach to aggregation is that the ranges are narrower than the sum of the ranges determined for each partition.

We have used this modeled statistical distribution to calculate an 80% and 60% confidence interval for the potential outcome of our consolidated net reserve for losses. The high and low end points of the distributions are as follows:

	Low End Point	Carried Net Reserve	High End Point
80% Confidence Level	$1.392 billion	$1.776 billion	$2.227 billion
60% Confidence Level	$1.497 billion	$1.776 billion	$2.030 billion

Any change in our estimate of net ultimate losses for prior years is reflected in net income in the period in which such changes are made.

Due to the size of our consolidated reserve for losses and the large number of claims outstanding at any point in time, even a small percentage adjustment to our total reserve estimate could have a material effect on our results of operations for the period in which the adjustment is made.

Reinsurance

We use insurance and reinsurance (collectively, “reinsurance”) to provide capacity to write larger limits of liability, to provide reimbursement for losses incurred under the higher limit coverages we offer, to provide protection against losses in excess of policy limits, and, in the case of risk sharing arrangements, to align our objectives with those of our strategic business partners and to provide custom insurance solutions for large customer groups. The purchase of reinsurance does not relieve us from the ultimate risk on our policies, however it does provide reimbursement for certain losses we pay.

We make a determination of the amount of insurance risk we choose to retain based upon numerous factors, including our risk tolerance and the capital we have to support it, the price and availability of reinsurance, the volume of business, our level of experience with a particular set of claims and our analysis of the potential underwriting results. We purchase excess of loss reinsurance to limit the amount of risk we retain and we do so from a number of companies to mitigate concentrations of credit risk. We utilize reinsurance brokers to assist us in the placement of these reinsurance programs and in the analysis of the credit quality of our reinsurers. The determination of which reinsurers we choose to do business with is based upon an evaluation of their then current financial strength, rating and stability.

We evaluate each of our ceded reinsurance contracts at inception to confirm that there is sufficient risk transfer to allow the contract to be accounted for as reinsurance under current accounting guidance. At December 31, 2018, all ceded contracts were accounted for as risk transferring contracts.

Our receivable from reinsurers on unpaid losses and loss adjustment expenses represents our estimate of the amount of our reserve for losses that will be recoverable under our reinsurance programs. We base our estimate of funds recoverable upon our expectation of ultimate losses and the portion of those losses that we estimate to be allocable to reinsurers based upon the terms and conditions of our reinsurance agreements. Our assessment of the collectability of the recorded amounts receivable from reinsurers considers the payment history of the reinsurer, publicly available financial and rating agency data, our interpretation of the underlying contracts and policies and responses by reinsurers.

Given the uncertainty inherent in our estimates of losses and related amounts recoverable from reinsurers, these estimates may vary significantly from the ultimate outcome.

Under the terms of certain of our reinsurance agreements, the amount of premium that we cede to our reinsurers is based in part on the losses we recover under the agreements. Therefore we make an estimate of premiums ceded under these reinsurance agreements subject to certain maximums and minimums. Any adjustments to our estimates of losses recoverable under our reinsurance agreements or the premiums owed under our agreements are reflected in then current operations. Due to the size of our reinsurance balances, an adjustment to these estimates could have a material effect on our results of operations for the period in which the adjustment is made.

The financial strength of our reinsurers and their ability to pay us may change in the future due to forces or events we cannot control or anticipate. We have not experienced significant collection difficulties due to the financial condition of any reinsurer as of December 31, 2018; however, reinsurers may periodically dispute our demand for reimbursement from them based upon their interpretation of the terms of our agreements. We have established appropriate reserves for any balances that we believe may not be ultimately collected. Should future events lead us to believe that any reinsurer will not meet its obligations to us, adjustments to the amounts recoverable would be reflected in the results of current operations. Such an adjustment has the potential to be material to the results of operations in the period in which it is recorded; however, we would not expect such an adjustment to have a material effect on our capital position or our liquidity.

Investment Valuations

We record the majority of our investments at fair value as shown in the table below. At December 31, 2018, the distribution of our investments based on GAAP fair value hierarchies (levels) was as follows:

	Distribution by GAAP Fair Value Hierarchy			
	Level 1	Level 2	Level 3	Not Categorized

					Total Investments
Investments recorded at:					
Fair value	20%	65%	1%	9%	95%
Other valuations					5%
Total Investments					100%

Fair value is defined as 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. All of our fixed maturity and equity investments are carried at fair value. The fair value of our short-term securities approximates the cost of the securities due to their short-term nature.

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Because of the number of securities we own and the complexity of developing accurate fair values, we utilize multiple independent pricing services to assist us in establishing the fair value of individual securities. The pricing services provide fair values based on exchange-traded prices, if available. If an exchange-traded price is not available, the pricing services, if possible, provide a fair value that is based on multiple broker/dealer quotes or that has been developed using pricing models. Pricing models vary by asset class and utilize currently available market data for securities comparable to ours to estimate a fair value for our securities. The pricing services scrutinize market data for consistency with other relevant market information before including the data in the pricing models. The pricing services disclose the types of pricing models used and the inputs used for each asset class. Determining fair values using these pricing models requires the use of judgment to identify appropriate comparable securities and to choose a valuation methodology that is appropriate for the asset class and available data.

The pricing services provide a single value per instrument quoted. We review the values provided for reasonableness each quarter by comparing market yields generated by the supplied value versus market yields observed in the marketplace. We also compare yields indicated by the provided values to appropriate benchmark yields and review for values that are unchanged or that reflect an unanticipated variation as compared to prior period values. We utilize a primary pricing service for each security type and compare provided information for consistency with alternate pricing services, known market data and information from our own trades, considering both values and valuation trends. We also review weekly trades versus the prices supplied by the services. If a supplied value appears unreasonable, we discuss the valuation in question with the pricing service and make adjustments if deemed necessary. Historically our review has not resulted in any material changes to the values supplied by the pricing services. The pricing services do not provide a fair value unless an exchange-traded price or multiple observable inputs are available. As a result, the pricing services may provide a fair value for a security in some periods but not others, depending upon the level of recent market activity for the security or comparable securities.

Level 1 Investments

Fair values for a majority of our equity securities and portions of our corporate debt, short-term and convertible securities are determined using exchange-traded prices. There is little judgment involved when fair value is determined using an exchange-traded price. In accordance with GAAP, for disclosure purposes we classify securities valued using an exchange-traded price as Level 1 securities.

Level 2 Investments

Most fixed income securities do not trade daily; and thus, exchange-traded prices are generally not available for these securities. However, market information (often referred to as observable inputs or market data, including but not limited to, last reported trade, non-binding broker quotes, bids, benchmark yield curves, issuer spreads, two-sided markets, benchmark securities, offers and recent data regarding assumed prepayment speeds, cash flow and loan performance data) is available for most of our fixed income securities. We determine fair value for a large portion of our fixed income securities using available market information. In accordance with GAAP, for disclosure purposes we classify securities valued based on multiple market observable inputs as Level 2 securities.

Level 3 Investments

When a pricing service does not provide a value for one of our fixed maturity securities, management estimates fair value using either a single non-binding broker quote or pricing models that utilize market based assumptions which have limited observable inputs. The process involves significant judgment in selecting the appropriate data and modeling techniques to use in the valuation process. For disclosure purposes, we classify securities valued using limited observable inputs as Level 3 securities.

Fair Values Not Categorized

We hold interests in certain investment funds, primarily LPs/LLCs, which measure fund assets at fair value on a recurring basis and provide us with a NAV for our interest. As a practical expedient, we consider the NAV provided to approximate the fair value of the interest. In accordance with GAAP, for disclosure purposes we do not categorize these investments within the fair value hierarchy.

Nonrecurring Fair Value Measurements

We measure the fair value of certain assets on a nonrecurring basis when events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable. These assets include investments carried principally at cost, investments in tax credit partnerships and equity method investments that do not provide a NAV, fixed assets, goodwill and other intangible assets.

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Investments - Other Valuation Methodologies

Certain of our investments, in accordance with GAAP for the type of investment, are measured using methodologies other than fair value. At December 31, 2018, these investments represented approximately 5% of total investments, and are detailed in the following table. Additional information about these investments is provided in Notes 2 and 3 of the Notes to Consolidated Financial Statements.

(In millions)	Carrying Value	GAAP Measurement Method
Other investments:		
Other, principally FHLB capital stock	$ 2.9	Principally Cost
Investment in unconsolidated subsidiaries:		
Investments in tax credit partnerships	69.4	Equity
Equity method investments, primarily LPs/LLCs	29.9	Equity
	99.3	
BOLI	64.1	Cash surrender value
Total investments - Other valuation methodologies	$ 166.3	

Other-than-temporary Impairments

We evaluate our available-for-sale investment securities on at least a quarterly basis for the purpose of determining whether declines in fair value below recorded cost basis represent OTTI. We consider an OTTI to have occurred:

- if there is intent to sell the security;
- if it is more likely than not that the security will be required to be sold before full recovery of its amortized cost basis; or
- if the entire amortized basis of the security is not expected to be recovered.

The assessment of whether the amortized cost basis of a security, particularly an asset-backed debt security, is expected to be recovered requires management to make assumptions regarding various matters affecting future cash flows. The choice of assumptions is subjective and requires the use of judgment. Actual credit losses experienced in future periods may differ from management's estimates of those credit losses. Methodologies used to estimate the present value of expected cash flows are:

For non-structured fixed maturities (obligations of states, municipalities and political subdivisions and corporate debt) the estimate of expected cash flows is determined by projecting a recovery value and a recovery time frame and assessing whether further principal and interest will be received. We consider various factors in projecting recovery values and recovery time frames, including the following:

- third-party research and credit rating reports;
- the current credit standing of the issuer, including credit rating downgrades, whether before or after the balance sheet date;
- the extent to which the decline in fair value is attributable to credit risk specifically associated with the security or its issuer;
- internal assessments and the assessments of external portfolio managers regarding specific circumstances surrounding an investment, which indicate the investment is more or less likely to recover its amortized cost than other investments with a similar structure;
- for asset-backed securities, the origination date of the underlying loans, the remaining average life, the probability that credit performance of the underlying loans will deteriorate in the future, and our assessment of the quality of the collateral underlying the loan;
- failure of the issuer of the security to make scheduled interest or principal payments;
- any changes to the rating of the security by a rating agency; and
- recoveries or additional declines in fair value subsequent to the balance sheet date.

For structured securities (primarily asset-backed securities), management estimates the present value of the security's cash flows using the effective yield of the security at the date of acquisition (or the most recent implied rate used to accrete the security if the implied rate has changed as a result of a previous impairment or changes in expected cash flows). We consider the most recently available six month averages of the levels of delinquencies, defaults, severities, and prepayments for the collateral (loans) underlying the securitization or, if historical data is not available, sector based assumptions, to estimate expected future cash flows of these securities.

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Exclusive of securities where there is an intent to sell or where it is not more likely than not that the security will be required to be sold before recovery of its amortized cost basis, OTTI for debt securities is separated into a credit component and a non-credit component. The credit component of an OTTI is the difference between the security's amortized cost basis and the present value of its expected future cash flows, while the non-credit component is the remaining difference between the security's fair value and the present value of expected future cash flows. The credit component of the OTTI is recognized in earnings while the non-credit component is recognized in OCI.

Investments in tax credit partnerships are evaluated for OTTI by considering both qualitative and quantitative factors. These factors include, but are not limited to:

- our ability and intent to hold the investment until the recovery of its carrying value; and
- in situations where there was not a previous OTTI for the investment, whether the current expected cash flows from the investment, primarily tax benefits, are less than those expected at the time the investment was acquired due to various factors, such as a change in the statutory tax rate; or
- in situations where there was a previous OTTI for the investment, whether the expected cash flows from the investment at the time of the OTTI, primarily tax benefits, are less than its current carrying value.

Investments which are accounted for under the equity method are evaluated for impairment whenever events or changes in circumstances indicate that the carrying value of the investment might not be recoverable. These circumstances include, but are not limited to, evidence of the inability to recover the carrying value of the investment, the inability of the investee to sustain an earnings capacity that would justify the carrying value of the investment or the current fair value of the investment that is less than the carrying value.

We recognize OTTI, exclusive of non-credit OTTI, in earnings as a part of net realized investment gains (losses). In subsequent periods, any measurement of gain, loss or impairment is based on the revised amortized basis of the security. Non-credit OTTI on debt securities and declines in fair value of available-for-sale securities not considered to be other-than-temporary are recognized in OCI.

Asset-backed debt securities that have been impaired due to credit reasons or are below investment grade quality are accounted for under the effective yield method. Under the effective yield method, estimates of cash flows expected over the life of asset-backed securities are used to recognize income on the investment balance for subsequent accounting periods.

Deferred Policy Acquisition Costs

Policy acquisition costs (primarily commissions, premium taxes and underwriting salaries) which are directly related to the successful acquisition of new and renewal premiums are capitalized as DPAC and charged to expense, net of ceding commissions earned, as the related premium revenue is recognized. We evaluate the recoverability of our DPAC at the segment level each reporting period, and any amounts estimated to be unrecoverable are charged to expense in the current period. As of December 31, 2018 we have not determined that any amounts are unrecoverable.

Deferred Taxes

Deferred federal income taxes arise from the recognition of temporary differences between the basis of assets and liabilities determined for financial reporting purposes and the basis determined for income tax purposes. Our temporary differences principally relate to our loss reserve, unearned premiums, DPAC, unrealized investment gains (losses) and basis differences on fixed assets and investment assets. Deferred tax assets and liabilities are measured using the enacted tax rates expected to be in effect when such benefits are realized. We review our deferred tax assets quarterly for impairment. If we determine that it is more likely than not that some or all of a deferred tax asset will not be realized, a valuation allowance is recorded to reduce the carrying value of the asset. In assessing the need for a valuation allowance, management is required to make certain judgments and assumptions about our future operations based on historical experience and information as of the measurement period regarding reversal of existing temporary differences, carryback capacity, future taxable income (including its capital and operating characteristics) and tax planning strategies.

A valuation allowance has been established against the full value of the deferred tax asset related to the NOL carryforwards for the U.K. operations as management concluded that it was more likely than not that the deferred tax asset will not be realized. In 2018, we also established a valuation allowance of $0.3 million against the deferred tax assets of certain SPCs at our newly formed wholly owned Cayman Islands reinsurance subsidiary, Inova Re. Due to

the limited operations of these newly formed SPCs as of December 31, 2018, management concluded that a valuation allowance was required. See further discussion in Note 6 of the Notes to Consolidated Financial Statements.
Tax Cuts and Jobs Act
The TCJA was signed into law on December 22, 2017 and contains several key provisions that impact our business, including the reduction of the corporate tax rate to 21% effective January 1, 2018, the reduction in the amount of executive
compensation that could qualify as a tax deduction, a change in how property and casualty taxpayers discount loss reserves, a minimum tax on payments made to related foreign entities and a new tax on certain income of controlled foreign corporations. See Note 6 of the Notes to Consolidated Financial Statements for discussion of the current status of our accounting for certain provisions of the TCJA.
The TCJA placed limitations on the future deductibility of certain executive compensation. At December 31, 2017, the IRS had not yet issued guidance in this area, and thus we made a reasonable estimate of the effects on our existing deferred tax balances related to executive compensation at that time. During the third quarter of 2018, the IRS issued guidance addressing the effects of the TCJA on executive compensation; therefore, we were able to complete our accounting for the impact of the TCJA on our December 31, 2017 deferred tax asset balances related to executive compensation. As a result, we did not record any measurement-period adjustments to the previously recorded provisional amount.
In computing taxable income, property and casualty insurance companies reduce their premiums earned by losses incurred. The tax deduction for losses incurred is discounted using interest rates and factors prescribed by the IRS. The TCJA modified the rules for discounting losses incurred by changing the definition of the applicable interest rate that is used and amending the time periods for the loss payment pattern. These new provisions are effective for tax years beginning after December 31, 2017 and are subject to a transition rule.
At December 31, 2017, the IRS had not yet released the information necessary for us to determine a reasonable estimate for the tax effects of the TCJA on our deferred tax balances related to loss reserve discounting; therefore, no provisional amount was recorded at that time. We were able to complete our analysis during the measurement period following the release of new discount factors by the IRS on December 19, 2018. We used the new discount factors to determine the impact of the TCJA on our deferred tax balances related to loss reserve discounting. The adjustment, which is referred to as the transition rule adjustment, will be reflected as a component of taxable income evenly over eight years beginning in 2018. The transition rule adjustment is a taxable temporary difference and has no impact on total tax expense for the current year. The ultimate impact of the TCJA on our deferred tax balances for loss reserve discounting could be materially impacted if the IRS publishes any future revisions to the loss discount factors used in our analysis.
Effective January 1, 2018, the TCJA introduced a minimum tax on payments made to related foreign entities referred to as the BEAT. The BEAT is imposed by adding back into the U.S. tax base any base erosion payment made by the U.S. taxpayer to a related foreign entity and applying a minimum tax rate to this newly calculated modified taxable income. Base erosion payments represent any amount paid or accrued by the U.S. taxpayer to a related foreign entity for which a deduction is allowed. Premiums we cede to the SPCs at our newly formed wholly owned Cayman Islands reinsurance subsidiary, Inova Re, do not fall within the scope of base erosion payments as the SPCs at Inova Re intend to elect to be taxed as U.S. taxpayers. However, premiums that we cede to any active SPC at our other wholly owned Cayman Islands reinsurance subsidiary, Eastern Re, fall within the scope of base erosion payments and therefore could be significantly impacted by the BEAT. We have evaluated our exposure to the BEAT and have concluded that our expected outbound deductible payments to related foreign entities are below the threshold for application of the BEAT; therefore, we have not recognized any incremental tax expense for the BEAT provision of the TCJA as of December 31, 2018. See further discussion on our new subsidiary, Inova Re, and our Cayman Islands SPC operations in the Segment Operating Results - Segregated Portfolio Cell Reinsurance section that follows.
The TCJA also requires a U.S. shareholder of a controlled foreign corporation to include its GILTI in U.S. taxable income. The GILTI amount is based on the U.S. shareholder’s aggregate share of the gross income of the controlled foreign corporation reduced by certain exceptions and a net deemed tangible income return. The net deemed tangible income return is based on the controlled foreign corporation’s basis in the tangible depreciable business property. Cell rental fee income earned by Inova Re and Eastern Re fall within the scope of the GILTI provisions of the TCJA. We have evaluated the new GILTI provisions of the TCJA and we have made an accounting policy election to treat the

taxes due on inclusions of GILTI in U.S. taxable income as a current period expense when incurred.

Unrecognized Tax Benefits

We evaluate tax positions taken on tax returns and recognize positions in our financial statements when it is more likely than not that we will sustain the position upon resolution with a taxing authority. If recognized, the benefit is measured as the largest amount of benefit that has a greater than 50% probability of being realized. We review uncertain tax positions each period, considering changes in facts and circumstances, such as changes in tax law, interactions with taxing authorities and developments in case law, and make adjustments as we consider necessary. Adjustments to our unrecognized tax benefits may affect our income tax expense, and settlement of uncertain tax positions may require the use of cash. Other than differences related to timing, no significant adjustments were considered necessary during 2018 or 2017. At December 31, 2018, our liability for unrecognized tax benefits approximated $3.6 million.

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Goodwill
Impairment of goodwill is tested at the reporting unit level, which is consistent with our reportable segments identified in Note 16 of the Notes to Consolidated Financial Statements. Of the five reporting units, three have goodwill - Specialty P&C, Workers' Compensation Insurance and Segregated Portfolio Cell Reinsurance. We evaluate goodwill for impairment annually on October 1, upon the occurrence of certain triggering events or substantive changes in circumstances that indicate the fair value of goodwill may be impaired, and immediately before and after a reorganization that affects the composition of one or more of our reporting units.

Annual Goodwill Impairment Test
When testing goodwill for impairment on our annual test date, we have the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not that the estimated fair value of a reporting unit is less than its carrying amount. If we elect to perform a qualitative assessment and determine that an impairment is more likely than not, we are then required to perform the two-step quantitative impairment test, otherwise no further analysis is required. We also may elect not to perform the qualitative assessment and, instead, proceed directly to the two-step quantitative impairment test. As of the most recent annual evaluation date on October 1, 2018, we elected to perform a quantitative goodwill impairment assessment for our Specialty P&C, Workers' Compensation Insurance and Segregated Portfolio Cell Reinsurance reporting units.

In the first step of the two-step quantitative impairment test, the fair value of a reporting unit is determined using income and market approaches and is compared to its carrying value, as described above. The estimate of fair value derived from the income approach is based on the present value of expected future cash flows, including terminal value, utilizing a market based weighted average cost of capital determined separately for each reporting unit. The estimate of fair value derived from the market approach is based on earnings multiple data derived from market information. The determination of fair value involves the use of significant estimates and assumptions, including revenue growth rates, operating margins, capital expenditures, working capital requirements, tax rates, terminal growth rates, discount rates, comparable public companies and synergistic benefits available to market participants. In addition, we make certain judgments and assumptions in allocating shared assets and liabilities to individual reporting units to determine the carrying amount of each reporting unit. To corroborate the reporting units’ valuation, we perform a reconciliation of the estimate of the aggregate fair value of the reporting units to ProAssurance's market capitalization, including consideration of a control premium. Because not all of our reporting units have goodwill, we make certain assumptions regarding the fair value of our other reporting units in reconciling to our market capitalization.

If the carrying value of a reporting unit exceeds its fair value, the second step of the impairment test is performed for purposes of measuring the impairment of goodwill, if any. In the second step, the fair value of the reporting unit is allocated to all of the assets and liabilities of the reporting unit to determine an implied fair value of goodwill. If the carrying amount of the reporting unit's goodwill exceeds the implied fair value of goodwill, an impairment loss will be recognized in an amount equal to that excess.

As a result of the quantitative assessments performed on October 1, 2018, management concluded that the fair value of each of our three reporting units that have goodwill were greater than their carrying value as of the testing date; therefore, goodwill was not impaired and no further impairment testing was required. No goodwill impairment was recorded in 2018, 2017 or 2016.

Goodwill Impairment Test - Result of Segment Reorganization
As discussed in Note 16 of the Notes to Consolidated Financial Statements, we reorganized our segment reporting in the third quarter of 2018 to align with how our CODM currently oversees the business, allocates resources and evaluates operating performance. As a result of the segment reorganization, we added an operating and reportable segment: Segregated Portfolio Cell Reinsurance. The Segregated Portfolio Cell Reinsurance segment also became a reporting unit for purposes of testing goodwill for impairment. We allocated goodwill to our revised reporting units using a relative fair value approach which resulted in a nominal amount of goodwill reallocated from the Workers' Compensation Insurance reporting unit to the Segregated Portfolio Cell Reinsurance reporting unit. We performed a quantitative goodwill impairment assessment for the Workers' Compensation Insurance reporting unit immediately

prior to the reallocation and a quantitative goodwill impairment assessment for the Workers' Compensation Insurance and Segregated Portfolio Cell Reinsurance reporting units immediately after the reallocation and determined that no impairment existed.
We estimated the fair value of the Workers' Compensation Insurance and Segregated Portfolio Cell Reinsurance reporting units using both an income approach and market approach using the same valuation methodologies and process for developing assumptions that we use in our annual impairment assessment, as discussed above. To corroborate the reporting units' valuation, we performed a reconciliation of the estimate of the aggregate fair value of the reporting units to ProAssurance's market capitalization, including consideration of a control premium. Because we were not required to estimate the fair value of

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all of our reporting units as part of this interim goodwill impairment assessment, we made certain assumptions regarding the fair value of our other reporting units in reconciling to our market capitalization.

The Specialty P&C reporting unit's net operating results were not impacted by the segment reorganization and there was no change to the amount of goodwill allocated to that reporting unit. Consequently, a quantitative goodwill impairment assessment was not required for this reporting unit due to the segment reorganization.

Intangibles

Intangible assets with definite lives are amortized over the estimated useful life of the asset. Amortizable intangible assets primarily consist of agency and policyholder relationships, renewal rights and trade names. Intangible assets with an indefinite life, primarily state licenses, are not amortized. Intangible assets are evaluated for impairment on an annual basis or upon the occurrence of certain triggering events or substantive changes in circumstances that indicate the fair value of the asset may be impaired. The third quarter 2018 segment reorganization had no impact on how we evaluate our intangible assets for impairment. Additional information regarding intangible assets is included in Note 1 of the Notes to Consolidated Financial Statements.

Audit Premium

Workers' compensation premiums are determined based upon the payroll of the insured, applicable premium rates and an experience-based modification factor, where applicable. An audit of the policyholders' records is conducted after policy expiration to make a final determination of applicable premiums. Audit premium due from or due to a policyholder as a result of an audit is reflected in net premiums written and earned when billed. We track, by policy, the amount of additional premium billed in final audit invoices as a percentage of payroll exposure and use this information to estimate the probable additional amount of EBUB premium as of the balance sheet date. We include changes to the EBUB premium estimate in net premiums written and earned in the period recognized.

Lloyd's Premium Estimates

For certain insurance policies and reinsurance contracts written in our Lloyd's Syndicates segment, premiums are initially recognized based upon estimates of ultimate premium. Estimated ultimate premium consists primarily of premium written under delegated underwriting authority arrangements, which consist primarily of binding authorities, and certain assumed reinsurance agreements. These estimates of ultimate premium are judgmental and are dependent upon certain assumptions, including historical premium trends for similar agreements. As reports are received from programs, ultimate premium estimates are revised, if necessary, with changes reflected in current operations.

Accounting Changes

We did not have any change in accounting estimate or policy that had a material effect on our results of operations or financial position during 2018. We are not aware of any accounting changes not yet adopted as of December 31, 2018 that would have a material effect on our results of operations or financial position. Note 1 of the Notes to Consolidated Financial Statements provides additional detail regarding accounting changes.

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Liquidity and Capital Resources and Financial Condition

Overview

ProAssurance Corporation is a holding company and is a legal entity separate and distinct from its subsidiaries. As a holding company our principal source of external revenue is our investment revenues. In addition, dividends from our operating subsidiaries represent a significant source of funds for our obligations, including debt service and shareholder dividends. We also charge our operating subsidiaries within our Specialty P&C and Workers' Compensation Insurance segments a management fee based on the extent to which services are provided to the subsidiary and the amount of gross premium written by the subsidiary. At December 31, 2018, we held cash and liquid investments of approximately $236 million outside our insurance subsidiaries that were available for use without regulatory approval or other restriction, of which $43 million was used to pay shareholder dividends in January 2019. We also have $200 million in permitted borrowings under our Revolving Credit Agreement and an accordion feature available which, if subscribed successfully, would allow another $50 million in available funds. As of February 15, 2019, no borrowings were outstanding under our Revolving Credit Agreement.

During 2018, our operating subsidiaries paid dividends to us of approximately $178 million, including extraordinary dividends from our insurance subsidiaries of approximately $48 million. Our insurance subsidiaries, in the aggregate, are permitted to pay dividends of approximately $128 million over the course of 2019 without prior approval of state insurance regulators. However, the payment of any dividend requires prior notice to the insurance regulator in the state of domicile, and the regulator may reduce or prevent the dividend if, in its judgment, payment of the dividend would have an adverse effect on the surplus of the insurance subsidiary. We make the decision to pay dividends from an insurance subsidiary based on the capital needs of that subsidiary, and may pay less than the permitted dividend or may also request permission to pay an additional amount (an extraordinary dividend).

Cash Flows

Cash flows between periods compare as follows:

	Year Ended December 31		
(In thousands)	2018	2017	Change
Net cash provided (used) by:			
Operating activities	$177,265	$173,388	$3,877
Investing activities	214,897	200,275	14,622
Financing activities	(446,186)	(356,515)	(89,671)
Increase (decrease) in cash and cash equivalents	$(54,024)	$17,148	$(71,172)

	Year Ended December 31		
(In thousands)	2017	2016	Change
Net cash provided (used) by:			
Operating activities	$173,388	$178,983	$(5,595)
Investing activities	200,275	(288,802)	489,077
Financing activities	(356,515)	(13,934)	(342,581)
Increase (decrease) in cash and cash equivalents	$17,148	$(123,753)	$140,901

	Year Ended December 31		
(In thousands)	2016	2015	Change
Net cash provided (used) by:			
Operating activities	$178,983	$139,141	$39,842
Investing activities	(288,802)	199,770	(488,572)
Financing activities	(13,934)	(294,851)	280,917
Increase (decrease) in cash and cash equivalents	$(123,753)	$44,060	$(167,813)

During the first quarter of 2018, we retrospectively adopted accounting guidance that resulted in a change in classification
of distributions received from unconsolidated subsidiaries. Additional information regarding the impact of accounting guidance adopted during the current period can be found in Note 1 to the Notes to Consolidated Financial Statements.

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The principal components of our operating cash flows are the excess of premiums collected and net investment income received over losses paid and operating costs, including income taxes. Timing delays exist between the collection of premiums and the payment of losses associated with the premiums. Premiums are generally collected within the twelve-month period after the policy is written, while our claim payments are generally paid over a more extended period of time. Likewise, timing delays exist between the payment of claims and the collection of any associated reinsurance recoveries.

The increase in operating cash flows in 2018 as compared to 2017 of $3.9 million was primarily due to an increase in premium receipts of $60.8 million, a decrease in 2018 estimated tax payments as compared to 2017 of $11.5 million and a decrease in cash paid for operating expenses of $1.6 million, partially offset by an increase in paid losses of $64.3 million and a decrease in cash received from investment income of $5.1 million. The increase in premium receipts was driven by our Specialty P&C segment, primarily due to premiums received from a loss portfolio transfer entered into during the second quarter of 2018 and, to a lesser extent, our Workers' Compensation Insurance segment, primarily due to premiums received related to the third quarter 2017 acquisition of the Great Falls book of business. The decrease in 2018 estimated tax payments was primarily due to the lower statutory federal income tax rate in 2018 as compared to 2017. The increase in paid losses was driven by all of our operating segments, particularly in our Specialty P&C segment, primarily due to the timing of loss payments between periods, and our Lloyd's Syndicates segment, primarily due to 2017 storm-related losses which were paid in the current year. The decrease in cash paid for operating expenses was primarily due to a decrease in compensation related costs, largely offset by an increase in cash paid for operating expenses in our Lloyd's Syndicates segment primarily due to the start-up of Syndicate 6131. The decrease in cash received from investment income was primarily due to a reduction in interest received on our fixed maturities portfolio resulting from lower average balances.

The decrease in operating cash flows in 2017 as compared to 2016 of $5.6 million was primarily driven by an increase in tax payments of $25.1 million and an increase in cash paid for other underwriting and operating expenses of approximately $17.0 million. The increase in tax payments was due to the effect of a $15.0 million tax refund received in 2016 for the 2015 tax year and a $10.1 million increase in 2017 estimated tax payments. The increase in cash paid for other underwriting and operating expenses was primarily due to an increase in policy acquisition costs and an increase in cash paid for interest, primarily due to the increase in our weighted average outstanding debt in 2017. These decreases in operating cash flows were largely offset by an increase in premium receipts of $16.1 million, driven by our Workers' Compensation Insurance segment, a decrease in loss payments of $11.9 million, driven by our Specialty P&C segment and an increase in cash received from investment income of $10.8 million primarily due to distributions from unconsolidated subsidiaries.

The increase in operating cash flows in 2016 as compared to 2015 of $39.8 million was primarily due to a decrease in net tax payments driven by a $35.5 million reduction in estimated tax payments and a $15.0 million refund received in 2016 for the 2015 tax year. In addition, the increase reflected premium receipts of $11.8 million from a novation entered into during the fourth quarter of 2016. The increase in operating cash flows was partially offset by a decrease in cash received from investment income of $33.0 million primarily due to a reduction in interest received on our fixed maturities portfolio resulting from lower average balances.

We manage our investing cash flows to ensure that we will have sufficient liquidity to meet our obligations, taking into consideration the timing of cash flows from our investments, including interest payments, dividends and principal payments, as well as the expected cash flows to be generated by our operations as discussed in this section under the heading "Investing Activities and Related Cash Flows."

Our financing cash flows are primarily composed of dividend payments and borrowings and repayments under our Revolving Credit Agreement. See further discussion of our financing activities in this section under "Financing Activities and Related Cash Flows."

Operating Activities and Related Cash Flows

Losses

The following table, known as the Analysis of Reserve Development, presents information over the preceding ten years regarding the payment of our losses as well as changes to (the development of) our estimates of losses during that time period. As noted in the table, we have completed various acquisitions over the ten year period which have affected original and re-estimated gross and net reserve balances as well as loss payments.

The table includes losses on both a direct and an assumed basis and is net of anticipated reinsurance recoverables. The gross liability for losses before reinsurance, as shown on the balance sheet, and the reconciliation of that gross liability to amounts net of reinsurance are reflected below the table. We do not discount our reserve for losses to present value. Information presented in the table is cumulative and, accordingly, each amount includes the effects of all changes in amounts for prior years. The table presents the development of our balance sheet reserve for losses; it does not present accident year or policy year development data. Conditions and trends that have affected the development of liabilities in the past may not

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necessarily occur in the future. Accordingly, it is not appropriate to extrapolate future redundancies or deficiencies based on this table.

The following may be helpful in understanding the Analysis of Reserve Development:

- The line entitled "Reserve for losses, undiscounted and net of reinsurance recoverables" reflects our reserve for losses and loss adjustment expense, less the receivables from reinsurers, each as reported in our consolidated financial statements at the end of each year (the Balance Sheet Reserves).
- The section entitled "Cumulative net paid, as of" reflects the cumulative amounts paid as of the end of each succeeding year with respect to the previously recorded Balance Sheet Reserves.
- The section entitled "Re-estimated net liability as of" reflects the re-estimated amount of the liability previously recorded as Balance Sheet Reserves that includes the cumulative amounts paid and an estimate of the remaining net liability based upon claims experience as of the end of each succeeding year (the Net Re-estimated Liability).
- The line entitled "Net cumulative redundancy (deficiency)" reflects the difference between the previously recorded Balance Sheet Reserve for each applicable year and the Net Re-estimated Liability relating thereto as of the end of the most recent fiscal year.

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Analysis of Reserve Development

	December 31								
(In thousands)	2008	2009	2010	2011	2012	2013	2014	2015	201
Reserve for losses, undiscounted and net of reinsurance recoverables	$2,111,112	$2,159,571	$2,136,664	$2,000,114	$1,860,076	$1,825,304	$1,820,300	$1,755,976	$1,7
Cumulative net paid, as of:									
One Year Later	278,655	291,654	264,597	300,703	311,835	343,197	390,849	383,062	369,
Two Years Later	468,277	476,682	491,657	526,903	563,805	571,690	646,878	633,246	644,
Three Years Later	584,410	614,369	639,220	682,576	704,795	732,892	804,624	818,102	
Four Years Later	666,105	706,091	737,253	763,703	800,189	826,384	917,236		
Five Years Later	724,377	761,659	789,965	821,742	852,873	891,615			
Six Years Later	758,863	793,528	828,043	852,119	893,529				
Seven Years Later	778,795	811,333	844,810	876,840					
Eight Years Later	790,950	821,435	859,561						
Nine Years Later	796,125	829,217							
Ten Years Later	798,022								
Re-estimated net liability as of:									
End of Year	2,111,112	2,159,571	2,136,664	2,000,114	1,860,076	1,825,304	1,820,300	1,755,976	1,71
One Year Later	1,903,812	1,925,581	1,810,799	1,728,076	1,644,203	1,644,516	1,659,120	1,612,198	1,61
Two Years Later	1,665,832	1,615,603	1,543,650	1,498,158	1,472,259	1,483,378	1,519,078	1,485,357	1,48
Three Years Later	1,383,189	1,362,538	1,324,906	1,342,996	1,331,828	1,358,560	1,396,130	1,380,687	
Four Years Later	1,154,552	1,172,091	1,205,737	1,224,597	1,231,337	1,252,605	1,296,074		
Five Years Later	1,019,407	1,086,027	1,111,591	1,148,793	1,157,493	1,173,975			
	961,808	1,012,597	1,050,549	1,091,646	1,108,716				

Six Years Later									
Seven Years Later	915,935	961,987	1,010,802	1,056,053					
Eight Years Later	885,698	940,035	988,980						
Nine Years Later	871,466	919,089							
Ten Years Later	855,145								
Net cumulative redundancy (deficiency)	$1,255,967	$1,240,482	$1,147,684	$944,061	$751,360	$651,329	$524,226	$375,289	$23
Original gross liability - end of year	$2,379,468	$2,422,230	$2,414,100	$2,247,772	$2,051,428	$2,072,822	$2,058,266	$2,005,326	$1,9
Reinsurance recoverables	(268,356)	(262,659)	(277,436)	(247,658)	(191,352)	(247,518)	(237,966)	(249,350)	(273
Original net liability - end of year	$2,111,112	$2,159,571	$2,136,664	$2,000,114	$1,860,076	$1,825,304	$1,820,300	$1,755,976	$1,7
Gross re-estimated liability - latest	$1,002,251	$1,049,576	$1,122,573	$1,195,275	$1,245,263	$1,338,250	$1,483,540	$1,598,594	$1,7
Re-estimated reinsurance recoverables	(147,106)	(130,487)	(133,593)	(139,222)	(136,547)	(164,275)	(187,466)	(217,907)	(248
Net re-estimated liability - latest	$855,145	$919,089	$988,980	$1,056,053	$1,108,716	$1,173,975	$1,296,074	$1,380,687	$1,4
Gross cumulative redundancy (deficiency)	$1,377,217	$1,372,654	$1,291,527	$1,052,497	$806,165	$734,572	$574,726	$406,732	$26

See table notes on following page.

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Table Notes

- Reserves for 2009 and thereafter include gross and net reserves acquired in 2009 business combinations of $169.4 million and $163.9 million, respectively.
- Reserves for 2010 and thereafter include gross and net reserves acquired in 2010 business combinations of $88.1 million and $82.2 million, respectively.
- Reserves for 2012 and thereafter include gross and net reserves acquired in 2012 business combinations of $21.8 million and $19.2 million, respectively, which considers reductions of $3.6 million and $3.3 million, respectively, recorded in 2013 due to the re-estimation of the fair value of the acquired reserves.
- Reserves for 2013 include gross and net reserves acquired in 2013 business combinations of $201.1 million and $126.0 million, respectively.
- Reserves for 2014 include gross and net reserves acquired in 2014 business combinations of $153.2 million and $139.5 million, respectively.

In each year reflected in the table, we have estimated our reserve for losses utilizing the management and actuarial processes discussed under the heading "Reserve for Losses and Loss Adjustment Expenses" in the Critical Accounting Estimates section. Factors that have contributed to the variation in loss development are primarily related to the extended period of time required to resolve professional liability claims and include the following:

- The HCPL legal environment deteriorated in the late 1990’s and severity began to increase at a greater pace than anticipated in our rates and reserve estimates. We addressed the adverse severity trends through increased rates, stricter underwriting and modifications to claims handling procedures, and reflected this adverse severity trend when we established our initial reserves for subsequent years.
- These adverse severity trends later moderated, with that moderation becoming more pronounced beginning in 2009. We have been cautious in giving full recognition to indications that the pace of severity increase had slowed, however we have given measured recognition of the improved trend in our reserve estimates, as discussed more fully under the heading “Reserve for Losses and Loss Adjustment Expenses" in the Critical Accounting Estimates section (reserve for losses or reserve). The favorable development was most pronounced for years 2004 to 2008, as the initial reserves for these accident years were established prior to substantial indication that severity trends were moderating. We have given stronger recognition to the lower severity trend as time has elapsed and a greater percentage of claims have closed.
- A general decline in claim frequency has also been a contributor to favorable loss development. A significant portion of our policies through 2003 were issued on an occurrence basis, and a smaller portion of our ongoing business results from the issuance of extended reporting endorsements which have occurrence-like exposure. As claim frequency declined, the number of reported claims related to these coverages was less than originally expected.
- In 2017, we became concerned again around potential higher severity trends in HCPL business and began to reflect this concern in our case reserve estimates for both 2017 and 2018. This concern was also reflected in more conservative estimates of ultimate losses for open claims for earlier accident years. Furthermore, we are responding to these initial loss indications by seeking rate increases where we believe appropriate and maintaining our underwriting discipline.

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Activity in our net reserve for losses during 2018, 2017 and 2016 is summarized below:

	Year Ended December 31		
(In thousands)	2018	2017	2016
Balance, beginning of year	$2,048,381	$1,993,428	$2,005,326
Less reinsurance recoverables on unpaid losses and loss adjustment expenses	335,585	273,475	249,350
Net balance, beginning of year	1,712,796	1,719,953	1,755,976
Net losses:			
Current year	685,326	603,518	587,007
Favorable development of reserves established in prior years, net	(92,116)	(134,360)	(143,778)
Total	593,210	469,158	443,229
Paid related to:			
Current year	(117,268)	(106,633)	(96,190)
Prior years	(412,711)	(369,682)	(383,062)
Total paid	(529,979)	(476,315)	(479,252)
Net balance, end of year	1,776,027	1,712,796	1,719,953
Plus reinsurance recoverables on unpaid losses and loss adjustment expenses	343,820	335,585	273,475
Balance, end of year	$2,119,847	$2,048,381	$1,993,428

At December 31, 2018 our gross reserve for losses included case reserves of approximately $1.4 billion and IBNR reserves of approximately $0.7 billion. Our consolidated gross reserve for losses on a GAAP basis exceeds the combined gross reserves of our insurance subsidiaries on a statutory basis by approximately $0.2 billion, which is principally due to the portion of the GAAP reserve for losses that is reflected for statutory accounting purposes as unearned premiums. These unearned premiums are applicable to extended reporting endorsements (“tail” coverage) issued without a premium charge upon death, disability or retirement of an insured who meets certain qualifications.

Reinsurance

Within our Specialty P&C segment, we use insurance and reinsurance (collectively, “reinsurance”) to provide capacity to write larger limits of liability, to provide reimbursement for losses incurred under the higher limit coverages we offer and to provide protection against losses in excess of policy limits. Within our Workers' Compensation Insurance segment, we use reinsurance to reduce our net liability on individual risks, to mitigate the effect of significant loss occurrences (including catastrophic events), to stabilize underwriting results, and to increase underwriting capacity by decreasing leverage. In both our Specialty P&C and Workers' Compensation Insurance segments, we use reinsurance in risk sharing arrangements to align our objectives with those of our strategic business partners and to provide custom insurance solutions for large customer groups. The purchase of reinsurance does not relieve us from the ultimate risk on our policies; however, it does provide reimbursement for certain losses we pay. We pay our reinsurers a premium in exchange for reinsurance of the risk. In the majority of our excess of loss arrangements, the premium due to the reinsurer is determined by the loss experience of the business reinsured, subject to certain minimum and maximum amounts. Until all loss amounts are known, we estimate the premium due to the reinsurer. Changes to the estimate of premium owed under reinsurance agreements related to prior periods are recorded in the period in which the change in estimate occurs and can have a significant effect on net premiums earned.

We offer alternative market solutions whereby we cede certain premiums from our Workers' Compensation Insurance and Specialty P&C segments to either the SPCs at Eastern Re or Inova Re, our Cayman Islands reinsurance subsidiaries which are reported in our Segregated Portfolio Cell Reinsurance segment, or, to a limited extent, unaffiliated captive insurers. During 2018 and 2017, we wrote total alternative market premium of approximately $89.6 million and $84.5 million, respectively. The majority of these policies ($85.1 million and $77.7 million in 2018 and 2017, respectively) are reinsured to the SPCs at Eastern Re or Inova Re, net of a ceding commission. Each SPC at Eastern Re and Inova Re is owned, fully or in part, by an agency, group or association and the operating results of the SPCs are due to the participants of that cell. We participate to a varying degree in the results of selected SPCs and, for the SPCs in which we participate, our participation interest is as low as 25% and as high as 85%. SPC operating results due to external cell participants are reflected as a SPC dividend expense in our Segregated Portfolio Cell Reinsurance segment. See further discussion on our SPC operations in the Segment Operating Results - Segregated

Portfolio Cell Reinsurance section that follows. The alternative market workers' compensation policies are ceded from our Workers' Compensation Insurance segment to the SPCs under 100% quota share reinsurance agreements. The

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alternative market professional liability policies are ceded from our Specialty P&C segment to the SPCs under either excess of loss or quota share reinsurance agreements, depending on the structure of the individual program, and the portion of the risk that is not ceded to an SPC may also be reinsured under our standard healthcare professional liability reinsurance program depending on the policy limits provided. The remaining premium written in our alternative market business of $4.5 million and $6.8 million in 2018 and 2017, respectively, is 100% ceded to unaffiliated captive insurers.

Prior to January 1, 2018, Syndicate 1729 served as a reinsurer on a quota share basis for a wholly owned insurance subsidiary in our Specialty P&C segment. Syndicate 1729 did not renew the quota share agreement with our Specialty P&C segment on January 1, 2018.

For all of our segments, we make a determination of the amount of insurance risk we choose to retain based upon numerous factors, including our risk tolerance and the capital we have to support it, the price and availability of reinsurance, the volume of business, our level of experience with a particular set of claims and our analysis of the potential underwriting results. We purchase excess of loss reinsurance to limit the amount of risk we retain and we do so from a number of companies to mitigate concentrations of credit risk. We utilize reinsurance brokers to assist us in the placement of these reinsurance programs and in the analysis of the credit quality of our reinsurers. The determination of which reinsurers we choose to do business with is based upon an evaluation of their then current financial strength, rating and stability. However, the financial strength of our reinsurers and their corresponding ability to pay us may change in the future due to forces or events we cannot control or anticipate. As of December 31, 2018, there is no reinsurer, on an individual basis, for which our recoverables for both paid and unpaid claims (net of amounts due to the reinsurer) and our prepaid balances are aggregately $36 million or more.

Excess of Loss Reinsurance Agreements

We generally reinsure risks under treaties (our excess of loss reinsurance agreements) pursuant to which the reinsurers agree to assume all or a portion of all risks that we insure above our individual risk retention levels, up to the maximum individual limits offered. These agreements are negotiated and renewed annually. Renewal dates for our healthcare professional liability, medical technology liability and workers' compensation treaties are October 1, January 1 and May 1, respectively. There were no significant changes in the cost or structure of our healthcare professional liability and medical technology liability treaties which renewed October 1, 2018 and January 1, 2019, respectively. Our workers' compensation treaty renewed May 1, 2018 at a higher rate than the previous agreement. The significant coverages provided by our current excess of loss reinsurance agreements are detailed in the following table.

Excess of Loss Reinsurance Agreements

Healthcare Professional Liability	Medical Technology & Life Sciences Products	Workers' Compensation - Traditional

(1) Historically, retention has ranged from 5% to 32.5%.

(2) Historically, retention has been as high as $2M.

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Large professional liability risks that are above the limits of our basic reinsurance treaties are reinsured on a facultative basis, whereby the reinsurer agrees to insure a particular risk up to a designated limit. We also have in place a number of risk sharing arrangements that apply to the first $1 million of losses for certain large healthcare systems and other insurance entities and with certain insurance agencies that produce business for us.

Other Reinsurance Arrangements

For the workers' compensation business ceded to Eastern Re and Inova Re, each SPC has in place its own reinsurance arrangements; which are illustrated in the following table.

Segregated Portfolio Cell Reinsurance

Per Occurrence Coverage	Aggregate Coverage [1]

[1] Prior to May 1, 2018, ProAssurance assumed 100% of aggregate losses in excess of an aggregate attachment point with a maximum loss limit of $100K. Effective May 1, 2018, ProAssurance no longer participates in the aggregate reinsurance coverage.

[2] The attachment point is based on a percentage of written premium (average is 89%) and varies by cell.

Each SPC has participants and the profit or loss of each cell accrues fully to these cell participants. We participate in certain SPCs and as of December 31, 2018, our ownership interest in the SPCs in which we participate is as low as 25% and as high as 85%. Each SPC maintains a loss fund initially equal to the difference between premium assumed by the cell and the ceding commission. The external participants of each cell provide a letter of credit to us that is initially equal to the difference between the loss fund of the SPC (amount of funds available to pay losses after deduction of ceding commission) and the aggregate attachment point of the reinsurance. Over time, a SPC's retained profits are considered in the determination of the collateral amount required to be provided by the cell's external participants.

Within our Lloyd's Syndicates segment, Syndicate 1729 utilizes reinsurance to provide capacity to write larger limits of liability on individual risks, to provide protection against catastrophic loss and to provide protection against losses in excess of policy limits. The level of reinsurance that Syndicate 1729 purchases is dependent on a number of factors, including its underwriting risk appetite for catastrophic exposure, the specific risks inherent in each line or class of business written and the pricing, coverage and terms and conditions available from the reinsurance market.

Reinsurance protection by line of business is as follows:

- Reinsurance is utilized on a per risk basis for the property insurance and casualty coverages in order to mitigate risk volatility.

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- Catastrophic protection is utilized on both our property insurance and casualty coverages to protect against losses in excess of policy limits as well as natural catastrophes.
- Both quota share reinsurance and excess of loss reinsurance are utilized to manage the net loss exposure on our property reinsurance coverages.
- Property umbrella excess of loss reinsurance is utilized for peak catastrophe and frequency of catastrophe exposures.
- External excess of loss reinsurance is utilized by Syndicate 1729 to manage the net loss exposure on the specialty property and contingency coverages ceded to Syndicate 6131 (see further discussion in Segment Operating Results - Lloyd's Syndicates section that follows).

Syndicate 1729 may still be exposed to losses that exceed the level of reinsurance purchased as well as to reinstatement premiums triggered by losses exceeding specified levels. Cash demands on Syndicate 1729 can vary significantly depending on the nature and intensity of a loss event. For significant reinsured catastrophe losses, the inability or unwillingness of the reinsurer to make timely payments under the terms of the reinsurance agreement could have an adverse effect on Syndicate 1729's liquidity.

Litigation

We are involved in various legal actions related to insurance policies and claims handling including, but not limited to, claims asserted against us by policyholders. These types of legal actions arise in the ordinary course of business and, in accordance with GAAP for insurance entities, are generally considered as a part of our loss reserving process, which is described in detail in our Critical Accounting Estimates section under the heading "Reserve for Losses and Loss Adjustment Expenses." We also have other direct actions against the Company unrelated to our claims activity which we evaluate and account for as a part of our other liabilities. For these corporate legal actions, we evaluate each case separately and establish what we believe is an appropriate reserve based on GAAP guidance related to contingent liabilities. As of December 31, 2018 there were no material reserves established for corporate legal actions.

Taxes

We are subject to the tax laws and regulations of the U.S. and U.K. We file a consolidated U.S. federal income tax return that includes the holding company and its U.S. subsidiaries. Our filing obligations include a requirement to make quarterly payments of estimated taxes to the IRS using the corporate tax rate effective for the tax year. As a result of the TCJA that was signed into law at the end of 2017, the corporate tax rate effective for the 2018 tax year is 21% as compared to 35% for the 2017 tax year. The lower corporate tax rate had no material effect on our liquidity for the year ended December 31, 2018.

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Investing Activities and Related Cash Flows

Our investments at December 31, 2018 and December 31, 2017 are comprised as follows:

($ in thousands)	December 31, 2018 Carrying Value	% of Total Investment		December 31, 2017 Carrying Value	% of Total Investment	
Fixed maturities, available for sale:						
U.S. Treasury obligations	$120,201	4	%	$133,627	4	%
U.S. Government-sponsored enterprise obligations	35,354	1	%	20,956	1	%
State and municipal bonds	293,772	9	%	632,243	17	%
Corporate debt	1,223,475	37	%	1,167,158	31	%
Residential mortgage-backed securities	181,238	5	%	197,844	5	%
Commercial mortgage-backed securities	44,101	1	%	26,703	1	%
Other asset-backed securities	195,657	6	%	101,711	3	%
Total fixed maturities, available for sale	2,093,798	63	%	2,280,242	62	%
Fixed maturities, trading	38,188	1	%	—	—	%
Total fixed maturities	2,131,986	64	%	2,280,242	62	%
Equity investments	442,937	13	%	470,609	13	%
Short-term investments	308,319	9	%	432,126	12	%
BOLI	64,096	1	%	62,113	1	%
Investment in unconsolidated subsidiaries	367,757	11	%	330,591	9	%
Other investments	34,287	2	%	110,847	3	%
Total investments	$3,349,382	100	%	$3,686,528	100	%

The distribution of our investments in available-for-sale fixed-maturity securities by rating were as follows:

($ in thousands)	December 31, 2018 Carrying Value	% of Total Investment		December 31, 2017 Carrying Value	% of Total Investment	
Rating*						
AAA	$645,300	31	%	$617,091	27	%
AA+	101,328	5	%	183,221	8	%
AA	120,801	6	%	173,488	8	%
AA-	155,352	7	%	195,110	9	%
A+	190,595	9	%	210,263	9	%
A	311,036	15	%	296,852	13	%
A-	146,721	7	%	202,581	9	%
BBB+	133,199	6	%	103,023	4	%
BBB	118,864	6	%	100,025	4	%
BBB-	50,466	2	%	48,207	2	%
Below investment grade	100,447	5	%	119,310	6	%
Not rated	19,689	1	%	31,071	1	%
Total	$2,093,798	100	%	$2,280,242	100	%

*Average of three NRSRO sources, presented as an S&P equivalent.

Source: S&P, Copyright ©2018, S&P Global Market Intelligence

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A detailed listing of our investment holdings as of December 31, 2018 is located under the Financial Information heading on the Investor Relations page of our website which can be reached directly at www.proassurance.com/investmentholdings, or through links from the Investor Relations section of our website, investor.proassurance.com.

We manage our investments to ensure that we will have sufficient liquidity to meet our obligations, taking into consideration the timing of cash flows from our investments, including interest payments, dividends and principal payments, as well as the expected cash flows to be generated by our operations. In addition to the interest and dividends we will receive, we anticipate that between $30 million and $70 million of our investments will mature (or be paid down) each quarter over the next twelve months and become available, if needed, to meet our cash flow requirements. The primary outflow of cash at our insurance subsidiaries is related to paid losses and operating costs, including income taxes. The payment of individual claims cannot be predicted with certainty; therefore, we rely upon the history of paid claims in estimating the timing of future claims payments. To the extent that we may have an unanticipated shortfall in cash, we may either liquidate securities or borrow funds under existing borrowing arrangements through our Revolving Credit Agreement and the FHLB system. As of February 15, 2019, $250 million could be made available for use through our Revolving Credit Agreement, as discussed in this section under the heading "Debt." Given the duration of our investments, we do not foresee a shortfall that would require us to meet operating cash needs through additional borrowings. Additional information regarding our Revolving Credit Agreement is detailed in Note 10 of the Notes to Consolidated Financial Statements.

As discussed in Note 3 of the Notes to Consolidated Financial Statements, our fixed maturity and short-term investments include securities deposited with Lloyd's in order to meet our FAL requirement. At December 31, 2018, securities on deposit with Lloyd's included fixed maturities having a fair value of $123.4 million and short-term investments with a fair value of $19.3 million.

Our investment portfolio continues to be primarily composed of high quality fixed income securities with approximately 94% of our fixed maturities being investment grade securities as determined by national rating agencies. The weighted average effective duration of our fixed maturity securities at December 31, 2018 was 2.99 years; the weighted average effective duration of our fixed maturity securities combined with our short-term securities was 2.60 years.

The carrying value and unfunded commitments for certain of our investments were as follows:

	Carrying Value		December 31, 2018	
($ in thousands, except expected funding period)	December 31, 2018	December 31, 2017	Unfunded Commitments	Expected funding period in years
Qualified affordable housing project tax credit partnerships [1]	$65,677	$84,607	$960	6
Historic tax credit partnerships [2]	3,757	6,118	276	1
All other investments, primarily investment fund LPs/LLCs	298,323	294,924	221,612	5
Total	$367,757	$385,649	$222,848	

[1] The carrying value reflects our total commitments (both funded and unfunded) to the partnerships, less any amortization, since our initial investment. We fund these investments based on funding schedules maintained by the partnerships.

[2] The carrying value reflects our funded commitments less any amortization.

Investment fund LPs/LLCs are by nature less liquid and may involve more risk than other investments. We manage our risk through diversification of asset class and geographic location. At December 31, 2018, we had investments in 34 separate investment funds with a total carrying value, as shown in the table above, which represented approximately 9% of our total investments. We review and monitor the performance of these investments on a quarterly basis.

Business Combinations and Ventures

There were no business combinations during the years ended December 31, 2018, 2017 or 2016.

In the fourth quarter of 2017, we provided 100% of the capital for the newly formed SPA, Syndicate 6131, which began writing business effective January 1, 2018. The capital for Syndicate 6131 was provided through an increase in our FAL securities, which at December 31, 2018 had a fair value of approximately $142.7 million, as discussed in Note 3 of the Notes to Consolidated Financial Statements. We have a total capital commitment to support our Lloyd's Syndicate operations through 2019 of up to $200 million, referred to as FAL. The Board, through a non-binding resolution, extended this commitment through 2022. See further discussion in our Segment Operating Results - Lloyd's Syndicates section that follows.

Financing Activities and Related Cash Flows

Treasury Shares

Treasury share activity for 2018, 2017 and 2016 was as follows:

(In thousands)	2018	2017	2016
Treasury shares at the beginning of the period	9,368	9,409	9,403
Shares reacquired, at cost of $2 million for 2016	—	—	44
Shares reissued, primarily those reissued pursuant to the ProAssurance 2011 Employee Stock Ownership Plan, had a fair value of approximately $1 million in 2018 and approximately $2 million in both 2017 and 2016	(16)	(41)	(38)
Treasury shares at the end of the period	9,352	9,368	9,409

We did not repurchase any common shares subsequent to December 31, 2018 and as of February 15, 2019 our remaining Board authorization was approximately $110 million.

Shareholder Dividends

Our Board declared cash dividends during 2018, 2017 and 2016 as follows:

	Quarterly Cash Dividends Declared, per Share		
	2018	2017	2016
First Quarter	$0.31	$0.31	$0.31
Second Quarter	$0.31	$0.31	$0.31
Third Quarter	$0.31	$0.31	$0.31
Fourth Quarter	$0.31	$0.31	$0.31
Fourth Quarter - Special dividend	$0.50	$4.69	$4.69

Each dividend was paid in the month following the quarter in which it was declared. Cash dividends totaling $316 million, $315 million and $119 million were paid during the years ended December 31, 2018, 2017 and 2016, respectively. Any decision to pay future cash dividends is subject to the Board’s final determination after a comprehensive review of financial performance, future expectations and other factors deemed relevant by the Board.

Debt

At December 31, 2018, our debt included $250 million of outstanding unsecured senior notes. The notes bear interest at 5.3% annually and are due in 2023 although they may be redeemed in whole or part prior to maturity. There are no financial covenants associated with these notes.

We have a Revolving Credit Agreement which may be used for general corporate purposes, including, but not limited to, short-term working capital, share repurchases as authorized by the Board and support for other activities. Our Revolving Credit Agreement permits borrowings of up to $200 million, and has available a $50 million accordion feature, which, if successfully subscribed, would expand permitted borrowings up to $250 million. At December 31, 2018, there were no outstanding borrowings on our Revolving Credit Agreement and we are in compliance with the financial covenants of the Revolving Credit Agreement, which expires in June 2020.

During 2017, two of our subsidiaries each entered into ten-year mortgage loans collectively totaling approximately $40 million (Mortgage Loans) with one lender in connection with the recapitalization of two office buildings. The Mortgage Loans accrue interest at three-month LIBOR plus 1.325% with principal and interest payable on a quarterly basis. At December 31, 2018, the outstanding balance of the Mortgage Loans was approximately $39 million and we are in compliance with the financial covenant of the Mortgage Loans, which mature in December 2027.

Additional information regarding our debt is provided in Note 10 of the Notes to Consolidated Financial Statements.

During 2017, we entered into an interest rate cap agreement with a notional amount of $35 million to manage our exposure to increases in LIBOR on our Mortgage Loans. Per the interest rate cap agreement, we are entitled to receive cash payments if and when the three-month LIBOR exceeds 2.35%. Additional information on our interest rate cap agreement is provided in Note 11 of the Notes to Consolidated Financial Statements.

Two of our insurance subsidiaries are members of an FHLB. Through membership, those subsidiaries have access to secured cash advances which can be used for liquidity purposes or other operational needs. In order for us to use FHLB

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proceeds, regulatory approvals may be required depending on the nature of the transaction. To date, those subsidiaries have not materially utilized their membership for borrowing purposes.

Off-Balance Sheet Arrangements/Guarantees

We have no significant off-balance sheet arrangements/guarantees that have or are reasonably likely to have a material current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources. See more information on our off-balance sheet arrangements in Note 9 of the Notes to Consolidated Financial Statements.

Contractual Obligations

We believe that our operating cash flow and funds from our investment portfolio are adequate to meet our contractual obligations.

A schedule of our non-cancellable contractual obligations at December 31, 2018 was as follows:

	Payments due by period				
(In thousands)	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Losses and loss adjustment expenses	$2,119,847	$580,902	$815,498	$381,397	$342,050
Debt obligations including interest and fees	366,010	19,640	32,684	60,678	253,008
Operating lease obligations	27,124	4,829	7,577	4,506	10,212
Funding commitments primarily related to non-public investment entities	231,942	107,585	87,914	36,325	118
Total	$2,744,923	$712,956	$943,673	$482,906	$605,388

The anticipated payout of losses and loss adjustment expenses is based upon our historical payout patterns. Both the timing and amount of these payments may vary from the payments indicated.

At December 31, 2018, there were no outstanding borrowings on our Revolving Credit Agreement; however, the above table includes unused commitment fees associated with our Revolving Credit Agreement as we presume the full unused facility will remain available through expiration of the agreement in June 2020. Additionally, we presume the current interest rate on our Mortgage Loans at December 31, 2018 will remain constant until maturity of the Mortgage Loans. For more information regarding these agreements see Note 10 of the Notes to Consolidated Financial Statements.

Our operating lease obligations are primarily for the rental of office space and, to a lesser extent, office equipment.

Our funding commitments are primarily related to non-public investment entities but also include the unused commitment under our Syndicate Credit Agreement as we presume it will be fully advanced within the next year for purposes of the disclosure in the table above. For more information regarding these agreements see Note 9 of the Notes to Consolidated Financial Statements.

The above table excludes our remaining capital commitment to support our underwriting capacity in our Lloyd's Syndicates through 2019 of up to $200 million, referred to as FAL. The Board, through a non-binding resolution, extended this commitment through 2022. In order to satisfy the FAL requirement, we transfer funds from our Corporate segment to our Lloyd's Syndicates segment which are used to invest in securities that are placed on deposit with Lloyd's. See further discussion of the securities on deposit with Lloyd's in Note 3 of the Notes to Consolidated Financial Statements. In addition, the table above excludes a short-term loan commitment where we have agreed to advance funds on a 30 day basis. See more information regarding this agreement in Note 9 of the Notes to Consolidated Financial Statements.

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Results of Operations - Year Ended December 31, 2018 Compared to Year Ended December 31, 2017

Selected consolidated financial data for each period is summarized in the table below.

	Year Ended December 31		
($ in thousands, except per share data)	2018	2017	Change
Revenues:			
Net premiums written	$834,914	$764,018	$70,896
Net premiums earned	$818,853	$738,531	$80,322
Net investment result	100,832	103,695	(2,863)
Net realized investment gains (losses)	(43,488)	16,409	(59,897)
Other income	9,833	7,514	2,319
Total revenues	886,030	866,149	19,881
Expenses:			
Net losses and loss adjustment expenses	593,210	469,158	124,052
Underwriting, policy acquisition and operating expenses	238,556	235,753	2,803
Segregated portfolio cells dividend expense (income)	9,122	15,771	(6,649)
Interest expense	16,117	16,844	(727)
Total expenses	857,005	737,526	119,479
Income before income taxes	29,025	128,623	(99,598)
Income tax expense (benefit)	(18,032)	21,359	(39,391)
Net income	$47,057	$107,264	$(60,207)
Non-GAAP operating income	$79,527	$108,538	$(29,011)
Earnings per share:			
Basic	$0.88	$2.01	$(1.13)
Diluted	$0.88	$2.00	$(1.12)
Non-GAAP operating earnings per share:			
Basic	$1.48	$2.03	$(0.55)
Diluted	$1.48	$2.02	$(0.54)
Net loss ratio	72.4%	63.5%	8.9 pts
Underwriting expense ratio	29.1%	31.9%	(2.8) pts
Combined ratio	101.5%	95.4%	6.1 pts
Operating ratio	90.3%	82.4%	7.9 pts
Effective tax rate	(62.1%)	16.6%	(78.7) pts
Return on equity	3.0%	6.3%	(3.3) pts

In all tables that follow, the abbreviation "nm" indicates that the information or the percentage change is not meaningful.

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Executive Summary of Operations

As previously discussed under the heading "ProAssurance Overview," we reorganized our segment reporting in the third quarter of 2018 to include a new segment: Segregated Portfolio Cell Reinsurance. The Segregated Portfolio Cell Reinsurance segment reflects the operating results (underwriting profit or loss, plus investment results) of SPCs which assume workers ‘compensation, healthcare professional liability or a combination of the two from our Workers' Compensation Insurance and Specialty P&C segments. The underwriting results of the SPCs that assume workers’ compensation business and healthcare professional liability business were previously reported in our Workers’ Compensation and Specialty P&C segments, respectively, and the results of investment assets solely allocated to SPC operations were previously reported in our Corporate segment, are now reported in the Segregated Portfolio Cell Reinsurance segment. The Workers' Compensation segment has also been renamed "Workers' Compensation Insurance." All prior period segment information has been recast to conform to the current period presentation and the segment reorganization had no impact on previously reported consolidated financial results. See further information regarding the segment reorganization in Note 16 of the Notes to Consolidated Financial Statements.

The following sections provide an overview of our consolidated and segment results of operations for the year ended December 31, 2018 as compared to 2017. See the Segment Operating Results sections that follow for additional information regarding each segment's operating results.

Revenues

The following table shows our consolidated and segment net premiums earned:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Net Premiums Earned				
Specialty P&C	$491,787	$449,823	$41,964	9.3 %
Workers' Compensation Insurance	186,079	163,309	22,770	13.9%
Segregated Portfolio Cell Reinsurance	73,940	68,197	5,743	8.4 %
Lloyd's Syndicates	67,047	57,202	9,845	17.2%
Consolidated total	$818,853	$738,531	$80,322	10.9%

All of our operating segments contributed to the increase in net premiums earned during the year ended December 31, 2018 as compared to 2017. The largest component of the increase in consolidated net premiums earned during 2018 was $26.6 million of premium written and fully earned from a loss portfolio transfer entered into during the second quarter of 2018 in our Specialty P&C segment (see further discussion in our Segment Operating Results - Specialty Property & Casualty section that follows). The increase in net premiums earned in our Workers' Compensation Insurance segment primarily reflected the late 2017 acquisition of the Great Falls book of business (see further discussion in our Segment Operating Results - Workers' Compensation Insurance section that follows).

The following table shows our consolidated net investment result:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Net investment income	$91,884	$95,662	$(3,778)	(3.9 %)
Equity in earnings (loss) of unconsolidated subsidiaries	8,948	8,033	915	11.4%
Net investment result	$100,832	$103,695	$(2,863)	(2.8 %)

The decrease in our consolidated net investment result in 2018 as compared to 2017 was primarily attributable to a decrease in net investment income primarily due to reduced earnings from our fixed income portfolio which reflected lower average investment balances. The decrease in equity in earnings (loss) of unconsolidated subsidiaries was primarily due to lower reported earnings from a few LP investments and increases in the amortization on our tax credit partnerships. In addition, equity in earnings (loss) of unconsolidated subsidiaries reflected the impact of the adoption of an accounting standard during the first quarter of 2018 around the recognition and measurement of financial assets and financial liabilities (see Note 1 of the Notes to Consolidated Financial Statements for additional detail regarding accounting changes adopted during the period).

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The following table shows our total consolidated net realized investment gains (losses):

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Net impairment losses recognized in earnings	$(490)	$(12,952)	$12,462	96.2 %
Other net realized investment gains (losses)	(42,998)	29,361	(72,359)	(246.4%)
Net realized investment gains (losses)	$(43,488)	$16,409	$(59,897)	(365.0%)

During 2018, we recognized OTTI in earnings of $0.5 million related to debt instruments from two issuers in the energy sector. During 2017, we recognized OTTI in earnings of $13.0 million, including an $8.5 million impairment related to an early stage business investment. Other net realized investment losses during 2018 was driven by changes in the fair value of our equity trading portfolio, partially offset by gains realized on the sale of certain equity securities. See further discussion in our Segment Operating Results - Corporate section that follows.

Expenses

The following table shows our consolidated and segment net loss ratios and net loss development:

	Year Ended December 31		
($ in millions)	2018	2017	Change
Current accident year net loss ratio			
Consolidated ratio	83.7 %	81.7 %	2.0 pts
Specialty P&C	93.8 %	89.9 %	3.9 pts
Workers' Compensation Insurance	68.0 %	66.1 %	1.9 pts
Segregated Portfolio Cell Reinsurance	64.5 %	67.4 %	(2.9) pts
Lloyd's Syndicates	74.0 %	78.7 %	(4.7) pts
Calendar year net loss ratio			
Consolidated ratio	72.4 %	63.5 %	8.9 pts
Specialty P&C	78.2 %	63.4 %	14.8 pts
Workers' Compensation Insurance	63.7 %	62.6 %	1.1 pts
Segregated Portfolio Cell Reinsurance	52.4 %	54.9 %	(2.5) pts
Lloyd's Syndicates	76.9 %	77.3 %	(0.4) pts
Favorable (unfavorable) net loss development, prior accident years			
Consolidated	$92.1	$134.4	$(42.3)
Specialty P&C	$77.0	$119.4	$(42.4)
Workers' Compensation Insurance	$8.1	$5.7	$2.4
Segregated Portfolio Cell Reinsurance	$9.0	$8.5	$0.5
Lloyd's Syndicates	$(2.0)	$0.8	$(2.8)

The increase in our consolidated current accident year net loss ratio for the year ended December 31, 2018 as compared to 2017 was primarily due to a higher current accident year net loss ratio in our Specialty P&C segment. The higher current accident year net loss ratio in our Specialty P&C segment was driven by an increase in expected losses in our excess and surplus lines business and, to a lesser extent, the decrease to net premiums earned as a result of an increase in our estimate of premiums owed to reinsurers for expected recoveries on prior year ceded losses. Additionally, the higher current accident year net loss ratio in our Specialty P&C segment reflected the effect of a loss portfolio transfer (net premiums earned at a 95% loss ratio) entered into during the second quarter of 2018 (see further discussion in our Segment Operating Results - Specialty Property & Casualty section that follows). Partially offsetting the increase in the consolidated current accident year net loss ratio in 2018 was a decrease in the current accident year net loss ratio in our Lloyd's Syndicates segment driven by higher net premiums earned, partially offset by an increase in net losses incurred related to natural catastrophes and large property losses as compared to 2017, including the impact of estimated losses recognized in connection with Hurricane Michael (see further discussion in our Segment Operating Results - Lloyd's Syndicates section that follows).

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In both 2018 and 2017, our consolidated calendar year net loss ratio was lower than our consolidated current accident year net loss ratio due to the recognition of net favorable loss development, as shown in the previous table.
Our consolidated and segment underwriting expense ratios were as follows:

	Year Ended December 31		
	2018	2017	Change
Underwriting Expense Ratio			
Consolidated	29.1%	31.9%	(2.8) pts
Specialty P&C	22.9%	24.0%	(1.1) pts
Workers' Compensation Insurance	29.9%	32.2%	(2.3) pts
Segregated Portfolio Cell Reinsurance	30.3%	30.4%	(0.1) pts
Lloyd's Syndicates	47.3%	47.1%	0.2 pts
Corporate*	2.3 %	4.0 %	(1.7) pts

*There are no net premiums earned associated with the Corporate segment. Ratios shown are the contribution of the Corporate segment to the consolidated ratio (Corporate operating expenses divided by consolidated net premium earned).

Our consolidated underwriting expense ratio decreased for the year ended December 31, 2018 as compared to 2017 driven by an increase in net premiums earned across all of our operating segments and, to a lesser extent, a decrease in operating expenses in our Corporate segment, primarily driven by a decrease in share-based compensation expenses and other compensation related costs. In addition, the decrease reflected a loss portfolio transfer (net premiums earned with minimal associated operating expenses) entered into during the second quarter of 2018 in our Specialty P&C segment, which accounted for 1.0 percentage point of the decrease in our consolidated underwriting expense ratio (see further discussion in our Segment Operating Results - Specialty Property & Casualty section that follows). The decrease in our consolidated underwriting expense ratio for 2018 was partially offset by an increase in consolidated DPAC amortization, primarily in our Specialty P&C segment due to an increase in commission and brokerage expenses, and an increase in operating expenses in our Lloyd's Syndicates segment, primarily due to the establishment of Syndicate 6131.

Taxes

Our effective tax rates for the years ended December 31, 2018 and 2017 were a benefit of 62.1% and an expense of 16.6%, respectively. The largest drivers of the change in the effective tax rate between 2018 and 2017 were the lower statutory federal income tax rate in 2018 as compared to 2017 used to develop the effective tax rate due to the TCJA and the impact of tax credits on the effective tax rate due to lower pre-tax income in 2018 as compared to 2017.

Our effective tax rates for the years ended December 31, 2018 and 2017 were different from the statutory federal income tax rates in effect for each year primarily due to the utilization of tax credits transferred to us from our tax credit partnership investments and a portion of our investment income being tax-exempt. See further discussion, including notable items during 2018 and 2017 in the Segment Operating Results - Corporate section that follows under the heading "Taxes."

Operating Ratio

Our operating ratio is our combined ratio, less our investment income ratio. This ratio is the effect of underwriting profitability and investment income. Our operating ratio for the years ended December 31, 2018 and 2017 was as follows:

	Year Ended December 31		
	2018	2017	Change
Operating ratio	90.3%	82.4%	7.9 pts

The increase in 2018 primarily reflected a higher consolidated net loss ratio driven by our Specialty P&C segment primarily due to a lower amount of prior year favorable development and a lower investment income ratio driven by a decline in income from our fixed maturity securities due to lower average investment balances. The lower investment income ratio also reflected the decrease to net investment income due to the adoption of an accounting standard during the first quarter of 2018 around the recognition and measurement of financial assets and financial liabilities (see previous discussion under the heading "Revenues"). The increase was partially offset by a lower expense ratio in our Corporate segment primarily driven by a decrease in share-based compensation expenses and other compensation related costs.

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ROE

ROE is calculated as net income divided by the average of beginning and ending shareholders' equity. This ratio measures our overall after-tax profitability and shows how efficiently capital is being used. ROE for the years ended December 31, 2018 and 2017 was as follows:

	Year Ended December 31		
	2018	2017	Change
ROE	3.0%	6.3%	(3.3) pts

The decrease in our ROE in 2018 was primarily due to the decrease in net income, partially offset by a lower average equity base as compared to 2017. The decrease in net income was driven by the change in the fair value of our equity trading portfolio and a lower amount of prior year favorable development in our Specialty P&C segment. The lower average equity base was primarily due to cumulative dividend declarations since the 2017 in excess of net income and, to a lesser extent, lower AOCI primarily resulting from changes in unrealized gains and losses in our fixed maturity available-for-sale securities.

Book Value per Share

We believe the payment of dividends is currently our most effective tool for the deployment of excess capital even though, in the short-term, dividend declarations dampen growth in book value per share. Our book value per share at December 31, 2018 as compared to December 31, 2017 is shown in the following table.

	Book Value Per Share
Book Value Per Share at December 31, 2017	$29.83
Increase (decrease) to book value per share during the year ended December 31, 2018 attributable to:	
Dividends declared	(1.74)
Net income	0.88
OCI	(0.66)
Other *	0.08
Book Value Per Share at December 31, 2018	$28.39

* Includes the impact of cumulative effect adjustments related to ASUs adopted during 2018.

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Non-GAAP Financial Measures

Non-GAAP operating income is a financial measure that is widely used to evaluate performance within the insurance sector. In calculating Non-GAAP operating income, we have excluded the after-tax effects of the items listed in the following table that do not reflect normal operating results. We believe Non-GAAP operating income presents a useful view of the performance of our insurance operations, however it should be considered in conjunction with net income computed in accordance with GAAP.

The following table is a reconciliation of net income to Non-GAAP operating income:

	Year Ended December 31	
(In thousands, except per share data)	2018	2017
Net income	$47,057	$107,264
Items excluded in the calculation of Non-GAAP operating income:		
Net realized investment (gains) losses	43,488	(16,409)
Net realized gains (losses) attributable to SPCs which no profit/loss is retained [(1)]	(2,535)	3,083
Guaranty fund assessments (recoupments)	148	(157)
Pre-tax effect of exclusions	41,101	(13,483)
Tax effect [(2)]	(8,631)	4,719
After-tax effect of exclusions	32,470	(8,764)
Non-GAAP operating income, before tax reform adjustments	79,527	98,500
Tax reform adjustments on our deferred tax balances excluded in the calculation of Non-GAAP operating income:		
Adjustment of deferred taxes upon the change in corporate tax rate [(3)]	—	6,541
Adjustment of deferred taxes upon the change in limitation of future deductibility of certain executive compensation [(3)]	—	3,497
Non-GAAP operating income	$79,527	$108,538
Per diluted common share:		
Net income	$0.88	$2.00
Effect of exclusions	0.60	0.02
Non-GAAP operating income per diluted common share	$1.48	$2.02

[(1)] Net realized investment gains (losses) on investments related to SPCs are recognized in our Segregated Portfolio Cell Reinsurance segment and the portion of SPC operating earnings, including the gain or loss, net of our participation, is due to the external cell participants through the SPC dividend expense (income). To be consistent with our exclusion of net realized investment gains (losses) recognized in earnings, we are excluding the portion of net realized investment gains (losses) that is included in the SPC dividend expense (income) which is due to the external cell participants.

[(2)] The annual expected incremental tax rate for 2018 is 21% as compared to 35% for 2017, associated with the taxable or tax deductible items listed above. Excluding certain discrete items, which are tax effected at the annual expected incremental tax rate in the period they are included in net income, our effective tax rate for the respective years was applied to these items in calculating net income. See previous discussion in this section under the heading "Taxes."

[(3)] Due to tax reform enacted by the TCJA, we remeasured our deferred tax assets and liabilities based on the newly enacted tax rate of 21% and recognized a charge of $6.5 million, which is included as a component of income tax expense from continuing operations for the year ended December 31, 2017. In addition, we made a reasonable estimate of the effects on our deferred tax asset balances at December 31, 2017 as it related to the limitation on the future deductibility on certain executive compensation and recorded a provisional charge to income tax expense of $3.5 million for the year ended December 31, 2017. During 2018, we were able to complete our accounting for the impact of the TCJA on our December 31, 2017 deferred tax asset balances related to executive compensation; no measurement period adjustment was recorded in 2018 as a result (see further discussion in Note 6 of the Notes to Consolidated Financial Statements).

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Segment Operating Results - Specialty Property & Casualty

As previously discussed under the heading "ProAssurance Overview," we reorganized our segment reporting in the third quarter of 2018 which resulted in the creation of a new segment: Segregated Portfolio Cell Reinsurance. The underwriting results of the SPCs that assume healthcare professional liability business were previously reported in our Specialty P&C segment and are now reported in our Segregated Portfolio Cell Reinsurance segment. All prior period segment information has been recast to conform to the current period presentation. See further information regarding our segments in Note 16 of the Notes to Consolidated Financial Statements.

Our Specialty P&C segment focuses on professional liability insurance and medical technology liability insurance. Segment operating results reflected pre-tax underwriting profit or loss from these insurance lines, exclusive of investment results, which are included in our Corporate segment. Segment operating results included the following:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Net premiums written	$494,148	$466,621	$27,527	5.9 %
Net premiums earned	$491,787	$449,823	$41,964	9.3 %
Other income	5,844	5,688	156	2.7 %
Net losses and loss adjustment expenses	(384,431)	(285,250)	(99,181)	34.8 %
Underwriting, policy acquisition and operating expenses	(112,419)	(107,972)	(4,447)	4.1 %
Segregated portfolio cells dividend (expense) income	—	(5,181)	5,181	(100.0%)
Segment operating results	$781	$57,108	$(56,327)	(98.6 %)
Net loss ratio	78.2%	63.4%	14.8	pts
Underwriting expense ratio	22.9%	24.0%	(1.1)	pts

In the second quarter of 2018, we entered into a loss portfolio transfer with a large healthcare organization. Per the agreement, we will cover a specific inventory of existing claims as well as provide tail coverage. As the contract included both prospective (tail) coverage and retroactive coverage, we bifurcated the provisions of the contract and accounted for each component separately. As of the effective date, we recognized total net premiums written and earned of $26.6 million, comprised of $7.9 million of prospective coverage and $18.7 million of retroactive coverage, and total net losses and loss adjustment expenses of $25.4 million within our Specialty P&C segment for the year ended December 31, 2018. See further discussion in Note 4 of the Notes to Consolidated Financial Statements.

Premiums Written

Changes in our premium volume within our Specialty P&C segment are driven by four primary factors: (1) the amount of new business, (2) our retention of existing business, (3) the premium charged for business that is renewed, which is affected by rates charged and by the amount and type of coverage an insured chooses to purchase and (4) the timing of premium written through multi-period policies. In addition, premium volume may periodically be affected by shifts in the timing of renewals between periods. The healthcare professional liability market, which accounts for a majority of the revenues in this segment, remains challenging as physicians continue joining hospitals or larger group practices and are thus no longer purchasing individual or group policies in the standard market. In addition, some competitors have chosen to compete primarily on price; both factors may impact our ability to write new business and retain existing business.

Gross, ceded and net premiums written were as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Gross premiums written	$577,196	$549,323	$27,873	5.1%
Less: Ceded premiums written	83,048	82,702	346	0.4%
Net premiums written	$494,148	$466,621	$27,527	5.9%

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Gross Premiums Written

Gross premiums written by component were as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Professional liability				
Physicians [1][8]				
Twelve month term	$352,279	$360,232	$(7,953)	(2.2 %)
Twenty-four month term	22,171	27,370	(5,199)	(19.0%)
Total Physicians	374,450	387,602	(13,152)	(3.4 %)
Healthcare facilities [2][8]	65,014	47,697	17,317	36.3 %
Other healthcare providers [3]	32,200	32,599	(399)	(1.2 %)
Legal professionals [4]	26,227	25,628	599	2.3 %
Tail coverages [5][6]	25,579	21,206	4,373	20.6 %
Retroactive coverages [6]	18,708	—	18,708	nm
Total professional liability	542,178	514,732	27,446	5.3 %
Medical technology liability [7]	34,528	34,164	364	1.1 %
Other	490	427	63	14.8 %
Total	$577,196	$549,323	$27,873	5.1 %

(1) Physician policies were our greatest source of premium revenues in both 2018 and 2017. The decrease in twelve month term policies in 2018 was due to timing differences of $10.9 million primarily related to the shifting in 2018 renewal dates of a few large policies that were renewed in the first quarter of 2019. Excluding the effect of these timing differences, twelve month term policies increased $2.9 million as compared to 2017. This increase was primarily due to new business written, an increase in premiums assumed in which we participate on a quota share basis and an increase in renewal pricing, largely offset by retention losses during the period. Renewal pricing increases in 2018 is reflective of our concern about potential increases in loss severity as well as more moderate marketplace price competition. Twelve month term premium in 2018 also reflected an increase in coverage from one insured who acquired an entity that was not previously insured by us. We also offer twenty-four month term policies to our physician insureds in one selected jurisdiction. The decrease in twenty-four month term policies in 2018 as compared to 2017 primarily reflected the normal cycle of renewals (policies subject to renewal in 2018 were previously written in 2016 rather than in 2017).

(2) Our healthcare facilities premium (which includes hospitals, surgery centers and other similar facilities) increased in 2018 as compared to 2017 driven by new business written, primarily due to the addition of two large policies in 2018, and, to a lesser extent, an increase in coverage pertaining to one large entity which consolidated certain policies that were not previously insured by us. Additionally, given the loss environment and initial loss indications we are seeing in the healthcare facilities space, we are seeking rate increases where we believe appropriate. These increases were partially offset by retention losses during the period.

(3) Our other healthcare providers are primarily dentists, chiropractors and allied health professionals.

(4) Our legal professionals policies are primarily individual and small group policies in select areas of practice. The increase in 2018 as compared to 2017 was primarily due to new business written and, to a lesser extent, an increase in the rate charged for certain renewed policies in select states due to rate filings, largely offset by retention losses.

(5) We offer extended reporting endorsement or "tail" coverage to insureds who discontinue their claims-made coverage with us, and we also periodically offer tail coverage through custom policies. The amount of tail coverage premium written can vary significantly from period to period. The increase in tail premiums in 2018 was driven by $7.9 million of tail coverage provided in connection with a loss portfolio transfer with a large healthcare organization entered into during the second quarter of 2018 (see further discussion in footnote 6 that follows), partially offset by the effect of tail coverage purchased in 2017 for a few large claims-made policies in one jurisdiction that were rewritten to occurrence coverage. These policies are a part of one of our shared risk arrangements and therefore, a large portion of the premium written was also ceded during 2017 (see further discussion in the Ceded Premiums Written section that follows).

(6) We offer custom alternative risk solutions including loss portfolio transfers for large healthcare entities who, most commonly, are exiting a line of business, changing an insurance approach, or simply preferring to transfer risk. In the second quarter of 2018, we entered into a loss portfolio transfer with a large healthcare organization. Per the agreement, we will cover a specific inventory of existing claims as well as provide tail coverage. The premiums received for the

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coverage provided for the existing inventory of claims was classified as retroactive coverage and resulted in $18.7 million of one-time premium written and fully earned during 2018. The premiums received for the prospective (tail) coverage resulted in $7.9 million of one-time premium written and fully earned during 2018. See Note 4 of the Notes to Consolidated Financial Statements for further information on this transaction.

(7) Our medical technology liability business is marketed throughout the U.S.; coverage is offered on a primary basis, within specified limits, to manufacturers and distributors of medical technology and life sciences products including entities conducting human clinical trials. In addition to the previously listed factors that affect our premium volume, our medical technology liability premium volume is impacted by the sales volume of insureds. The slight increase in 2018 was primarily due to new business written and, to a lesser extent, an increase in the premium charged for certain renewed policies as a result of an increase in the sales volume of the insureds, partially offset by retention losses. Retention losses in 2018 are largely attributable to an increase in competition on terms and pricing.

(8) Certain components of our gross premiums written include alternative market premiums. We cede either all or a portion of the alternative market premium, net of reinsurance, to certain SPCs of our wholly owned Cayman Islands reinsurance subsidiaries, Eastern Re and Inova Re, which are reported in our Segregated Portfolio Cell Reinsurance segment (see further discussion in the Ceded Premiums Written section that follows). The portion not ceded to the SPCs is retained within our Specialty P&C segment. Alternative market gross premiums written by component were as follows:

	Year Ended December 31			
($ in millions)	2018	2017	Change	
Physicians	$1.4	$1.2	$0.2	16.7%
Healthcare facilities	4.4	3.1	1.3	41.9%
Total	$5.8	$4.3	$1.5	34.9%

The increase in our alternative market healthcare facilities premium during 2018 was primarily due to new business written and, to a lesser extent, an increase in renewal pricing primarily due to increases in exposure related to a few policies, partially offset by retention losses.

New business written by component on a direct basis was as follows:

	Year Ended December 31	
(In millions)	2018	2017
Physicians	$19.8	$31.6
Healthcare facilities	19.8	5.8
Other healthcare providers	2.5	2.1
Legal professionals	2.8	3.6
Medical technology liability	3.0	5.4
Total	$47.9	$48.5

For our Specialty P&C segment, we calculate our retention rate as annualized renewed premium divided by all annualized premium subject to renewal. Retention rates are affected by a number of factors. We may lose insureds to competitors or to alternative insurance mechanisms such as risk retention groups or self-insurance entities (often when physicians join hospitals or large group practices) or due to pricing or other issues. We may choose not to renew an insured as a result of our underwriting evaluation. Insureds may also terminate coverage because they have left the practice of medicine for various reasons, principally for retirement, death or disability, but also for personal reasons.

Retention by component was as follows:

Year Ended December 31

	2018	2017
Physicians*	90 %	90 %
Healthcare facilities*	87 %	86 %
Other healthcare providers*	87 %	85 %
Legal professionals	86 %	84 %
Medical technology liability	87 %	87 %

* Excludes certain policies written on an excess and surplus lines basis.

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We are committed to a rate structure that will allow us to fulfill our obligations to our insureds, while generating competitive returns for our shareholders. Our pricing continues to be based on expected losses, as indicated by our historical loss data and available industry loss data. In recent years, this practice has resulted in gradual rate increases and we anticipate further rate increases due to indications of increasing loss severity. Additionally, the pricing of our business includes the effects of filed rates, surcharges and discounts. Renewal pricing also reflects changes in our exposure base, deductibles, self-insurance retention limits and other policy items.

Changes in renewal pricing by component was as follows:

	Year Ended December 31 2018
Physicians [1][2]	3 %
Healthcare facilities [1][2]	7 %
Other healthcare providers [1]	4 %
Legal professionals [2]	5 %
Medical technology liability	3 %

[1] Excludes certain policies written on an excess and surplus lines basis.

[2] See Gross Premiums Written section for further explanation of renewal pricing increase.

Ceded Premiums Written

Ceded premiums represent the amounts owed to our reinsurers for their assumption of a portion of our losses. Through our current excess of loss reinsurance arrangements we generally retain the first $1 million in risk insured by us and cede coverages in excess of this amount. For our healthcare professional liability coverages, we also retain from 3% - 12.5% of the next $25 million of risk for coverages in excess of $1 million. For our medical technology liability coverages, we also retain 10% of the next $9 million of risk for coverages in excess of $1 million. We pay our reinsurers a ceding premium in exchange for their accepting the risk, the ultimate amount of which is determined by the loss experience of the business ceded, subject to certain minimum and maximum amounts.

Ceded premiums written were as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Excess of loss reinsurance arrangements [1]	$35,591	$31,853	$3,738	11.7 %
Premium ceded to Syndicate 1729 [2]	2,105	13,983	(11,878)	(84.9 %)
Other shared risk arrangements [3]	31,358	30,780	578	1.9 %
Premium ceded to SPCs [4]	5,159	3,914	1,245	31.8 %
Other ceded premiums written	3,310	3,361	(51)	(1.5 %)
Adjustment to premiums owed under reinsurance agreements, prior accident years, net [5]	5,525	(1,189)	6,714	(564.7 %)
Total ceded premiums written	$83,048	$82,702	$346	0.4 %

(1) We generally reinsure risks under our excess of loss reinsurance arrangements pursuant to which the reinsurers agree to assume all or a portion of all risks that we insure above our individual risk retention levels, up to the maximum individual limits offered. In the majority of our excess of loss reinsurance arrangements, the premium due to the reinsurer is determined by the loss experience of that business reinsured, subject to certain minimum and maximum amounts. The increase in ceded premiums written under our excess of loss reinsurance arrangements in 2018 primarily reflected an increase in the premiums we expect to owe our reinsurers based upon increases to our estimates of losses recoverable from our reinsurance partners.

(2)

As previously discussed, we are the majority participant in Syndicate 1729 and normally record our pro rata share of its operating results in our Lloyd's Syndicates segment on a quarter delay, except when information is available that is material to the current period. We also recorded the cession to Syndicate 1729 from our Specialty P&C segment on a quarter delay as the amounts were not material and that permitted the cession to be reported by both our Lloyd's Syndicates segment and our Specialty P&C segment in the same reporting period. The decrease in premiums ceded to Syndicate 1729 during 2018 primarily reflected the non-renewal of our quota share agreement with Syndicate 1729 on January 1, 2018; the impact of which was not reflected in ceded premiums written until the second quarter of 2018

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due to the quarter delay. Additionally, the decrease in premiums ceded to Syndicate 1729 during 2018 reflected the revised contract terms on our previous quota share agreement effective January 1, 2017 which reduced the premiums ceded by essentially half. See the Segment Operating Results - Lloyd's Syndicates section for further discussion on the quota share agreement. As our premiums are earned, we recognize the related ceding commission income which reduces underwriting expense by offsetting DPAC amortization. For 2018 and 2017, the related ceding commission income was approximately 27% of ceded premiums written. For our consolidated results, eliminations of the inter-segment portion (58% of the Specialty P&C cession) of the transactions are also recorded on a quarter delay.

(3) We have entered into various shared risk arrangements, including quota share, fronting, and captive arrangements, with certain large healthcare systems and other insurance entities. These arrangements include our Ascension Health and CAPAssurance programs. While we cede a large portion of the premium written under these arrangements, they provide us an opportunity to grow net premium through strategic partnerships. The increase in 2018 was primarily driven by growth in our Ascension Health and CAPAssurance programs, largely offset by the effect of a few large tail endorsements that were written, and substantially ceded, during 2017 related to one of these shared risk arrangements, as previously discussed under the heading "Gross Premiums Written."

(4) As previously discussed, as a part of our alternative market solutions, all or a portion of certain healthcare premium written is ceded to the SPCs in our Segregated Portfolio Cell Reinsurance segment under either excess of loss or quota share reinsurance agreements, depending on the structure of the individual program. See the Segment Operating Results - Segregated Portfolio Cell Reinsurance section for further discussion on the cession to the SPCs from our Specialty P&C segment. The increase in premiums ceded to the SPCs during 2018 was primarily driven by new business written (see discussion in footnote 8 under the heading "Gross Premiums Written").

(5) Given the length of time that it takes to resolve our claims, many years may elapse before all losses recoverable under a reinsurance arrangement are known. As a part of the process of estimating our loss reserve we also make estimates regarding the amounts recoverable under our reinsurance arrangements. As previously discussed, the premiums ultimately ceded under certain of our excess of loss reinsurance arrangements are subject to the losses ceded under the arrangements. For 2018, we increased our estimate of expected losses and associated recoveries for prior year ceded losses, as well as our estimate of ceded premiums owed to reinsurers. The increase in our estimate of ceded premiums owed to reinsurers during 2018 as compared to 2017 was due to an increase in the number of claims that exceeded our individual risk retention levels under certain loss-sensitive treaties. We believe that this increase in claim severity is reflective of the evolving loss trends within the industry. For 2017, we reduced our estimate of expected losses and associated recoveries for prior year ceded losses, as well as our estimate of ceded premiums owed to reinsurers. Changes to estimates of premiums ceded related to prior accident years are fully earned in the period the changes in estimates occur.

Ceded Premiums Ratio

As shown in the table below, our ceded premiums ratio was affected in both 2018 and 2017 by revisions to our estimate of premiums owed to reinsurers related to coverages provided in prior accident years.

	Year Ended December 31		
	2018	2017	Change
Ceded premiums ratio, as reported	14.4%	15.1%	(0.7) pts
Less the effect of adjustments in premiums owed under reinsurance agreements, prior accident years (as previously discussed)	1.0 %	(0.2 %)	1.2 pts
Ratio, current accident year	13.4%	15.3%	(1.9) pts

The decrease in the current accident year ceded premiums ratio for the year ended December 31, 2018 was primarily due to the decrease in premiums ceded to Syndicate 1729 and the effect of the loss portfolio transfer entered into during the second quarter of 2018 (increase in gross premiums written with no premium ceded), partially offset by an increase in premiums ceded under our excess of loss reinsurance arrangements. See discussion above under the heading "Ceded Premiums Written."

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Net Premiums Earned

Net premiums earned consist of gross premiums earned less the portion of earned premiums that we cede to our reinsurers for their assumption of a portion of our losses. Because premiums are generally earned pro rata over the entire policy period, fluctuations in premiums earned tend to lag those of premiums written. Generally, our policies carry a term of one year, however, as discussed above, we write certain policies with a twenty-four month term, and a few of our medical technology liability policies have a multi-year term. Tail coverage premiums are generally 100% earned in the period written because the policies insure only incidents that occurred in prior periods and are not cancellable. Retroactive coverage premiums are 100% earned at the inception of the contract, as all of the underlying loss events occurred in the past. Additionally, ceded premium changes due to changes to estimates of premiums owed under reinsurance agreements for prior accident years are fully earned in the period of change.

Net premiums earned were as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Gross premiums earned	$580,022	$537,583	$42,439	7.9%
Less: Ceded premiums earned	88,235	87,760	475	0.5%
Net premiums earned	$491,787	$449,823	$41,964	9.3%

The increase in gross premiums earned in 2018 was driven by the effect of the loss portfolio transfer entered into during the second quarter of 2018 which resulted in $26.6 million of one-time premium written and fully earned in the current period (see discussion under the heading "Gross Premiums Written"). The increase also included the pro rata effect of higher premiums written during the preceding twelve months, predominantly in our healthcare facilities and physicians lines of business, partially offset by the effect of a few large tail policies written and earned during 2017.

The slight increase in ceded premiums earned during 2018 was driven by the increase in our estimate of ceded premiums owed to reinsurers for expected recoveries on prior year ceded losses in 2018 as compared to a decrease in our estimate in 2017 and, to a lesser extent, an increase in premium ceded under our excess of loss reinsurance arrangements. These increases in ceded premiums earned were offset by the decrease in premiums ceded to Syndicate 1729 during the preceding twelve months (see discussion under the heading "Ceded Premiums Written").

Losses and Loss Adjustment Expenses

The determination of calendar year losses involves the actuarial evaluation of incurred losses for the current accident year and the actuarial re-evaluation of incurred losses for prior accident years, including an evaluation of the reserve amounts required for losses in excess of policy limits.

Accident year refers to the accounting period in which the insured event becomes a liability of the insurer. For claims-made policies, which represent the majority of the premiums written in our Specialty P&C segment, the insured event generally becomes a liability when the event is first reported to us. For occurrence policies, the insured event becomes a liability when the event takes place. For retroactive coverages, the insured event becomes a liability at inception of the underlying contract. We believe that measuring losses on an accident year basis is the best measure of the underlying profitability of the premiums earned in that period, since it associates policy premiums earned with the estimate of the losses incurred related to those policy premiums.

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The following table summarizes calendar year net loss ratios by separating losses between the current accident year and all prior accident years. Additionally, the table shows our current accident year net loss ratio was affected by revisions to our estimate of premiums owed to reinsurers related to coverages provided in prior accident years. Net loss ratios were as follows:

	Net Loss Ratios [1]		
	Year Ended December 31		
	2018	2017	Change
Calendar year net loss ratio	78.2 %	63.4 %	14.8 pts
Less impact of prior accident years on the net loss ratio	(15.6%)	(26.5%)	10.9 pts
Current accident year net loss ratio	93.8 %	89.9 %	3.9 pts
Less estimated ratio increase (decrease) attributable to:			
Ceded premium adjustments, prior accident years [2]	1.0 %	(0.2 %)	1.2 pts
Current accident year net loss ratio, excluding the effect of prior year ceded premium [3]	92.8 %	90.1 %	2.7 pts

(1) Net losses, as specified, divided by net premiums earned.

(2) During 2018, we increased the premiums owed under reinsurance agreements for prior accident years which decreased net premiums earned (the denominator of the current accident year ratio). During 2017, reductions to premiums owed under reinsurance agreements for prior accident years increased net premiums earned. See the discussion in the Premiums section for our Specialty P&C segment under the heading "Ceded Premiums Written" for additional information.

(3) The current accident year net loss ratio, excluding the effect of prior year ceded premium adjustments, increased 2.7 percentage points as compared to 2017 driven by our consideration of potential higher severity trends associated with our excess and surplus lines business, which accounted for approximately 2.0 percentage points of the increase. The remaining increase in the current accident year net loss ratio was primarily due our continued concern around potential loss trends in the broader HCPL industry including large, more complex risks. The increase in the current accident year net loss ratio was partially offset by a decrease to our reserves related to DDR coverage endorsements as compared to an increase in 2017. In addition, the current accident year net loss ratio for 2018 also reflected the effect of a loss portfolio transfer (net premiums earned at a 95% loss ratio) entered into during the second quarter of 2018. See discussion in the Premiums section for our Specialty P&C segment under the heading "Gross Premiums Written" for additional information on the loss portfolio transfer.

We recognized net favorable loss development related to our previously established reserve of $77.0 million and $119.4 million for the years ended December 31, 2018 and 2017, respectively. The net favorable loss development in 2018 and 2017 included $13.3 million and $10.1 million, respectively, attributable to our medical technology liability line of business and $10.9 million and $5.2 million, respectively, attributable to our legal professionals liability line of business. We re-evaluate our previously established reserve each quarter based on our most recently available claims data and currently available industry trend information. Development recognized during 2018 principally related to accident years 2011 through 2014. Development recognized during 2017 principally related to accident years 2010 through 2014.

A detailed discussion of factors influencing our recognition of loss development is included in our Critical Accounting Estimates section under the heading "Reserve for Losses and Loss Adjustment Expenses." Assumptions used in establishing our reserve are regularly reviewed and updated by management as new data becomes available. Any adjustments necessary are reflected in the then current operations. Due to the size of our reserve, even a small percentage adjustment to the assumptions can have a material effect on our results of operations for the period in which the change is made, as was the case in both 2018 and 2017.

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Underwriting, Policy Acquisition and Operating Expenses

Our Specialty P&C segment underwriting, policy acquisition and operating expenses for the years ended December 31, 2018 and 2017 were comprised as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
DPAC amortization	$52,253	$47,611	$4,642	9.7 %
Management fees	6,968	6,620	348	5.3 %
Other underwriting and operating expenses	53,198	53,741	(543)	(1.0%)
Total	$112,419	$107,972	$4,447	4.1 %

DPAC amortization increased during the year ended December 31, 2018 as compared to 2017 driven by an increase in commission and brokerage expenses due to the increase in written and assumed premium during 2018 and a decrease in ceding commission income, which is an offset to expense, due to the reduction in premiums ceded to Syndicate 1729.

Management fees are charged pursuant to a management agreement by the Corporate segment to the operating subsidiaries within our Specialty P&C segment for services provided, based on the extent to which services are provided to the subsidiary and the amount of gross premium written by the subsidiary. While the terms of the management agreement were consistent between 2018 and 2017, fluctuations in the amount of gross premium written by each subsidiary can result in corresponding variations in the management fee charged to each subsidiary during a particular period. The management fees charged to the Specialty P&C segment during 2018 primarily reflected the increase in gross premiums written due to a loss portfolio transfer entered into during the second quarter of 2018 (see discussion under the heading "Gross Premiums Written").

Other underwriting and operating expenses decreased slightly during the year ended December 31, 2018 as compared to 2017. Other underwriting and operating expenses in 2018 included $1.0 million associated with a data analytics services agreement entered into during the fourth quarter of 2018 (see Note 9 of the Notes to Consolidated Financial Statements for further information), which was more than offset by slight decreases in other expense categories as compared to 2017, none of which were individually significant.

Underwriting Expense Ratio (the Expense Ratio)

Our expense ratio for the Specialty P&C segment for the year ended December 31, 2018 as compared to 2017, was as follows:

	Year Ended December 31		
	2018	2017	Change
Underwriting expense ratio	22.9%	24.0%	(1.1)pts

The decrease in the underwriting expense ratio for 2018 was primarily due to the impact of the loss portfolio transfer entered into during the second quarter of 2018 (net premiums earned with minimal associated operating expenses), which accounted for 1.2 percentage points of decrease in the underwriting expense ratio (see further discussion under the heading "Gross Premiums Written"). After removing the impact of the loss portfolio transfer, the underwriting expense ratio for 2018 remained relatively flat as compared to 2017.

Segregated Portfolio Cell Dividend Expense (Income)

In the third quarter of 2018, we reorganized our segment reporting which resulted in the creation of a new segment: Segregated Portfolio Cell Reinsurance (see further discussion under the heading "ProAssurance Overview"). The Segregated Portfolio Cell Reinsurance segment provides the results of SPCs at our Eastern Re and Inova Re subsidiaries, including SPCs that assume healthcare professional liability business which were previously reported within our Specialty P&C segment. As such, there is no longer a SPC dividend expense reported in the Specialty P&C segment associated with these SPCs. See more information on our Cayman Islands SPC operations in the Segment Operating Results - Segregated Portfolio Cell Reinsurance section that follows.

The SPC dividend expense for the year ended December 31, 2017 represented a one-time $5.2 million pre-tax expense related to previously unrecognized SPC dividend expense for the cumulative earnings of unrelated parties that have owned SPCs at various times since 2003 within a Bermuda captive insurance operation. Historically, within our

HCPL business, we have written a limited number of segregated cell captive programs through this Bermuda captive arrangement and the use of this facility declined as the HCPL insurance market has softened. The SPC dividend expense attributable to those cells was unrelated to our Cayman Islands captive operations.

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Segment Operating Results - Workers' Compensation Insurance

As previously discussed under the heading "ProAssurance Overview," we reorganized our segment reporting in the third quarter of 2018 which resulted in the creation of a new segment: Segregated Portfolio Cell Reinsurance. The underwriting results of the SPCs at Eastern Re and Inova Re that assume workers' compensation business were previously reported in our Workers' Compensation segment and are now reported in our Segregated Portfolio Cell Reinsurance segment. The traditional workers' compensation business remains in the Workers' Compensation segment which has been renamed to "Workers' Compensation Insurance." All prior period segment information has been recast to conform to the current period presentation. See further information regarding our segments in Note 16 of the Notes to Consolidated Financial Statements.

Our Workers' Compensation Insurance segment provides workers' compensation products to employers generally with 1,000 or fewer employees. Workers' compensation products offered include guaranteed cost policies, policyholder dividend policies, retrospectively-rated policies, deductible policies and alternative market solutions. Alternative market products include program design, fronting, claims administration, risk management, SPC rental, asset management and SPC management services. Alternative market premiums are 100% ceded to either the SPCs within our Segregated Portfolio Cell Reinsurance segment or, to a limited extent, unaffiliated captive insurers. Our Workers' Compensation Insurance segment operating results reflected pre-tax underwriting profit or loss from these workers' compensation products, exclusive of investment results, which are included in our Corporate segment. Segment operating results included the following:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Net premiums written	$195,350	$173,566	$21,784	12.6%
Net premiums earned	$186,079	$163,309	$22,770	13.9%
Other income	2,412	2,096	316	15.1%
Net losses and loss adjustment expenses	(118,483)	(102,233)	(16,250)	15.9%
Underwriting, policy acquisition and operating expenses	(55,693)	(52,576)	(3,117)	5.9 %
Segment operating results	$14,315	$10,596	$3,719	35.1%
Net loss ratio	63.7%	62.6%	1.1	pts
Underwriting expense ratio	29.9%	32.2%	(2.3)	pts

Premiums Written

Our workers' compensation premium volume is driven by five primary factors: (1) the amount of new business written, (2) audit premium, (3) retention of our existing book of business, (4) premium rates charged on our renewal book of business and (5) changes in payroll exposure.

Gross, ceded and net premiums written were as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Gross premiums written	$293,230	$264,048	$29,182	11.1%
Less: Ceded premiums written	97,880	90,482	7,398	8.2 %
Net premiums written	$195,350	$173,566	$21,784	12.6%

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Gross Premiums Written

Gross premiums written by product were as follows:

($ in thousands)	Year Ended December 31 2018	2017	Change	
Traditional business:				
Guaranteed cost	$163,138	$143,141	$19,997	14.0 %
Policyholder dividend	21,203	20,388	815	4.0 %
Deductible	8,143	8,362	(219)	(2.6 %)
Retrospective	6,911	3,428	3,483	101.6%
Other	9,413	8,185	1,228	15.0 %
Alternative market business	84,422	80,544	3,878	4.8 %
Total	$293,230	$264,048	$29,182	11.1 %

Gross premiums written in our traditional business increased during the year ended December 31, 2018 as compared to 2017, which primarily reflected new business written, including $11.7 million of new business premium related to the third quarter 2017 acquisition of the Great Falls book of business, an improvement in renewal pricing and an increase in audit premium. The growth in our alternative market business for the year ended December 31, 2018 primarily reflected new business written and an improvement in renewal pricing. We retained 22 of the 23 available alternative market programs up for renewal for the year ended December 31, 2018, including 6 programs available for renewal during the fourth quarter of 2018.

New business, audit premium, retention and renewal price changes for both the traditional business and the alternative market business are shown in the table below:

	Year Ended December 31					
	2018			2017		
($ in millions)	Traditional Business	Alternative Market Business	Segment Results	Traditional Business	Alternative Market Business	Segment Results
New business	$43.2	$ 8.3	$51.5	$37.8	$ 9.9	$47.7
Audit premium (including EBUB)	$4.3	$ 1.6	$5.9	$2.7	$ 1.4	$4.1
Retention rate [1]	84 %	91 %	86 %	85 %	92 %	87 %
Change in renewal pricing [2]	(1 %)	— %	(1 %)	(3 %)	(4 %)	(3 %)

[1] We calculate our workers' compensation retention rate as annualized expiring renewed premium divided by all annualized expiring premium subject to renewal. Our retention rate can be impacted by various factors, including price or other competitive issues, insureds being acquired, or a decision not to renew based on our underwriting evaluation.

[2] The pricing of our business includes an assessment of the underlying policy exposure and the effects of current market conditions. We continue to base our pricing on expected losses, as indicated by our historical loss data.

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Ceded Premiums Written

Ceded premiums written were as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Premiums ceded to SPCs	$79,927	$73,761	$6,166	8.4 %
Premiums ceded to external reinsurers	13,515	9,823	3,692	37.6 %
Premiums ceded to unaffiliated captive insurers	4,495	6,784	(2,289)	(33.7 %)
Change in return premium estimate under external reinsurance	(57)	114	(171)	(150.0%)
Total ceded premiums written	$97,880	$90,482	$7,398	8.2 %

Our Workers' Compensation Insurance segment cedes alternative market business under a 100% quota share reinsurance agreement, net of a ceding commission, to SPCs in our Segregated Portfolio Cell Reinsurance segment. The ceding commission consists of an amount for fronting fees, cell rental fees, commissions, premium taxes, claims administration fees and risk management fees. The fronting fees, commissions, premium taxes and risk management fees are recorded as an offset to underwriting, policy acquisition and operating expenses (see discussion that follows under the heading "Underwriting, Policy Acquisition and Operating Expenses"). Cell rental fees are recorded as a component of other income and claims administration fees are recorded as ceded ULAE. The increase in premiums ceded to SPCs in 2018 primarily reflected growth in our alternative market premium, as previously discussed, as well as the designed consolidation of certain unaffiliated captive insurers into SPCs at Inova Re (see discussion below).

Under our external reinsurance agreement, we retain the first $0.5 million in risk insured by us and cede losses in excess of this amount up to $119.5 million on each loss occurrence under our primary external reinsurance contract. Per our reinsurance agreements, we cede premiums related to our traditional business on an earned premium basis. The increase in premiums ceded to external reinsurers during the year ended December 31, 2018 was driven by an increase in earned premium, an increase in reinsurance rates effective May 1, 2018 and a decrease in revenue sharing with our reinsurance broker, primarily due to a change in estimate during the second quarter of 2017.

The decrease in premiums ceded to unaffiliated captive insurers during the year ended December 31, 2018 primarily reflected the impact of the 2017 designed consolidation of two unaffiliated captive programs. During 2017, we added one new SPC at Inova Re that writes business previously ceded to two non-renewed unaffiliated captive programs. The premium now written through this new SPC is reflected in premiums ceded to SPCs in the table above. During the fourth quarter of 2018, one of the two remaining unaffiliated captive programs was also moved to Inova Re.

Changes in the return premium estimate reflected the loss experience under the reinsurance contract for the years ended December 31, 2018 and 2017. The increase in the return premium estimate for the year ended December 31, 2018 primarily reflected favorable loss experience in prior contract years.

Ceded Premiums Ratio

The ceded premiums ratio was as follows:

	Year Ended December 31		
	2018	2017	Change
Ceded premiums ratio, as reported	34.2%	35.7%	(1.5) pts
Less the effect of:			
Premiums ceded to SPCs (100%)	25.1%	25.9%	(0.8) pts
Premiums ceded to unaffiliated captive insurers (100%)	2.4 %	4.1 %	(1.7) pts
Return premium estimated under external reinsurance	— %	(0.1 %)	0.1 pts
Assumed premiums earned (not ceded to external reinsurers)	(0.3 %)	(0.3 %)	— pts
Ceded premiums ratio, less the effects of above	7.0 %	6.1 %	0.9 pts

The above table reflects ceded premiums earned as a percent of gross premiums earned. As discussed above, we cede premiums related to our traditional business to external reinsurers on an earned premium basis. The increase in the ceded premiums ratio for the year ended December 31, 2018 when compared to 2017 primarily reflected an increase in reinsurance rates and the impact of broker revenue sharing, as previously discussed.

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Net Premiums Earned

Net premiums earned were as follows:

($ in thousands)	Year Ended December 31 2018	2017	Change	
Gross premiums earned	$282,974	$253,944	$29,030	11.4%
Less: Ceded premiums earned	96,895	90,635	6,260	6.9 %
Net premiums earned	$186,079	$163,309	$22,770	13.9%

Net premiums earned consist of gross premiums earned less the portion of earned premiums that we cede to SPCs in our Segregated Portfolio Cell Reinsurance segment, external reinsurers or unaffiliated captive insurers. Because premiums are generally earned pro rata over the entire policy period, fluctuations in premiums earned tend to lag those of premiums written. Our workers' compensation policies are twelve-month policies and premiums are earned on a pro rata basis over the policy period. Net premiums earned also include premium adjustments related to the audit of our insureds' payrolls. Payroll audits are conducted subsequent to the end of the policy period and any related adjustments are recorded as fully earned in the current period. In addition, we record an estimate for EBUB and evaluate the estimate on a quarterly basis. We did not adjust the EBUB estimate during the years ended December 31, 2018 or 2017. The increase in net premiums earned primarily reflected the pro rata effect of higher net premiums written during the preceding twelve months.

Losses and Loss Adjustment Expenses

We estimate our current accident year loss and loss adjustment expenses based on an expected loss ratio. Incurred losses and loss adjustment expenses are determined by applying the expected loss ratio to net premiums earned, which includes audit premium, for the respective period. The following table summarizes calendar year net loss ratios by separating losses between the current accident year and all prior accident years. Calendar year and current accident year net loss ratios by component were as follows:

	Year Ended December 31 2018	2017	Change	
Calendar year net loss ratio	63.7%	62.6%	1.1	pts
Less impact of prior accident years on the net loss ratio	(4.3 %)	(3.5 %)	(0.8)	pts
Current accident year net loss ratio	68.0%	66.1%	1.9	pts

The current accident year net loss ratio for the year ended December 31, 2018 was 68.0% as compared to 66.1% for 2017. The increase in the current accident year net loss ratio reflected an increase in claim trends in 2018, including the impact of severity-related claim activity related to economic growth trends and the increase in new and less experienced workers to the workforce.

Current accident year incurred losses (excluding IBNR) ceded to our external reinsurers totaled $12.6 million for the year ended December 31, 2018 compared to $9.8 million for 2017. The increase in ceded incurred losses for the year ended December 31, 2018 primarily reflected the aforementioned increase in severity-related claim activity.

We recognized net favorable prior year development related to our previously established reserve of $8.0 million for the year ended December 31, 2018 as compared to $5.7 million for 2017. The net favorable prior year development for the year ended December 31, 2018 reflected overall favorable trends in claim closing patterns, primarily in the 2015 and 2016 accident years. For each of the years ended December 31, 2018 and 2017, the net favorable prior year development included $1.6 million related to the amortization of the purchase accounting fair value adjustment.

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Underwriting, Policy Acquisition and Operating Expenses

Underwriting, policy acquisition and operating expenses includes the amortization of commissions, premium taxes and underwriting salaries, which are capitalized and deferred over the related workers' compensation policy period, net of ceding commissions earned. The capitalization of underwriting salaries can vary as they are subject to the success rate of our contract acquisition efforts. These expenses also include a management fee charged by the Corporate segment, which represents intercompany charges pursuant to a management agreement, and the amortization of intangible assets, primarily related to the acquisition of Eastern by ProAssurance. The management fee is based on the extent to which services are provided to the subsidiary and the amount of gross premium written by the subsidiary.

Our Workers' Compensation Insurance segment underwriting, policy acquisition and operating expenses were comprised as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
DPAC amortization	$33,352	$31,433	$1,919	6.1 %
Management fees	2,193	1,975	218	11.0%
Other underwriting and operating expenses	37,407	36,791	616	1.7 %
SPC ceding commission offset	(17,259)	(17,623)	364	(2.1 %)
Total	$55,693	$52,576	$3,117	5.9 %

The increase in DPAC amortization for the year ended December 31, 2018 as compared to 2017 primarily reflected the increase in net premiums earned. The increase in other underwriting and operating expenses for the year ended December 31, 2018 as compared to 2017 primarily reflected an increase in expenses associated with the start-up of our New England region through the Great Falls acquisition and an increase in compensation related costs.

As previously discussed, alternative market premiums written through our Workers' Compensation Insurance segment's alternative market business unit are 100% ceded, less a ceding commission, to either the SPCs in our Segregated Portfolio Cell Reinsurance segment or, to a limited extent, unaffiliated captive insurers. SPC ceding commission income includes fronting fees, commissions, premium taxes and risk management fees, which are reported as an offset to underwriting, policy acquisition and operating expenses. The increase in SPC ceding commissions earned in 2018 as compared to 2017 was due to growth in the alternative market business over the preceding twelve months.

Underwriting Expense Ratio (the Expense Ratio)

The underwriting expense ratio included the impact of the following:

	Year Ended December 31		
	2018	2017	Change
Underwriting expense ratio, as reported	29.9%	32.2%	(2.3) pts
Less estimated ratio increase (decrease) attributable to:			
Impact of ceding commissions received from SPCs	2.9 %	3.4 %	(0.5) pts
Amortization of intangible assets	1.3 %	1.2 %	0.1 pts
Management fees	0.8 %	0.8 %	— pts
Impact of audit premium	(0.4 %)	(0.3 %)	(0.1) pts
Underwriting expense ratio, less listed effects	25.3%	27.1%	(1.8) pts

The decrease in the expense ratio for the year ended December 31, 2018, exclusive of the items noted in the table, primarily reflected the increase in net premiums earned. There were no other individually significant variances by expense category that contributed to the remaining decrease in the expense ratio.

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Segment Operating Results - Segregated Portfolio Cell Reinsurance

As previously discussed under the heading "ProAssurance Overview," we reorganized our segment reporting during the third quarter of 2018 which resulted in the creation of the Segregated Portfolio Cell Reinsurance segment. See further information regarding our segments in Note 16 of the Notes to Consolidated Financial Statements.

The Segregated Portfolio Cell Reinsurance segment reflects the operating results (underwriting profit or loss, plus investment results) of SPCs at Eastern Re and Inova Re, our Cayman Islands SPC operations. As of December 31, 2018, there were 26 (22 active) SPCs. The SPCs assume workers' compensation insurance, healthcare professional liability insurance or a combination of the two from our Workers' Compensation Insurance and Specialty P&C segments. SPCs are segregated pools of assets and liabilities that provide an insurance facility for a defined set of risks. Assets of each SPC are solely for the benefit of that individual cell and each SPC is solely responsible for the liabilities of that individual cell. Assets of one SPC are statutorily protected from the creditors of the others. Each SPC is owned, fully or in part, by an agency, group or association and the operating results of the SPCs are due to the participants of that cell. We participate to a varying degree in the results of selected SPCs and, for the SPCs in which we participate, our participation interest is as low as 25% and as high as 85%. SPC operating results due to external cell participants are reflected as a SPC dividend expense in our Segregated Portfolio Cell Reinsurance segment. In addition, our Segregated Portfolio Cell Reinsurance segment includes the SPC investment results as the investments are solely for the benefit of the cell participants and investment results due to external cell participants are reflected in the SPC dividend expense.

Segment operating results reflects our share of the underwriting and investment results of the SPCs in which we participate, and included the following:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Net premiums written	$75,547	$68,862	$6,685	9.7 %
Net premiums earned	$73,940	$68,197	$5,743	8.4 %
Net investment income	1,566	1,059	507	47.9 %
Net realized gains (losses)	(3,149)	3,914	(7,063)	(180.5%)
Other income	211	115	96	83.5 %
Net losses and loss adjustment expenses	(38,726)	(37,455)	(1,271)	3.4 %
Underwriting, policy acquisition and operating expenses	(22,426)	(20,764)	(1,662)	8.0 %
SPC net operating results	11,416	15,066	(3,650)	(24.2 %)
SPC dividend (expense) income[1]	(9,122)	(10,590)	1,468	(13.9 %)
Segment operating results[2]	$2,294	$4,476	$(2,182)	(48.7 %)
Net loss ratio	52.4%	54.9%	(2.5) pts	
Underwriting expense ratio	30.3%	30.4%	(0.1) pts	

[1] Represents the operating (profit) loss due to external cell participants.

[2] Represents our share of the operating profit (loss) of the SPCs in which we participate.

In 2018, we restructured our Cayman Islands SPC operations. Effective January 1, 2018, all new and renewing alternative market business previously ceded to the SPCs at Eastern Re, with the exception of one program, is now ceded to SPCs operated by a newly formed wholly owned Cayman Islands subsidiary, Inova Re. As part of the restructuring, all SPCs previously operated by Eastern Re, with the exception of one program, ceased assuming new and renewing business on or after January 1, 2018. The external cell participants' cumulative undistributed earnings and the results of all SPCs for the current period due to external cell participants continue to be reported as SPC dividends payable and SPC dividend expense, respectively.

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Premiums Written

Premiums in our Segregated Portfolio Cell Reinsurance segment are 100% assumed from either our Workers' Compensation Insurance or Specialty P&C segments. Premium volume is driven by five primary factors: (1) the amount of new business written, (2) retention of the existing book of business, (3) premium rates charged on the renewal book of business and, for workers' compensation business, (4) audit premium and (5) changes in payroll exposure.

Gross, ceded and net premiums written were as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Gross premiums written	$85,086	$77,675	$7,411	9.5%
Less: Ceded premiums written	9,539	8,813	726	8.2%
Net premiums written	$75,547	$68,862	$6,685	9.7%

Gross Premiums Written

Gross premiums written reflected reinsurance premiums assumed by component as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Workers' compensation	$79,927	$73,761	$6,166	8.4 %
Healthcare professional liability	5,159	3,914	1,245	31.8%
Gross Premiums Written	$85,086	$77,675	$7,411	9.5 %

Gross premiums written for the years ended December 31, 2018 and 2017 was primarily comprised of workers' compensation coverages assumed from our Workers' Compensation Insurance segment. Gross premiums written increased during 2018 as compared to 2017, driven by new business written and an improvement in renewal pricing. We retained 22 of the 23 available alternative market programs up for renewal for the year ended December 31, 2018. In addition, we added a new program at Inova Re during the fourth quarter of 2018 related to the designed consolidation of an unaffiliated captive insurer (see further discussion in our Segment Operating Results - Workers' Compensation Insurance section).

New business, audit premium, retention and renewal price changes for the assumed workers' compensation premium is shown in the table below:

	Year Ended December 31	
($ in millions)	2018	2017
New business	$8.3	$9.9
Audit premium (including EBUB)	$1.6	$1.4
Retention rate [1]	91 %	92 %
Change in renewal pricing [2]	— %	(4 %)

[1] We calculate our workers' compensation retention rate as annualized expiring renewed premium divided by all annualized expiring premium subject to renewal. Our retention rate can be impacted by various factors, including price or other competitive issues, insureds being acquired, or a decision not to renew based on our underwriting evaluation.

[2] The pricing of our business includes an assessment of the underlying policy exposure and the effects of current market conditions. We continue to base our pricing on expected losses, as indicated by our historical loss data.

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Ceded Premiums Written

Ceded premiums written were as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Ceded premiums written	$9,539	$8,813	$726	8.2%

For the workers' compensation business, each SPC has in place its own external reinsurance arrangements. The healthcare professional liability business is assumed net of reinsurance from our Specialty P&C segment; therefore, there are no ceded premiums related to the healthcare professional liability business reflected in the table above. The risk retention for each loss occurrence ranges from $0.3 million to $0.35 million based on the program, with limits up to $119.7 million. In addition, each program has aggregate reinsurance coverage between $1.1 million and $2.1 million on a program year basis. Per the SPC external reinsurance agreements, premiums are ceded on a written premium basis and the slight increase in premiums ceded to external reinsurers for the year ended December 31, 2018 primarily reflected an increase in written premium. External reinsurance rates vary based on the alternative market program.

Ceded Premiums Ratio

Ceded premiums ratio was as follows:

	Year Ended December 31		
	2018	2017	Change
Ceded premiums ratio	11.9%	11.9%	— pts

The above table reflects ceded premiums as a percent of gross premiums written for the workers' compensation business only; healthcare professional liability business is assumed net of reinsurance, as discussed above. The ceded premiums ratio remained unchanged for the year ended December 31, 2018 as compared to 2017.

Net Premiums Earned

Gross, ceded and net premiums earned were as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Gross premiums earned	$83,264	$76,911	$6,353	8.3%
Less: Ceded premiums earned	9,324	8,714	610	7.0%
Net premiums earned	$73,940	$68,197	$5,743	8.4%

Net premiums earned consist of gross premiums earned less the portion of earned premiums that the SPCs cede to external reinsurers. Because premiums are generally earned pro rata over the entire policy period, fluctuations in premiums earned tend to lag those of premiums written. Policies ceded to the SPCs are twelve month term policies and premiums are earned on a pro rata basis over the policy period. Net premiums earned also include premium adjustments related to the audit of workers' compensation insureds' payrolls. Payroll audits are conducted subsequent to the end of the policy period and any related adjustments are recorded as fully earned in the current period. The increase in net premiums earned primarily reflected the pro rata effect of higher net premiums written during the preceding twelve months.

Net Investment Income and Net Realized Investment Gains (Losses)

Net investment income for the years ended December 31, 2018 and 2017 was primarily attributable to interest earned on available-for-sale fixed maturity investments, which primarily includes investment-grade corporate debt securities. Net realized investment losses for the years ended December 31, 2018 and 2017 primarily reflected changes in the value of the SPCs' equity portfolio.

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Losses and Loss Adjustment Expenses

The following table summarizes the calendar year net loss ratios by separating losses between the current accident year and all prior accident years. Calendar year and current accident year net loss ratios were as follows:

	Year Ended December 31		
	2018	2017	Change
Calendar year net loss ratio	52.4 %	54.9 %	(2.5) pts
Less impact of prior accident years on the net loss ratio	(12.1%)	(12.5%)	0.4 pts
Current accident year net loss ratio	64.5 %	67.4 %	(2.9) pts
Less impact of audit premium related to workers' compensation business	(1.5 %)	(1.4 %)	(0.1) pts
Current accident year net loss ratio, excluding the effect of audit premium	66.0 %	68.8 %	(2.8) pts

The current accident year net loss ratio reflected the aggregate loss ratio for all programs. Loss reserves are estimated for each program on a quarterly basis. Due to the size of some of the programs, quarterly claims activity can cause the current accident year net loss ratio to fluctuate significantly from period to period. The current accident year net loss ratio decreased as compared to 2017 primarily due to a decrease in severity-related claims activity.

Current accident year incurred losses (excluding IBNR) ceded to our external reinsurers totaled $2.0 million and $3.2 million for the years ended December 31, 2018 and 2017, respectively.

We recognized net favorable prior year development of $9.0 million and $8.5 million for the years ended December 31, 2018 and 2017, respectively, which primarily reflected better than expected claim trends in the 2015, 2016 and 2017 accident years. The improved claim trends reflected lower frequency and severity than anticipated at the time the reserves were established.

Audit premium from workers' compensation insureds results in a decrease in the net loss ratio, whereas audit premium returned to workers' compensation insureds results in an increase in the net loss ratio. We recognized audit premium of $1.6 million and $1.4 million for the years ended December 31, 2018 and 2017, respectively, the effect of which is reflected in the previous table. We estimate our current accident year losses and loss adjustment expenses based on the underlying actuarial methodologies without consideration of audit premium. As a result, we removed the effects of audit premium in the previous table for purposes of evaluating the current accident year net loss ratio.

Underwriting, Policy Acquisition and Operating Expenses

Our Segregated Portfolio Cell Reinsurance segment underwriting, policy acquisition and operating expenses were comprised as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
DPAC amortization	$21,039	$19,927	$1,112	5.6 %
Other underwriting and operating expenses	1,387	837	550	65.7%
Total	$22,426	$20,764	$1,662	8.0 %

DPAC amortization primarily represented ceding commissions, which vary by program and are paid to our Workers' Compensation Insurance and Specialty P&C segments for premiums assumed. Ceding commissions include an amount for fronting fees, commissions, premium taxes and risk management fees, which are reported as an offset to underwriting, policy acquisition and operating expenses within our Workers' Compensation Insurance and Specialty P&C segments. In addition, ceding commissions paid to our Workers' Compensation Insurance segment include cell rental fees which are recorded as other income within our Workers' Compensation Insurance segment.

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Underwriting Expense Ratio (the Expense Ratio)

The underwriting expense ratio included the impact of the following:

	Year Ended December 31		
	2018	2017	Change
Underwriting expense ratio, as reported	30.3%	30.4%	(0.1) pts
Less impact of audit premium on expense ratio	(0.7 %)	(0.6 %)	(0.1) pts
Underwriting expense ratio, excluding the effect of audit premium	31.0%	31.0%	— pts

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Segment Operating Results - Lloyd's Syndicates

Our Lloyd's Syndicates segment includes operating results from our participation in certain Syndicates at Lloyd's of London. We have a total capital commitment to support our Lloyd's Syndicate operations through 2019 of up to $200 million, referred to as FAL. The Board, through a non-binding resolution, extended this commitment through 2022. For the 2018 underwriting year, our FAL was comprised of investment securities deposited with Lloyd's which at December 31, 2018 had a fair value of approximately $142.7 million, as discussed in Note 3 of the Notes to Consolidated Financial Statements. During the fourth quarter of 2018, we increased our FAL securities in order to support Syndicate 1729's accumulated losses from prior years, stemming primarily from property and natural catastrophe losses.

We normally report results from our involvement in Lloyd's Syndicates on a quarter delay, except when information is available that is material to the current period (see discussion that follows under the heading "Property and Natural Catastrophe Losses"). Furthermore, the investment results associated with our FAL investments and certain U.S. paid administrative expenses are reported concurrently as that information is available on an earlier time frame.

Lloyd's Syndicate 1729. We are the majority capital provider to Syndicate 1729, which covers a range of property and casualty insurance and reinsurance lines. For the 2018 underwriting year, we increased our participation in the operating results of Syndicate 1729 from 58% to 62% which, due to the quarter delay, was not reflected in our Lloyd's Syndicates segment results until the second quarter of 2018. The remaining capital for Syndicate 1729 is provided by unrelated third parties, including private names and other corporate members. Syndicate 1729 had a maximum underwriting capacity of £132.0 million for the 2018 underwriting year, of which £82.0 million ($104.6 million based on December 31, 2018 exchange rates) was our allocated underwriting capacity. For the 2019 underwriting year, we slightly decreased our participation in the operating results of Syndicate 1729 from 62% to 61% which, due to the quarter delay, will not be reflected in our Lloyd's Syndicates segment results until the second quarter of 2019. Syndicate 1729's maximum underwriting capacity for the 2019 underwriting year is £128 million (approximately $163.3 million at December 31, 2018), of which £78 million (approximately $99.5 million at December 31, 2018) is our allocated underwriting capacity.

Lloyd's Syndicate 6131. Beginning in the second quarter of 2018, our Lloyd's Syndicates segment includes the operating results of a SPA, Syndicate 6131, which began writing business effective January 1, 2018 and focuses on contingency and specialty property business. As a SPA, Syndicate 6131 is only allowed to underwrite one quota share reinsurance contract with Syndicate 1729. We are the sole (100%) capital provider to Syndicate 6131 and for the 2018 underwriting year Syndicate 6131 had a maximum underwriting capacity of £8.0 million ($10.2 million based on December 31, 2018 exchange rates). For the 2019 underwriting year, Syndicate 6131 has a maximum underwriting capacity of £12 million (approximately $15.3 million at December 31, 2018).

In addition to the results of our participation in Lloyd's Syndicates, as discussed above, our Lloyd's Syndicates segment also includes 100% of the operating results of our wholly owned subsidiaries that support our operations at Lloyd's. For the years ended December 31, 2018 and 2017, the results of our Lloyd's Syndicates segment were as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Gross premiums written	$88,746	$70,224	$18,522	26.4 %
Ceded premiums written	(18,877)	(15,255)	(3,622)	23.7 %
Net premiums written	$69,869	$54,969	$14,900	27.1 %
Net premiums earned	$67,047	$57,202	$9,845	17.2 %
Net investment income	3,358	1,736	1,622	93.4 %
Net realized gains (losses)	(460)	107	(567)	(529.9 %)
Other income (loss)	322	(1,476)	1,798	121.8 %
Net losses and loss adjustment expenses	(51,570)	(44,220)	(7,350)	16.6 %
Underwriting, policy acquisition and operating expenses	(31,686)	(26,963)	(4,723)	17.5 %
Income tax benefit (expense)	317	568	(251)	(44.2 %)

Segment operating results	$(12,672)	$(13,046)	$374	2.9 %
Net loss ratio	76.9 %	77.3 %	(0.4) pts	
Underwriting expense ratio	47.3 %	47.1 %	0.2 pts	

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Property and Natural Catastrophe Losses

As previously mentioned, we normally report results from our involvement in Lloyd's Syndicates on a quarter delay; however, during the fourth quarter of 2018, Syndicate 1729 reported loss estimates in connection with Hurricane Michael, which affected the northwest portion of Florida during October 2018. We estimated our allocated share of the net pre-tax losses in connection with Hurricane Michael to be approximately $6.8 million, net of reinsurance and reinstatement premiums. These losses would normally be reported in the first quarter of 2019 due to the aforementioned quarter delay. However, due to the availability and significance of these estimates, we have accelerated our reporting of these storm-related losses into the fourth quarter of 2018, which is consistent with our policy of disclosing significant losses in the period in which they become known to us.

Segment operating results for both of the years ended December 31, 2018 and 2017 also included our allocated share of the estimates for losses in connection with other significant natural catastrophes that occurred during the past two years. These estimates also included reinstatement premiums we expect to receive from insureds as well as pay reinsurers, both of which were written and earned during the respective period. For the year ended December 31, 2018, we estimate our allocated share of the net pre-tax losses associated with these natural catastrophe and property losses to be approximately $12.1 million, which includes the estimated $6.8 million in losses in connection with Hurricane Michael, as discussed above. The remaining estimated losses in 2018 were primarily in connection with lava damage caused by the volcanic eruptions in Hawaii and storm damage related to Hurricane Florence, which affected several states along the Mid-Atlantic U.S. Estimated net pre-tax losses in 2018 were partially offset by subsequent adjustments of approximately $2.1 million related to prior year storm-related losses. For the year ended December 31, 2017, our estimated allocated share of net pre-tax losses associated with natural catastrophe and property losses was $7.1 million and was primarily in connection with Hurricanes Harvey, Irma and Maria, which affected Texas, several states in the Southeastern U.S. and islands in the Caribbean.

The impact of these natural catastrophe and property losses on our Lloyd's Syndicates segment's operating results for the years ended December 31, 2018 and 2017 was as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Gross premiums written	$913	$234	$679	290.2 %
Ceded premiums written	(230)	(2,209)	1,979	(89.6 %)
Net premiums written	$683	$(1,975)	$2,658	(134.6%)
Net premiums earned	$683	$(1,975)	$2,658	(134.6%)
Gross losses	(14,761)	(36,297)	21,536	(59.3 %)
Reinsurance recoveries	1,952	31,198	(29,246)	(93.7 %)
Net losses and loss adjustment expenses	(12,809)	(5,099)	(7,710)	151.2 %
Segment operating results, current year, before tax	(12,126)	(7,074)	(5,052)	71.4 %
Net adjustments to estimated losses, prior year	2,116	—	2,116	nm
Segment operating results, before tax	$(10,010)	$(7,074)	$(2,936)	41.5 %

Gross Premiums Written

Changes in our premium volume within our Lloyd's Syndicates segment are driven by four primary factors: (1) the amount of new business and the channels in which the business is written, (2) our retention of existing business, (3) the premium charged for business that is renewed, which is affected by rates charged and by the amount and type of coverage an insured chooses to purchase and (4) the timing of premium written through multi-period policies.

Gross premiums written in 2018 consisted of property insurance coverages (41% of total gross premiums written), casualty coverages (30%), catastrophe reinsurance coverages (21%), property reinsurance coverages (4%) and specialty property coverages (4%). The increase in gross premiums written during 2018 as compared to 2017 was primarily driven by our increased participation in the operating results of Syndicate 1729, our participation in the operating results of Syndicate 6131 and, to a lesser extent, the effect of reinstatement premiums received in 2018 of approximately $0.9 million as compared to $0.2 million in 2017. The reinstatement premiums represented the additional premium payable to Syndicate 1729 to restore coverage limits that were exhausted under certain excess of loss reinsurance treaties as a result of the previously discussed natural catastrophe-related losses.

As discussed in our Specialty P&C segment operating results, prior to January 1, 2018 Syndicate 1729 served as a reinsurer on a quota share basis for a wholly owned insurance subsidiary in our Specialty P&C segment. For premiums assumed, we include in gross premiums written an estimate of all premiums to be earned over the entire period covered by the

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reinsurance agreement, generally one year, in the quarter in which the reinsurance agreement becomes effective. Results from this ceding arrangement are reported in our Specialty P&C segment on the same quarter delay in order to be consistent with our Lloyd's Syndicates segment as the effect of doing so is not material. The quota share agreement with our Specialty P&C segment effective January 1, 2017 reflected revised contract terms which reduced premiums assumed by Syndicate 1729 by essentially half. Syndicate 1729 did not renew the quota share agreement with our Specialty P&C segment on January 1, 2018; however, due to the previously discussed quarter delay, the impact began to be reflected in each segment's operating results in second quarter of 2018.

The 2016 and 2015 calendar year quota share arrangements with our Specialty P&C segment were commuted in December 2017 and 2016, respectively. Due to the quarter delay, the effect of the 2016 and 2015 commutation was reported in both segments' results during the first quarters of 2018 and 2017, respectively, and is reflected in the Lloyd's Syndicates segment results for the years ended December 31, 2018 and 2017, respectively. The commutations did not differ significantly from previously recorded amounts.

Ceded Premiums Written

Syndicate 1729 utilizes reinsurance to provide the capacity to write larger limits of liability on individual risks, to provide protection against catastrophic loss and to provide protection against losses in excess of policy limits. Ceded premiums written increased for the year ended December 31, 2018 primarily due to the increased utilization of reinsurance on new business written directly by Syndicate 1729 to replace the business previously assumed through the quota share agreement with our Specialty P&C segment. The increase in ceded premiums written was partially offset by a decrease in reinsurance reinstatement premiums Syndicate 1729 expects to owe to reinsurers in connection to the previously mentioned natural catastrophe-related losses. Reinsurance reinstatement premiums were approximately \$0.2 million in 2018 as compared to \$2.2 million in 2017.

Net Premiums Earned

Net premiums earned consist of gross premiums earned less the portion of earned premiums that we cede to our reinsurers for their assumption of a portion of our losses. Premiums written through open-market channels are generally earned pro rata over the entire policy period, which is predominately twelve months, whereas premiums written through delegated underwriting authority arrangements are earned over twenty-four months. Therefore, net premiums earned is affected by shifts in the mix of policies written between the open-market and delegated underwriting authority arrangements. Additionally, fluctuations in premiums earned tend to lag those of premiums written. Premiums for certain policies and assumed reinsurance contracts are reported subsequent to the coverage period and/or may be subject to adjustment based on loss experience. These premium adjustments are earned when reported, which can result in further fluctuation in earned premium.

The increase in net premiums earned for the year ended December 31, 2018 primarily reflected the pro rata effect of shifts in the mix of premiums written during the preceding twelve months; a larger proportion of premiums were written through the open-market, as compared to previous years, which are predominately earned over twelve months. The increase in gross premiums earned in 2018 as compared to 2017 was partially offset by an increase in ceded premiums earned which reflected the effect of higher ceded premiums written during the preceding twelve months primarily due to a revision in our reinsurance agreements at the beginning of 2017 and, to a lesser extent, the effect of reinstatement premiums earned, net of reinsurance reinstatement premiums recognized, in 2018 as compared to 2017 in connection with the natural catastrophe-related losses, as previously discussed. Net premiums earned for the years ended December 31, 2018 and 2017 included premium assumed from our Specialty P&C segment of approximately \$5.0 million and \$11.8 million, respectively.

Net Losses and Loss Adjustment Expenses

Losses for the year were primarily recorded using the loss assumptions by risk category incorporated into the business plan submitted to Lloyd's for Syndicate 1729 with consideration given to loss experience incurred to date. The assumptions used in the business plan were consistent with loss results reflected in Lloyd's historical data for similar risks. Syndicate 6131, which began writing business effective January 1, 2018, follows a process similar to Syndicate 1729 for the establishment of initial reserves. We expect loss ratios to fluctuate from quarter to quarter as Syndicate 1729 writes more business and the book begins to mature. We also expect loss ratios of Syndicate 6131 to fluctuate from quarter to quarter as Syndicate 6131 assumes more business from Syndicate 1729. The loss ratios will also fluctuate due to the timing of earned premium adjustments (see discussion in this section under the heading "Net Premiums Earned"). Premium and exposure for some of Syndicate 1729's insurance policies and reinsurance contracts are initially estimated and subsequently adjusted over an extended period of time as underlying premium reports are received from cedants and insureds. When reports are received, the premium, exposure and corresponding loss estimates are revised accordingly. Changes in loss estimates due to premium or exposure fluctuations are incurred in the accident year in which the premium is earned.

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The following table summarizes calendar year net loss ratios by separating losses between the current accident year and all prior accident years. Net loss ratios for the period were as follows:

	Year Ended December 31		
	2018	2017	Change
Calendar year net loss ratio	76.9 %	77.3 %	(0.4) pts
Less impact of prior accident years on the net loss ratio	2.9 %	(1.4 %)	4.3 pts
Current accident year net loss ratio	74.0 %	78.7 %	(4.7) pts

The decrease in the current accident year net loss ratio was driven by the effect of higher net premiums earned, excluding reinstatement premiums recognized, and, to a lesser extent, lower non-catastrophe related current accident year losses. Partially offsetting this decrease was the net effect of natural catastrophes in 2018 as compared to 2017. While gross losses incurred related to natural catastrophes was lower in 2018, a larger portion of natural catastrophe-related losses in 2017 exceeded the reinsurance retention limits whereas Syndicate 1729 retained more of these losses in 2018 due to certain excess of loss reinsurance agreement terms; this impact on the current accident year net loss ratio was partially offset by the change in reinstatement premiums recognized in connection with these losses in 2018 as compared to 2017.

We recognized $2.0 million of unfavorable prior year development for the year ended December 31, 2018 as compared to $0.8 million of favorable prior year development for the year ended December 31, 2017. The unfavorable prior year development for the year ended December 31, 2018 was driven by higher than expected losses and development on certain large claims which resulted in unfavorable development with respect to a previous year of account.

Underwriting, Policy Acquisition and Operating Expenses

Underwriting, policy acquisition and operating expenses increased by $4.7 million for the year ended December 31, 2018 as compared to 2017 primarily due to the anticipated growth in Syndicate 1729 operations, an increase in various operational expenses associated with establishing Syndicate 6131 and, to a lesser extent, an increase in DPAC amortization primarily due to an increase in broker commissions.

The slight increase in the underwriting expense ratio for the year ended December 31, 2018 was primarily due to the previously mentioned increase in operating expenses and broker commissions, partially offset by an increase in net premiums earned, as previously discussed.

Investments

Net investment income for the years ended December 31, 2018 and 2017 was primarily attributable to interest earned on our FAL investments, which primarily includes investment-grade corporate debt securities. In the fourth quarter of 2017, Syndicate 1729 expanded its fixed maturities portfolio to include certain debt securities classified as trading securities. Investment results associated with these fixed maturity trading securities are reported on the same quarter delay.

Taxes

Operating results of this segment are subject to U.K. income tax law.

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Segment Operating Results - Corporate

As previously discussed under the heading "ProAssurance Overview," we reorganized our segment reporting in the third quarter of 2018 which resulted in the creation of a new segment: Segregated Portfolio Cell Reinsurance. The Segregated Portfolio Cell Reinsurance segment includes the results of investment assets solely allocated to SPC operations at our Cayman Islands reinsurance subsidiaries, Eastern Re and Inova Re, which were previously reported in our Corporate segment. All prior period segment information has been recast to conform to the current period presentation. See further information regarding our segments in Note 16 of the Notes to Consolidated Financial Statements.

Our Corporate segment includes our investment operations, other than those reported in our Segregated Portfolio Cell Reinsurance and Lloyd's Syndicates segments, interest expense and U.S. income taxes. Our Corporate segment also includes non-premium revenues generated outside of our insurance entities and corporate expenses. Segment operating results for our Corporate segment were net earnings of $42.3 million and $48.1 million for the years ended December 31, 2018 and 2017, respectively, and included the following:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Net investment income	$86,960	$92,867	$(5,907)	(6.4 %)
Equity in earnings (loss) of unconsolidated subsidiaries	$8,948	$8,033	$915	11.4 %
Net realized gains (losses)	$(39,879)	$12,388	$(52,267)	(421.9%)
Operating expense	$18,767	$29,275	$(10,508)	(35.9 %)
Interest expense	$16,163	$16,844	$(681)	(4.0 %)
Income tax expense (benefit)	$(17,715)	$21,927	$(39,642)	(180.8%)

Net Investment Income, Equity in Earnings (Loss) of Unconsolidated Subsidiaries, Net Realized Investment Gains (Losses)

Net Investment Income

Net investment income is primarily derived from the income earned by our fixed maturity securities and also includes dividend income from equity securities, income from our short-term and cash equivalent investments, earnings from other investments and increases in the cash surrender value of BOLI contracts. Investment fees and expenses are deducted from investment income.

Net investment income by investment category was as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Fixed maturities	$64,523	$72,665	$(8,142)	(11.2%)
Equities	21,418	17,198	4,220	24.5 %
Short-term investments, including Other	5,351	7,643	(2,292)	(30.0%)
BOLI	1,983	1,979	4	0.2 %
Investment fees and expenses	(6,315)	(6,618)	303	(4.6 %)
Net investment income	$86,960	$92,867	$(5,907)	(6.4 %)

Fixed Maturities

The decrease in our investment income from fixed maturity securities during 2018 was due to lower average fixed maturity investment balances. We reduced the size of our fixed portfolio over the last year in order to pay dividends and invest in other asset classes. On an overall basis, our average investment in fixed maturity securities was approximately 16.0% lower in 2018 as compared to 2017.

Average yields for our fixed maturity portfolio were as follows:

	Year Ended December 31	
	2018	2017
Average income yield	3.3%	3.1%

Average tax equivalent income yield	3.4%	3.5%

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Equities

Income from our equity portfolio increased during 2018 as compared to 2017 which reflected an increase in our allocation to this asset category as well as a different mix of equities owned.

Other Investments and Short-term Investments

Short-term investments, which have a maturity at purchase of one year or less are carried at fair value, which approximates their cost basis, and are primarily composed of investments in U.S. treasury obligations, commercial paper and money market funds. Income from our short-term and other investments decreased for the year ended December 31, 2018 as compared to 2017 primarily due to certain other investments which were affected by the adoption of an accounting standard during the first quarter of 2018 around the recognition and measurement of financial assets and financial liabilities (see further discussion in the Equity in Earnings (Loss) of Unconsolidated Subsidiaries section that follows).

Equity in Earnings (Loss) of Unconsolidated Subsidiaries

Equity in earnings (loss) of unconsolidated subsidiaries was as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
All other investments, primarily investment fund LPs/LLCs	$33,270	$28,685	$4,585	16.0%
Tax credit partnerships	(24,322)	(20,652)	(3,670)	17.8%
Equity in earnings (loss) of unconsolidated subsidiaries	$8,948	$8,033	$915	11.4%

We hold interests in certain LPs/LLCs that generate earnings from trading portfolios, secured debt, debt securities, multi-strategy funds and private equity investments. The performance of the LPs/LLCs is affected by the volatility of equity and credit markets. For our investments in LPs/LLCs, we record our allocable portion of the partnership operating income or loss as
the results of the LPs/LLCs become available. Our investment results from our portfolio of investments in LPs/LLCs decreased for the year ended December 31, 2018 primarily due to lower reported earnings from a few LP investments. In addition, our portfolio of investments in LPs/LLCs in 2018 were affected by the adoption of an accounting standard during the first quarter of 2018 around the recognition and measurement of financial assets and financial liabilities (see Note 1 of the Notes to Consolidated Financial Statements for additional detail regarding accounting changes adopted during the period). Under the new accounting standard, LPs/LLCs previously reported using the cost method are now reported at fair value with changes in fair value recognized in equity in earnings (loss) of unconsolidated subsidiaries.

Our tax credit partnership investments are designed to generate returns in the form of tax credits and tax-deductible project operating losses and are comprised of qualified affordable housing project tax credit partnerships and historic tax credit partnerships. We account for our tax credit partnership investments under the equity method and record our allocable portion of the operating losses of the underlying properties based on estimates provided by the partnerships. For our qualified affordable housing project tax credit partnerships, we adjust our estimates of our allocable portion of operating losses periodically as actual operating results of the underlying properties become available. Our historic tax credit partnerships are short-term in nature and remaining operating losses are expected to be recognized primarily in 2018. Based on operating results received, we increased our estimate of partnership operating losses by $3.0 million for the year ended December 31, 2018, as compared to $2.3 million for the same respective period in 2017. The results from our tax credit partnership investments for the year ended December 31, 2018 reflected an increase in partnership operating losses as compared to the same respective period of 2017.

The tax benefits received from our tax credit partnerships, which are not reflected in our investment results above, reduced our tax expenses in 2018 and 2017 as follows:

	Year Ended December 31	
(In millions)	2018	2017
Tax credits recognized during the period	$21.0	$23.1
Tax benefit of tax credit partnership operating losses	$5.1	$7.2

Tax credits provided by the underlying projects of the historic tax credit partnerships are typically available in the tax year in which the project is put into active service, whereas the tax credits provided by qualified affordable housing project tax credit partnerships are provided over approximately a ten year period. The decrease in tax credits recognized in 2018 was primarily attributable to our qualified affordable housing project tax credit partnerships.

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Non-GAAP Financial Measure – Tax Equivalent Investment Result

We believe that to fully understand our investment returns it is important to consider the current tax benefits associated with certain investments as the tax benefit received represents a portion of the return provided by our tax-exempt bonds, BOLI, common and preferred stocks, and tax credit partnership investments (collectively, our tax-preferred investments). We impute a pro forma tax-equivalent result by estimating the amount of fully-taxable income needed to achieve the same after-tax result as is currently provided by our tax-preferred investments. We believe this better reflects the economics behind our decision to invest in certain asset classes that are either taxed at lower rates and/or result in reductions to our current federal income tax expense. Our pro forma tax-equivalent investment result is shown in the table that follows as well as a reconciliation of our GAAP net investment result to our tax equivalent result.

	Year Ended December 31	
(In thousands)	2018	2017
GAAP net investment result:		
Net investment income	$86,960	$92,867
Equity in earnings (loss) of unconsolidated subsidiaries	8,948	8,033
GAAP net investment result	$95,908	$100,900
Pro forma tax-equivalent investment result	$125,533	$148,553
Reconciliation of pro forma and GAAP tax-equivalent investment result:		
GAAP net investment result	$95,908	$100,900
Taxable equivalent adjustments, calculated using the 21% and 35% federal statutory tax rate for 2018 and 2017, respectively:		
State and municipal bonds	1,693	9,103
BOLI	527	1,065
Dividends received	772	1,930
Tax credit partnerships	26,633	35,555
Pro forma tax-equivalent investment result	$125,533	$148,553

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Net Realized Investment Gains (Losses)

The following table provides detailed information regarding our net realized investment gains (losses).

	Year Ended December 31	
(In thousands)	2018	2017
OTTI losses, total:		
State and municipal bonds	$—	$(850)
Corporate debt	(490)	(419)
Investment in unconsolidated subsidiaries	—	(11,931)
Portion of OTTI losses recognized in other comprehensive income before taxes:		
Corporate debt	—	248
Net impairment losses recognized in earnings	(490)	(12,952)
Gross realized gains, available-for-sale fixed maturities	5,940	6,622
Gross realized (losses), available-for-sale fixed maturities	(5,715)	(3,092)
Net realized gains (losses), equity investments	12,030	10,109
Net realized gains (losses), other investments	1,340	2,963
Change in unrealized holding gains (losses), equity investments	(49,398)	7,837
Change in unrealized holding gains (losses), convertible securities, carried at fair value as a part of other investments	(3,849)	896
Other	263	5
Net realized investment gains (losses)	$(39,879)	$12,388

During 2018, we recognized OTTI in earnings of $0.5 million related to debt instruments from two issuers in the energy sector. We recognized $39.9 million of net realized investment losses during 2018, primarily driven by unrealized holding losses on our equity trading portfolio of $49.4 million and, to a lesser extent, $3.8 million of unrealized holding losses on convertible securities. The primary driver of these unrealized holding losses was market volatility throughout 2018, which caused our equity securities to decline in value. The most significant sectors impacted were the financial and energy sectors, although all sectors were impacted. The net realized investment losses recognized in 2018 were partially offset by realized gains of $12.0 million on the sale of certain equity securities, primarily in the industrial sector.

During 2017, we recognized OTTI in earnings of $13.0 million, including an $8.5 million impairment related to an early stage business investment accounted for under the equity method. This impairment charge represented the difference between the investment's carrying value and fair value, which was measured as our ownership percentage in the projected earnings expected to be generated by the investment. In addition, we recognized OTTI in earnings of $3.4 million in 2017 related to our qualified affordable housing project tax credit investments. The current estimated tax benefits expected to be received from our allocable portion of the operating losses of the underlying properties have declined, due to the newly enacted corporate tax rate of 21%, as compared to those at the time the investments were acquired. During 2017, we also recognized credit-related OTTI in earnings of $0.2 million and non-credit OTTI of $0.2 million in OCI, both of which related to corporate bonds.

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Operating Expenses

Corporate segment operating expenses were comprised as follows:

	Year Ended December 31		
($ in thousands)	2018	2017	Change	
Operating expenses	$34,437	$44,034	$(9,597)	(21.8%)
Management fee offset	(15,670)	(14,759)	(911)	6.2 %
Segment Total	$18,767	$29,275	$(10,508)	(35.9%)

The decrease in operating expenses during 2018 was primarily driven by a decrease in share-based compensation expenses and other compensation related costs and, to a lesser extent, a decrease in professional fees. The decrease in share-based compensation expense in 2018 was attributable to fewer awards outstanding and an adjustment of the projected award value based upon the decline of one of the performance metrics associated with a particular year's award.

Operating subsidiaries within our Specialty P&C and Workers' Compensation Insurance segments are charged a management fee by the Corporate segment for services provided to these subsidiaries. The management fee is based on the extent to which services are provided to the subsidiary and the amount of gross premium written by the subsidiary. Under the arrangement, the expenses associated with such services are reported as expenses of the Corporate segment, and the management fees charged are reported as an offset to Corporate operating expenses. While the terms of the arrangement were consistent between 2017 and 2018, fluctuations in the amount of gross premium written by each subsidiary can result in corresponding variations in the management fee charged to each subsidiary during a particular period. The management fees charged during 2018 primarily reflected the increase in gross premiums written in our Specialty P&C segment due to a loss portfolio transfer entered into during 2018 (see further discussion in our Segment Operating Results - Specialty Property & Casualty section).

Interest Expense

Consolidated interest expense for the years ended December 31, 2018 and 2017 was comprised as follows:

	Year Ended December 31			
($ in thousands)	2018	2017	Change	
Senior Notes due 2023	$13,429	$13,429	$—	— %
Revolving Credit Agreement (including fees and amortization)	1,388	2,974	(1,586)	(53.3 %)
Mortgage Loans (including amortization)	1,425	65	1,360	2,092.3%
(Gain)/loss on interest rate cap	(153)	339	(492)	(145.1 %)
Other	28	37	(9)	(24.3 %)
Interest expense	$16,117	$16,844	$(727)	(4.3 %)

Consolidated interest expense decreased during 2018 as compared to 2017 driven primarily by a decrease in the weighted average outstanding borrowings on our Revolving Credit Agreement and, to a lesser extent, the change in the fair value of our interest rate cap, partially offset by interest expense incurred on our Mortgage Loans. The weighted average outstanding borrowings on our Revolving Credit Agreement were $41 million for the year ended December 31, 2018 as compared to $169 million for the year ended December 31, 2017. The interest rate cap was entered into during the fourth quarter of 2017 and is designated as an economic hedge of interest rate risk associated with our variable rate Mortgage Loans. See further discussion of our outstanding debt in Note 10 and further discussion of our interest rate cap agreement in Note 11 of the Notes to Consolidated Financial Statements.

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Taxes

Tax expense allocated to our Corporate segment includes U.S. tax only, which would include U.S. tax expense incurred from our corporate membership in Lloyd's of London and tax expense incurred from SPCs at Inova Re, one of our Cayman Islands reinsurance subsidiaries, which intend to elect to be taxed as U.S. taxpayers. The U.K. tax expense incurred by the U.K. based subsidiaries of our Lloyd's Syndicates segment is allocated to that segment. Consolidated tax expense reflects tax expense of both segments, as shown in the table below:

	Year Ended December 31	
(In thousands)	2018	2017
Corporate segment income tax expense (benefit)	$(17,715)	$21,927
Lloyd's Syndicates segment income tax expense (benefit)	(317)	(568)
Consolidated income tax expense (benefit)	$(18,032)	$21,359

Factors affecting our consolidated effective tax rate include the following:

	Year Ended December 31	
	2018	2017
Statutory rate [1]	21.0 %	35.0 %
Tax-exempt income [2]	(8.6 %)	(6.5 %)
Tax credits	(72.6%)	(18.0%)
Non-U.S. operating results	7.8 %	0.7 %
Excess tax benefit on share-based compensation	(0.9 %)	(2.1 %)
Change in federal corporate tax rate	— %	5.1 %
Change in limitation of future deductibility of certain executive compensation	— %	2.7 %
Provision-to-return differences	(8.0 %)	(1.5 %)
Other	(0.8 %)	1.2 %
Effective tax rate	(62.1%)	16.6 %

[1] Effective January 1, 2018, the corporate statutory tax rate changed from 35% to 21% as a result of tax reform enacted by the TCJA.

[2] Includes tax-exempt interest, dividends received deduction and change in cash surrender value of BOLI.

Our effective tax rate for 2018 and 2017 was a benefit of 62.1% and an expense of 16.6%, respectively, and differs from the statutory federal income tax rate primarily due to the utilization of tax credits transferred to us from our tax credit partnership investments and a portion of our investment income being tax-exempt. Tax credits utilized were $21.0 million for 2018 as compared to $23.1 million for 2017 while tax-exempt income was $2.5 million and $8.4 million in the same respective years. The impact of tax credits and tax-exempt income on our effective tax rate was greater in 2018 due to lower pre-tax income in 2018 as compared to 2017. While the enactment of the TCJA will not impact the amount of the tax credits we will receive, we expect the future utilization of our tax credits to take longer than in previous years due to the lower corporate tax rate. Additionally, our effective tax rate in 2018 was impacted by a tax benefit of 8.0% related to provision-to-return differences. These differences primarily reflected the impact of the change in the federal corporate tax rate on our temporary provision-to-return differences as well as higher tax credits received for the 2017 tax year than the previously estimated tax benefit.

For 2017, the most significant item that decreased our effective tax rate, other than the previously mentioned tax credits and tax-exempt investment income, was the excess tax benefit on share-based compensation that resulted from the application of revised accounting guidance, which was effective January 1, 2017, and lowered the effective tax rate by 2.1%. Under the revised guidance, the difference between the deduction for tax purposes, which is based upon the fair market value of share-based awards and the time of vesting, and the compensation cost recognized for financial reporting purposes, which is based upon the fair market value of the share-based awards on the date of grant, is to be recognized as income tax expense (benefit) in the current period rather than an adjustment to OCI as was required under prior guidance.

The effective tax rate for 2017 also reflects the impact of the remeasurement of our deferred tax assets and liabilities at December 31, 2017 and the impact of a change in the limitation of future deductibility of certain executive compensation as a result of the enactment of the TCJA. As previously discussed, the TCJA was signed into law on December 22, 2017. Under

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current accounting guidance, the effects of changes in tax rates and laws are recognized in the period in which the new legislation is enacted. Due to the enactment of the TCJA in 2017, we remeasured our deferred tax assets and liabilities based on the new corporate tax rate and recognized a charge of $6.5 million to income tax expense for the year ended December 31, 2017, which resulted in a 5.1% increase to our effective tax rate in 2017. Additionally, we made a reasonable estimate of the effects on our existing deferred tax asset balances at December 31, 2017 as it relates to the limitation on the future deductibility of certain executive compensation and recorded a provisional charge to income tax expense of $3.5 million, which resulted in a 2.7% increase to our effective tax rate in 2017. During 2018, we were able to complete our accounting for the impact of the TCJA on our December 31, 2017 deferred tax asset balances related to executive compensation; no measurement-period adjustment was recorded in 2018 as a result (see further discussion in Note 6 of the Notes to Consolidated Financial Statements). These one-time charges to income tax expense in 2017 as a result of the enactment of the TCJA did not reoccur in 2018.

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Results of Operations - Year Ended December 31, 2017 Compared to Year Ended December 31, 2016

Selected consolidated financial data for each period is summarized in the table below.

	Year Ended December 31		
($ in thousands, except per share data)	2017	2016	Change
Revenues:			
Net premiums written	$764,018	$738,533	$25,485
Net premiums earned	$738,531	$733,281	$5,250
Net investment result	103,695	94,250	9,445
Net realized investment gains (losses)	16,409	34,875	(18,466)
Other income	7,514	7,808	(294)
Total revenues	866,149	870,214	(4,065)
Expenses:			
Net losses and loss adjustment expenses	469,158	443,229	25,929
Underwriting, policy acquisition and operating expenses	235,753	227,610	8,143
Segregated portfolio cells dividend expense (income)	15,771	8,142	7,629
Interest expense	16,844	15,032	1,812
Total expenses	737,526	694,013	43,513
Income before income taxes	128,623	176,201	(47,578)
Income tax expense (benefit)	21,359	25,120	(3,761)
Net income	$107,264	$151,081	$(43,817)
Non-GAAP operating income	$108,538	$129,844	$(21,306)
Earnings per share:			
Basic	$2.01	$2.84	$(0.83)
Diluted	$2.00	$2.83	$(0.83)
Non-GAAP operating earnings per share:			
Basic	$2.03	$2.44	$(0.41)
Diluted	$2.02	$2.43	$(0.41)
Net loss ratio	63.5 %	60.4 %	3.1 pts
Underwriting expense ratio	31.9 %	31.0 %	0.9 pts
Combined ratio	95.4 %	91.4 %	4.0 pts
Operating ratio	82.4 %	77.8 %	4.6 pts
Effective tax rate	16.6 %	14.3 %	2.3 pts
Return on equity	6.3 %	8.0 %	(1.7) pts

In all tables that follow, that abbreviation "nm" indicates that the information or the percentage change is not meaningful.

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Executive Summary of Operations

As previously discussed under the heading "ProAssurance Overview," we reorganized our segment reporting in the third quarter of 2018 to include a new segment: Segregated Portfolio Cell Reinsurance. All prior period segment information has been recast to conform to the current period presentation and the segment reorganization had no impact on previously reported consolidated financial results. See further information regarding the segment reorganization in Note 16 of the Notes to Consolidated Financial Statements.

The following sections provide an overview of our consolidated and segment results of operations for the year ended December 31, 2017 as compared to 2016. See the Segment Operating Results sections that follow for additional information regarding each segment's operating results.

Revenues

Our consolidated and segment net premiums earned were as follows:

	Year Ended December 31			
($ in thousands)	2017	2016	Change	
Net Premiums Earned				
Specialty P&C	$449,823	$454,506	$(4,683)	(1.0%)
Workers' Compensation Insurance	163,309	161,988	1,321	0.8 %
Segregated Portfolio Cell Reinsurance	68,197	62,137	6,060	9.8 %
Lloyd's Syndicate	57,202	54,650	2,552	4.7 %
Consolidated total	$738,531	$733,281	$5,250	0.7 %

Consolidated net premiums earned increased in 2017 as compared to 2016. The decrease in net premiums earned in our Specialty P&C segment was due to the effect of a prior year novation which resulted in $11.8 million in premium earned in 2016 (see further discussion in our Segment Operating Results - Specialty Property & Casualty section that follows). After removing the impact of the prior year novation in the Specialty P&C segment, net premiums earned increased in all our operating segments in 2017 as compared to 2016.

The following table shows our consolidated net investment result:

	Year Ended December 31			
($ in thousands)	2017	2016	Change	
Net investment income	$95,662	$100,012	$(4,350)	(4.3 %)
Equity in earnings (loss) of unconsolidated subsidiaries	8,033	(5,762)	13,795	239.4%
Net investment result	$103,695	$94,250	$9,445	10.0 %

The increase in our consolidated net investment result in 2017 was primarily attributable to an increase in earnings from our unconsolidated subsidiaries of $13.8 million due to higher reported earnings from our investments in LP/LLCs and the effect of a smaller increase in the estimate of partnership operating losses related to our tax credit partnerships in 2017 as compared to 2016. The increase was partially offset by a decrease in net investment income primarily attributable to reduced earnings from our fixed income portfolio, which reflected both lower yields and lower average investment income balances.

The following table shows our total consolidated net realized investment gains (losses):

	Year Ended December 31			
($ in thousands)	2017	2016	Change	
Net impairment losses recognized in earnings	$(12,952)	$(9,766)	$(3,186)	32.6 %
Other net realized investment gains (losses)	29,361	44,641	(15,280)	(34.2%)
Net realized investment gains (losses)	$16,409	$34,875	$(18,466)	(52.9%)

During 2017, we recognized OTTI in earnings of $13.0 million, including an $8.5 million impairment related to an early stage business investment. See further discussion in our Segment Operating Results - Corporate section that follows. Other net realized investment gains during 2017 was primarily composed of changes in unrealized holding gains and net realized investment gains related to our trading portfolio.

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Expenses

The following table shows our consolidated and segment net loss ratios:

	Year Ended December 31		
($ in millions)	2017	2016	Change
Current accident year net loss ratio			
Consolidated ratio	81.7 %	80.1 %	1.6 pts
Specialty P&C	89.9 %	88.7 %	1.2 pts
Workers' Compensation Insurance	66.1 %	67.5 %	(1.4)pts
Segregated Portfolio Cell Reinsurance	67.4 %	64.1 %	3.3 pts
Lloyd's Syndicate	78.7 %	63.3 %	15.4 pts
Calendar year net loss ratio			
Consolidated ratio	63.5 %	60.4 %	3.1 pts
Specialty P&C	63.4 %	58.5 %	4.9 pts
Workers' Compensation Insurance	62.6 %	66.5 %	(3.9)pts
Segregated Portfolio Cell Reinsurance	54.9 %	56.7 %	(1.8)pts
Lloyd's Syndicate	77.3 %	62.4 %	14.9 pts
Favorable (unfavorable) net loss development, prior accident years			
Consolidated	$134.4	$143.8	$(9.4)
Specialty P&C	$119.4	$137.2	$(17.8)
Workers' Compensation Insurance	$5.7	$1.6	$4.1
Segregated Portfolio Cell Reinsurance	$8.5	$4.6	$3.9
Lloyd's Syndicate	$0.8	$0.5	$0.3

Our consolidated current accident year net loss ratio increased 1.6 percentage points for the year ended December 31, 2017 as compared to 2016 primarily driven by higher current accident year net loss ratios in our Lloyd's Syndicate and Specialty P&C segments. The higher current accident year net loss ratio in our Lloyd's Syndicate segment was primarily due to losses related to Hurricanes Harvey, Irma and Maria during 2017 which resulted in a 0.9 percentage point increase in our consolidated current accident year net loss ratio (see further discussion in the Segment Operating Results - Lloyd's Syndicate section that follows).

In both 2017 and 2016, our consolidated calendar year net loss ratio was lower than our consolidated current accident year net loss ratio due to the recognition of favorable net loss development for prior accident years, as shown in the previous table.

Our consolidated and segment underwriting expense ratios were as follows:

	Year Ended December 31		
	2017	2016	Change
Underwriting Expense Ratio			
Consolidated	31.9%	31.0%	0.9 pts
Specialty P&C	24.0%	22.8%	1.2 pts
Workers' Compensation Insurance	32.2%	33.1%	(0.9)pts
Segregated Portfolio Cell Reinsurance	30.4%	30.5%	(0.1)pts
Lloyd's Syndicate	47.1%	41.8%	5.3 pts
Corporate*	4.0 %	4.2 %	(0.2)pts

*There are no net premiums earned associated with the Corporate segment. Ratios shown are the contribution of the Corporate segment to the consolidated ratio (Corporate operating expenses divided by consolidated net premium earned).

Our consolidated underwriting expense ratio increased 0.9 percentage points for the year ended December 31, 2017 as compared to 2016 primarily due to the increase in DPAC amortization relative to consolidated net premiums earned.

Although consolidated net premiums earned increased in 2017, the increase was largely reduced by the effect of a prior year novation in

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our Specialty P&C segment, as previously discussed, which resulted in a 0.5 percentage point increase in the consolidated underwriting expense ratio. After removing the impact of the prior year novation, the remaining increase in the consolidated underwriting expense ratio was driven by an increase in DPAC amortization, particularly in our Specialty P&C segment, as a result of an increase in commission expense and a decrease in ceding commission income, which is an offset to expense.

Taxes

Our effective tax rate was 16.6% for the year ended December 31, 2017, as compared to our 2016 effective tax rate of 14.3%. The increase in the effective tax rate in 2017 was primarily due to the impact to our deferred tax balances at December 31, 2017 as a result of the enactment of the TCJA, which increased the rate by 7.8%, somewhat offset by the application of new guidance adopted in the first quarter of 2017 related to the improvement in accounting for share-based payments, which reduced the rate by 2.1%. Excluding those impacts, our effective tax rate would have been 10.9% for 2017 (see further discussion under the heading "Taxes" within our Segment Operating Results - Corporate section that follows).

Operating Ratio and Return on Equity

Our operating ratio (calculated as our combined ratio, less our investment income ratio) increased by 4.6 percentage points in the year ended December 31, 2017 as compared to 2016. The increase reflected a higher consolidated net loss ratio driven by a lower amount of prior year favorable development in our Specialty P&C segment and estimated losses recognized during 2017 related to Hurricanes Harvey, Irma and Maria in our Lloyd's Syndicate segment (see further discussion in the Segment Operating Results - Lloyd's Syndicate section that follows).

ROE was 6.3% for the year ended December 31, 2017 as compared to 8.0% for the same respective period of 2016. The decrease in 2017 was primarily due to a decrease in net income, partially offset by a lower average equity base (the denominator of the ROE ratio) as compared to 2016. The lower average equity base in 2017 as compared to 2016 was primarily due to dividends declared during the year ended December 31, 2017.

Book Value per Share

Our book value per share at December 31, 2017 as compared to December 31, 2016 is shown in the following table.

	Book Value Per Share
Book Value Per Share at December 31, 2016	$33.78
Increase (decrease) to book value per share during the year ended December 31, 2017 attributable to:	
Dividends declared	(5.93)
Net income	2.01
Decrease in AOCI	(0.05)
Other	0.02
Book Value Per Share at December 31, 2017	$29.83

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Non-GAAP Financial Measures

Non-GAAP operating income is a financial measure that is widely used to evaluate performance within the insurance sector. In calculating Non-GAAP operating income, we have excluded the after-tax effects of the items listed in the following table that do not reflect normal operating results. We believe Non-GAAP operating income presents a useful view of the performance of our insurance operations, however it should be considered in conjunction with net income computed in accordance with GAAP.

The following table is a reconciliation of net income to Non-GAAP operating income:

	Year Ended December 31	
(In thousands, except per share data)	2017	2016
Net income	$107,264	$151,081
Items excluded in the calculation of Non-GAAP operating income:		
Net realized investment (gains) losses	(16,409)	(34,875)
Net realized gains (losses) attributable to SPCs which no profit/loss is retained [1]	3,083	2,049
Guaranty fund assessments (recoupments)	(157)	153
Pre-tax effect of exclusions	(13,483)	(32,673)
Tax effect, at 35% [2]	4,719	11,436
After-tax effect of exclusions	(8,764)	(21,237)
Non-GAAP operating income, before tax reform adjustments	98,500	129,844
Tax reform adjustments on our deferred tax balances excluded in the calculation of Non-GAAP operating income:		
Adjustment of deferred taxes upon the change in corporate tax rate [3]	6,541	—
Adjustment of deferred taxes upon the change in limitation of future deductibility of certain executive compensation [3]	3,497	—
Non-GAAP operating income	$108,538	$129,844
Per diluted common share:		
Net income	$2.00	$2.83
Effect of exclusions	0.02	(0.40)
Non-GAAP operating income per diluted common share	$2.02	$2.43

[1] Net realized investment gains (losses) on investments related to SPCs are recognized in our Segregated Portfolio Cell Reinsurance segment and the portion of operating earnings, including the gain or loss, net of our participation, is due to the external cell participants through the SPC dividend expense (income). To be consistent with our exclusion of net realized investment gains (losses) recognized in earnings, we are excluding the portion of net realized investment gains (losses) that is included in the SPC dividend expense (income) which is due to the external cell participants.

[2] The 35% rate above is the annual expected incremental tax rate associated with the taxable or tax deductible items listed. The effective tax rate for the respective years was applied to these items in calculating net income. See previous discussion in this section under the heading "Taxes."

[3] Due to tax reform enacted by the TCJA, we remeasured our deferred tax assets and liabilities based on the newly enacted tax rate of 21% and recognized a charge of $6.5 million, which is included as a component of income tax expense from continuing operations for the year ended December 31, 2017. In addition, we have made a reasonable estimate of the effects on our deferred tax asset balances at December 31, 2017 as it relates to the limitation on the future deductibility on certain executive compensation and recorded a provisional charge to income tax expense of $3.5 million for the year ended December 31, 2017. Any future guidance from the IRS addressing the effects of the TCJA on executive compensation could result in a change to this provisional amount. See further discussion under the heading "Deferred Taxes" in the Critical Accounting Estimates section.

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Segment Operating Results - Specialty Property & Casualty

As previously discussed, we reorganized our segment reporting in the third quarter of 2018 which resulted in the creation of a new segment: Segregated Portfolio Cell Reinsurance. The underwriting results of the SPCs that assume healthcare professional liability business were previously reported in our Specialty P&C segment and are now reported in our Segregated Portfolio Cell Reinsurance segment. All prior period segment information has been recast to conform to the current period presentation. See further information regarding our segments in Note 16 of the Notes to Consolidated Financial Statements.

Our Specialty P&C segment focuses on professional liability insurance and medical technology liability insurance. Specialty P&C segment operating results reflect pre-tax underwriting profit or loss from these insurance lines, exclusive of investment results, which are included in our Corporate segment. Segment operating results included the following:

	Year Ended December 31			
($ in thousands)	2017	2016	Change	
Net premiums written	$466,621	$454,718	$11,903	2.6 %
Net premiums earned	$449,823	$454,506	$(4,683)	(1.0 %)
Other income	5,688	5,306	382	7.2 %
Net losses and loss adjustment expenses	(285,250)	(266,090)	(19,160)	7.2 %
Underwriting, policy acquisition and operating expenses	(107,972)	(103,656)	(4,316)	4.2 %
Segregated portfolio cells dividend (expense) income	(5,181)	—	(5,181)	nm
Segment operating results	$57,108	$90,066	$(32,958)	(36.6%)
Net loss ratio	63.4%	58.5%	4.9	pts
Underwriting expense ratio	24.0%	22.8%	1.2	pts

Premiums Written

Changes in our premium volume within our Specialty P&C segment are driven by four primary factors: (1) the amount of new business, (2) our retention of existing business, (3) the premium charged for business that is renewed, which is affected by rates charged and by the amount and type of coverage an insured chooses to purchase and (4) the timing of premium written through multi-period policies. In addition, premium volume may periodically be affected by shifts in the timing of renewals between periods. The healthcare professional liability market, which accounts for a majority of the revenues in this segment, remains challenging as physicians continue joining hospitals or larger group practices and are thus no longer purchasing individual or group policies in the standard market. In addition, some competitors have chosen to compete primarily on price; both factors impact our ability to write new business and retain existing business.

Gross, ceded and net premiums written were as follows:

	Year Ended December 31			
($ in thousands)	2017	2016	Change	
Gross premiums written	$549,323	$535,725	$13,598	2.5%
Less: Ceded premiums written	82,702	81,007	1,695	2.1%
Net premiums written	$466,621	$454,718	$11,903	2.6%

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Gross Premiums Written

Gross premiums written by component were as follows:

($ in thousands)	Year Ended December 31 2017	2016	Change	
Professional liability				
Physicians (1)(7)				
Twelve month term	$360,232	$344,150	$16,082	4.7 %
Twenty-four month term	27,370	21,869	5,501	25.2 %
Total Physicians	387,602	366,019	21,583	5.9 %
Healthcare facilities (2)(7)	47,697	59,361	(11,664)	(19.6%)
Other healthcare providers (3)	32,599	33,353	(754)	(2.3 %)
Legal professionals (4)	25,628	25,351	277	1.1 %
Tail coverages (5)	21,206	18,092	3,114	17.2 %
Total professional liability	514,732	502,176	12,556	2.5 %
Medical technology liability (6)	34,164	33,067	1,097	3.3 %
Other	427	482	(55)	(11.4%)
Total	$549,323	$535,725	$13,598	2.5 %

(1) Physician policies were our greatest source of premium revenues in both 2017 and 2016. The increase in twelve month term policies in 2017 was primarily driven by new business written, including the addition of several large policies, and timing differences related to the renewal of certain policies, largely offset by retention losses. In addition, written premium reflected an increase in renewal pricing, driven by an increase in exposures for a few large policies. We offer twenty-four month term policies to our physician insureds in one selected jurisdiction. The increase in twenty-four month premium, as compared to 2016, primarily reflected the normal cycle of renewals (policies subject to renewal in 2017 were previously written in 2015 rather than in 2016).

(2) Our healthcare facilities premium (which includes hospitals, surgery centers and other facilities) declined in 2017 as compared to 2016 driven by the effect of a novation agreement entered into during the fourth quarter of 2016. A novation represents a legal replacement of one insurer by another extinguishing the ceding entity's liability to the policyholder. The novation resulted in approximately $11.8 million of one-time gross premiums written and earned during the fourth quarter of 2016 as all the underlying loss events covered by the policy occurred in the past. After removing the impact of the novation, our healthcare facilities premium was relatively flat compared to 2016 due to several offsetting factors. While an increase in renewal pricing and new business written, including one large policy, increased written premium in 2017, the impact was offset by a timing difference related to the renewal of one large policy and retention losses during the period. Renewal pricing increased during 2017 due to changes in loss experience related to a few large policies.

(3) Our other healthcare providers are primarily dentists, chiropractors and allied health professionals.

(4) Our legal professionals policies are primarily individual and small group policies in select areas of practice. The increase in 2017 as compared to 2016 was primarily due to new business written and, to a lesser extent, an increase in the rate charged for certain renewed policies, largely offset by retention losses. Retention losses were primarily driven by competitive market conditions.

(5) We offer extended reporting endorsement or "tail" coverage to insureds who discontinue their claims-made coverage with us, and we also periodically offer tail coverage through custom policies. The amount of tail coverage premium written can vary widely from period to period. The increase in 2017 as compared to 2016 was driven by the purchase of tail coverage for a few large claims-made policies in one jurisdiction that were rewritten to occurrence coverage in 2017. These policies are part of one of our shared risk arrangements and therefore, a large portion of the premium written was ceded during the current period (see further discussion in the Ceded Premiums Written section that follows).

(6) Our medical technology liability business is marketed throughout the U.S.; coverage is offered on a primary basis, within specified limits, to manufacturers and distributors of medical technology and life sciences products including entities conducting human clinical trials. In addition to the previously listed factors that affect our

premium volume, our medical technology liability premium volume is impacted by the sales volume of insureds. The increase in 2017 primarily reflected new business written, including two large policies during the fourth quarter of 2017, partially offset

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by retention losses, including the loss of one large policy in the first quarter of 2017. Retention losses in 2017 are largely attributable to price competition and merger activity within the industry.

(7) Certain components of our gross premiums written include alternative market premiums. We cede either all or a portion of the alternative market premium, net of reinsurance, to certain SPCs of our wholly owned Cayman Islands reinsurance subsidiary, Eastern Re, which are reported in our Segregated Portfolio Cell Reinsurance segment (see further discussion in the Ceded Premiums Written section that follows). The portion not ceded to the SPCs is retained within our Specialty P&C segment. Alternative market gross premiums written by component were as follows:

	Year Ended December 31			
($ in millions)	2017	2016	Change	
Physicians	$1.2	$1.2	$—	— %
Healthcare facilities	3.1	2.9	0.2	6.9%
Total	$4.3	$4.1	$0.2	4.9%

The slight increase in our alternative market healthcare facilities premium during 2017 was primarily due to new business written and, to a lesser extent, an increase in renewal pricing primarily due to increases in exposure related to a few policies, partially offset by retention losses.

New business written by component on a direct basis was as follows:

	Year Ended December 31	
(In millions)	2017	2016
Physicians	$31.6	$32.8
Healthcare facilities	5.8	17.4
Other healthcare providers	2.1	3.4
Legal professionals	3.6	3.8
Medical technology liability	5.4	5.1
Total	$48.5	$62.5

For our Specialty P&C segment, we calculate our retention rate as annualized renewed premium divided by all annualized premium subject to renewal. Retention rates are affected by a number of factors. We may lose insureds to competitors or to alternative insurance mechanisms such as risk retention groups or self-insurance entities (often when physicians join hospitals or large group practices) or due to pricing or other issues. We may choose not to renew an insured as a result of our underwriting evaluation. Insureds may also terminate coverage because they have left the practice of medicine for various reasons, principally for retirement, death or disability, but also for personal reasons.

Retention by component was as follows:

	Year Ended December 31	
	2017	2016
Physicians*	90%	88%
Healthcare facilities*	86%	79%
Other healthcare providers*	85%	85%
Legal professionals	84%	78%
Medical technology liability	87%	85%

* Excludes certain policies written on an excess and surplus lines basis.

The pricing of our business includes the effects of filed rates, surcharges and discounts. Renewal pricing also reflects changes in our exposure base, deductibles, self-insurance retention limits and other policy items. We continue to base our pricing on expected losses, as indicated by our historical loss data and available industry loss data. We are committed to a rate structure that will allow us to fulfill our obligations to our insureds, while generating competitive returns for our shareholders.

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Changes in renewal pricing by component was as follows:

	Year Ended December 31 2017
Physicians [1][2]	1 %
Healthcare facilities [1][2]	8 %
Other healthcare providers [1]	2 %
Legal professionals [2]	3 %
Medical technology liability	1 %

[1] Excludes certain policies written on an excess and surplus lines basis.
[2] See Gross Premiums Written section for further explanation of renewal pricing increase.

Ceded Premiums Written

Ceded premiums represent the amounts owed to our reinsurers for their assumption of a portion of our losses. Through our current excess of loss reinsurance arrangements we generally retain the first $1 million in risk insured by us and cede coverages in excess of this amount. For our healthcare professional liability coverages, we also retain from 5% - 12.5% of the next $25 million of risk for coverages in excess of $1 million. For our medical technology liability coverages, we also retain 10% of the next $9 million of risk for coverages in excess of $1 million. We pay our reinsurers a ceding premium in exchange for their accepting the risk, the ultimate amount of which is determined by the loss experience of the business ceded, subject to certain minimum and maximum amounts.

Ceded premiums written for the years ended December 31, 2017 and 2016 were as follows:

	Year Ended December 31			
($ in thousands)	2017	2016	Change	
Excess of loss reinsurance arrangements [1]	$31,853	$30,037	$1,816	6.0 %
Premium ceded to Syndicate 1729 [2]	13,983	23,832	(9,849)	(41.3%)
Other shared risk arrangements [3]	30,780	26,737	4,043	15.1 %
Premiums ceded to SPCs [4]	3,914	3,963	(49)	(1.2 %)
Other ceded premiums written	3,361	3,521	(160)	(4.5 %)
Reduction in premiums owed under reinsurance agreements, prior accident years, net [5]	(1,189)	(7,083)	5,894	(83.2%)
Total ceded premiums written	$82,702	$81,007	$1,695	2.1 %

(1) We generally reinsure risks under our excess of loss reinsurance arrangements pursuant to which the reinsurers agree to assume all or a portion of all risks that we insure above our individual risk retention levels, up to the maximum individual limits offered. In the majority of our excess of loss reinsurance arrangements, the premium due to the reinsurer is determined by the loss experience of that business reinsured, subject to certain minimum and maximum amounts. The increase in ceded premiums written under our excess of loss reinsurance arrangements for 2017 was primarily due to revised contract terms on our medical technology liability reinsurance arrangement effective January 1, 2017, which reduced the amount of excess premium we retain from 20% to 10%.

(2) As previously discussed, we are the majority participant in Syndicate 1729 and normally record our pro rata share of its operating results in our Lloyd's Syndicate segment on a quarter delay, except when information is available that is material to the current period. We also record the cession to the Lloyd's Syndicate segment from our Specialty P&C segment on a quarter delay as the amounts are not material and this permits the cession to be reported by both the Lloyd's Syndicate segment and the Specialty P&C segment in the same reporting period. The decrease in ceded premiums to Syndicate 1729 for the year ended December 31, 2017 reflected the revised contract terms effective January 1, 2017 which reduced the premiums ceded by essentially half. We did not renew our quota

share agreement with Syndicate 1729 on January 1, 2018, however the impact will not be reflected in ceded premiums until the second quarter of 2018 due to the previously mentioned quarter delay. See Lloyd's Syndicate segment results for further discussion on the quota share agreement. As our premiums are earned, we recognize the related ceding commission income which reduces underwriting expense by offsetting

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DPAC amortization. For the years ended December 31, 2017 and 2016, the related ceding commission income was approximately 27% of ceded premiums written. For our consolidated results, eliminations of the inter-segment portion (58% of the Specialty P&C cession) of the transactions are also recorded on a quarter delay.

(3) We have entered into various shared risk arrangements, including quota share, fronting, and captive arrangements, with certain large healthcare systems and other insurance entities. These arrangements include our Ascension Health and CAPAssurance programs. While we cede a large portion of the premium written under these arrangements, they provide us an opportunity to grow net premium through strategic partnerships. The increase in 2017 was primarily driven by a few large tail endorsements that were written, and substantially ceded, related to one of these shared risk arrangements, as previously discussed. The remaining increase was due to growth in our Ascension Health and CAPAssurance programs.

(4) As previously discussed, as a part of our alternative market solutions, all or a portion of certain healthcare premium written is ceded to the SPCs in our Segregated Portfolio Cell Reinsurance segment under either excess of loss or quota share reinsurance agreements, depending on the structure of the individual program. See the Segment Operating Results - Segregated Portfolio Cell Reinsurance section for further discussion on the cession to the SPCs from our Specialty P&C segment. The slight decrease in premiums ceded to the SPCs during 2017 was primarily driven by retention losses (see discussion in footnote 7 under the heading "Gross Premiums Written").

(5) Given the length of time that it takes to resolve our claims, many years may elapse before all losses recoverable under a reinsurance arrangement are known. As a part of the process of estimating our loss reserve we also make estimates regarding the amounts recoverable under our reinsurance arrangements. As previously discussed, the premiums ultimately ceded under certain of our excess of loss reinsurance arrangements are subject to the losses ceded under the arrangements. Based upon adjustments in 2017 and 2016 to our estimate of expected losses and associated recoveries for prior year ceded losses, we reduced our estimate of ceded premiums owed to reinsurers. However, prior accident year ceded premium reductions were lower in 2017 as compared to 2016. In addition, the lower prior accident year ceded premium reduction in 2017 reflected an overall change in expected loss recoveries attributable to one large claim during the second quarter of 2017. We do not believe this isolated claim indicates a change in overall loss trends for us or the industry. Changes to estimates of premiums ceded related to prior accident years are fully earned in the period the changes in estimates occur.

Ceded Premiums Ratio

As shown in the table below, our ceded premiums ratio was affected in both 2017 and 2016 by revisions to our estimate of premiums owed to reinsurers related to coverages provided in prior accident years.

	Year Ended December 31			
	2017	2016	Change	
Ceded premiums ratio, as reported	15.1%	15.1%	—	pts
Less the effect of reduction in premiums owed under reinsurance agreements, prior accident years (as previously discussed)	(0.2 %)	(1.3 %)	1.1	pts
Ratio, current accident year	15.3%	16.4%	(1.1)	pts

The decline in the current accident year ceded premiums ratio for the year ended December 31, 2017 was primarily attributable to a decrease in premium ceded to Syndicate 1729, partially offset by an increase in premium ceded under our other shared risk and excess of loss reinsurance arrangements (see discussion under the heading "Ceded Premiums Written").

Net Premiums Earned

Net premiums earned were as follows:

	Year Ended December 31			
($ in thousands)	2017	2016	Change	
Gross premiums earned	$537,583	$535,931	$1,652	0.3 %
Less: Ceded premiums earned	87,760	81,425	6,335	7.8 %
Net premiums earned	$449,823	$454,506	$(4,683)	(1.0%)

Net premiums earned consist of gross premiums earned less the portion of earned premiums that we cede to our reinsurers for their assumption of a portion of our losses. Because premiums are generally earned pro rata over the entire policy

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period, fluctuations in premiums earned tend to lag those of premiums written. Generally, our policies carry a term of one year, however, as discussed above, we write certain policies with a twenty-four month term, and a few of our medical technology liability policies have a multi-year term. Tail coverage premiums are generally 100% earned in the period written because the policies insure only incidents that occurred in prior periods and are not cancellable. Additionally, ceded premium changes due to changes to estimates of premiums owed under reinsurance agreements for prior accident years are fully earned in the period of change.

The increase in gross premiums earned in 2017 primarily reflected the pro rata effect of the higher premiums written during the preceding twelve months, primarily in our healthcare facilities line of business, and a few large tail policies written and earned during 2017. This increase was largely offset by the effect of a large novation written and earned during the fourth quarter of 2016, as discussed above under the heading "Gross Premiums Written." In addition, prior accident year ceded premiums reductions were $5.9 million lower in 2017 than in 2016 (see discussion under the heading "Ceded Premiums Written").

Losses and Loss Adjustment Expenses

The determination of calendar year losses involves the actuarial evaluation of incurred losses for the current accident year and the actuarial re-evaluation of incurred losses for prior accident years, including an evaluation of the reserve amounts required for losses in excess of policy limits.

Accident year refers to the accounting period in which the insured event becomes a liability of the insurer. For claims-made policies, which represent the majority of the premiums written in our Specialty P&C segment, the insured event generally becomes a liability when the event is first reported to us. For occurrence policies the insured event becomes a liability when the event takes place. We believe that measuring losses on an accident year basis is the best measure of the underlying profitability of the premiums earned in that period, since it associates policy premiums earned with the estimate of the losses incurred related to those policy premiums.

The following table summarizes calendar year net loss ratios by separating losses between the current accident year and all prior accident years. Additionally, the table shows our current accident year net loss ratio was affected by revisions to our estimate of premiums owed to reinsurers related to coverages provided in prior accident years. Net loss ratios for 2017 and 2016 compare as follows:

	Net Loss Ratios [1]		
	Year Ended December 31		
	2017	2016	Change
Calendar year net loss ratio	63.4 %	58.5 %	4.9 pts
Less impact of prior accident years on the net loss ratio	(26.5%)	(30.2%)	3.7 pts
Current accident year net loss ratio	89.9 %	88.7 %	1.2 pts
Less estimated ratio increase (decrease) attributable to:			
Ceded premium reductions, prior accident years [2]	(0.2 %)	(1.4 %)	1.2 pts
Current accident year net loss ratio, excluding the effect of prior year ceded premium [3]	90.1 %	90.1 %	— pts

(1) Net losses, as specified, divided by net premiums earned.

(2) Reductions to premiums owed under reinsurance agreements for prior accident years increased net premiums earned (the denominator of the current accident year ratio) in both 2017 and 2016, however, the reduction was substantially less in 2017 than in 2016. See the discussion in the Premiums section for our Specialty P&C segment under the heading "Ceded Premiums Written" for additional information.

(3) The current accident year net loss ratio was unchanged as compared to 2016 primarily due to offsetting factors. Changes in the mix of business resulted in an 1.2 percentage point increase in the current accident year net loss ratio in 2017 as compared to 2016. However, the effect of a DDR reinsurance commutation during the fourth quarter of 2017 (reduction in current year net losses) partially offset the increase by 0.5 percentage points and the effect of a prior year novation (net premiums earned at a high loss ratio) partially offset the increase by 0.4 percentage points. Additional information regarding the prior year novation is included in the Premiums section for our Specialty P&C segment under the heading "Gross Premiums Written."

We recognized net favorable loss development related to our previously established reserve of $119.4 million and $137.2 million for the years ended December 31, 2017 and 2016, respectively. The net favorable loss development in

2017 and 2016 included $10.1 million and $12.0 million, respectively, attributable to our medical technology liability line of business and $5.2

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million and $9.4 million, respectively, attributable to our legal professionals liability line of business. We re-evaluate our previously established reserve each quarter based on our most recently available claims data and currently available industry trend information. Development recognized during 2017 principally related to accident years 2010 through 2014. Development recognized during 2016 principally related to accident years 2009 through 2013.

A detailed discussion of factors influencing our recognition of loss development is included in our Critical Accounting Estimates section under the heading "Reserve for Losses and Loss Adjustment Expenses." Assumptions used in establishing our reserve are regularly reviewed and updated by management as new data becomes available. Any adjustments necessary are reflected in the then current operations. Due to the size of our reserve, even a small percentage adjustment to the assumptions can have a material effect on our results of operations for the period in which the change is made, as was the case in both 2017 and 2016.

Underwriting, Policy Acquisition and Operating Expenses

Our Specialty P&C segment underwriting, policy acquisition and operating expenses for the years ended December 31, 2017 and 2016 were comprised as follows:

	Year Ended December 31			
($ in thousands)	2017	2016	Change	
Specialty P&C segment:				
DPAC amortization	$47,611	$44,342	$3,269	7.4%
Management fees	6,620	6,447	173	2.7%
Other underwriting and operating expenses	53,741	52,867	874	1.7%
Total	$107,972	$103,656	$4,316	4.2%

DPAC amortization increased during the year ended December 31, 2017 as compared to 2016 primarily driven by an increase in commission expense in 2017 and a decrease in ceding commission income, which is an offset to expense, primarily due to a reduction in premiums ceded to Syndicate 1729. In addition, the increase in DPAC amortization reflected the effect of higher gross premiums earned in 2017 as compared to 2016.

Management fees are charged pursuant to a management agreement by the Corporate segment to the operating subsidiaries within our Specialty P&C segment for services provided, based on the extent to which services are provided to the subsidiary and the amount of gross premium written by the subsidiary. While the terms of the management agreement were consistent between 2017 and 2016, fluctuations in the amount of gross premium written by each subsidiary can result in corresponding variations in the management fee charged to each subsidiary during a particular period.

Other underwriting and operating expenses increased during the year ended December 31, 2017 as compared to 2016 primarily driven by an increase in compensation related expenses and costs associated with the amortization of new software placed into service during the first quarter of 2017. The increase was partially offset by the effect of non-recurring costs in 2016, including state assessments and a donation to a scholarship fund for which we received a wholly offsetting tax credit during 2016.

Underwriting Expense Ratio (the Expense Ratio)

Our expense ratio for the Specialty P&C segment for the year ended December 31, 2017 as compared to 2016, was as follows:

	Year Ended December 31		
	2017	2016	Change
Underwriting expense ratio	24.0%	22.8%	1.2 pts

The increase in the underwriting expense ratio for 2017 was primarily due to the effect of a reduction in net premiums earned as compared to 2016, primarily attributable to a prior year novation (see further discussion under the heading "Gross Premiums Written") and, to a lesser extent, the effect of an increase in DPAC amortization and software amortization in 2017, as previously discussed.

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Segregated Portfolio Cell Dividend Expense (Income)

In the third quarter of 2018, we reorganized our segment reporting which resulted in the creation of a new segment: Segregated Portfolio Cell Reinsurance. The Segregated Portfolio Cell Reinsurance segment provides the results of SPCs at our Eastern Re and Inova Re subsidiaries, including SPCs that assume healthcare professional liability business which were previously reported within our Specialty P&C segment. As such, there is no longer an SPC dividend expense reported in the Specialty P&C segment associated with these SPCs and prior period information has been recast to conform to the current period presentation. See more information on our Cayman Islands SPC operations in the Segment Operating Results - Segregated Portfolio Cell Reinsurance section that follows.

The SPC dividend expense for the year ended December 31, 2017 represented a one-time $5.2 million pre-tax expense related to previously unrecognized SPC dividend expense for the cumulative earnings of unrelated parties that have owned SPCs at various times since 2003 within a Bermuda captive insurance operation. Historically, within our HCPL business, we have written a limited number of segregated cell captive programs through this Bermuda captive arrangement and the use of this facility has declined as the HCPL insurance market has softened. The SPC dividend expense attributable to those cells was unrelated to the captive operations of our Eastern Re subsidiary.

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Segment Operating Results - Workers' Compensation Insurance

As previously discussed, we reorganized our segment reporting in the third quarter of 2018 which resulted in the creation of a new segment: Segregated Portfolio Cell Reinsurance. The underwriting results of the SPCs that assume workers' compensation business were previously reported in our Workers' Compensation segment and are now reported in our Segregated Portfolio Cell Reinsurance segment. The traditional workers' compensation business remains in the Workers' Compensation segment which has been renamed to "Workers' Compensation Insurance." All prior period segment information has been recast to conform to the current period presentation. See further information regarding our segments in Note 16 of the Notes to Consolidated Financial Statements.

Our Workers' Compensation Insurance segment provides workers' compensation products to employers generally with 1,000 or fewer employees. Workers' compensation products offered include guaranteed cost policies, policyholder dividend policies, retrospectively-rated policies, deductible policies and alternative market solutions. Alternative market products include program design, fronting, claims administration, risk management, SPC rental, asset management and SPC management services. Alternative market premiums are 100% ceded to either the SPCs within our Segregated Portfolio Cell Reinsurance segment or, to a limited extent, unaffiliated captive insurers. Our Workers' Compensation Insurance segment operating results reflected pre-tax underwriting profit or loss from these workers' compensation products, exclusive of investment results, which are included in our Corporate segment. See further information regarding our segments in Note 16 of the Notes to Consolidated Financial Statements. Segment operating results included the following:

	Year Ended December 31			
($ in thousands)	2017	2016	Change	
Net premiums written	$173,566	$163,513	$10,053	6.1 %
Net premiums earned	$163,309	$161,988	$1,321	0.8 %
Other income	2,096	2,218	(122)	(5.5 %)
Net losses and loss adjustment expenses	(102,233)	(107,791)	5,558	(5.2 %)
Underwriting, policy acquisition and operating expenses	(52,576)	(53,597)	1,021	(1.9 %)
Segment operating results	$10,596	$2,818	$7,778	276.0%
Net loss ratio	62.6%	66.5%	(3.9)pts	
Underwriting expense ratio	32.2%	33.1%	(0.9)pts	

Premiums Written

Our workers' compensation premium volume is driven by five primary factors: (1) the amount of new business written, (2) audit premium, (3) retention of our existing book of business, (4) premium rates charged on our renewal book of business and (5) changes in payroll exposure.

Gross, ceded and net premiums written were as follows:

	Year Ended December 31			
($ in thousands)	2017	2016	Change	
Gross premiums written	$264,048	$248,875	$15,173	6.1 %
Less: Ceded premiums written	90,482	85,362	5,120	6.0 %
Net premiums written	$173,566	$163,513	$10,053	6.1 %

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Gross Premiums Written

Gross premiums written by product were as follows:

	Year Ended December 31			
($ in thousands)	2017	2016	Change	
Traditional business:				
Guaranteed cost	$143,141	$128,304	$14,837	11.6 %
Policyholder dividend	20,388	21,547	(1,159)	(5.4 %)
Deductible	8,362	9,006	(644)	(7.2 %)
Retrospective	3,428	5,337	(1,909)	(35.8%)
Other	8,185	8,766	(581)	(6.6 %)
Alternative market business	80,544	75,915	4,629	6.1 %
Total	$264,048	$248,875	$15,173	6.1 %

Gross premiums written in our traditional business business increased during the year ended December 31, 2017 as compared to 2016, which reflected new business written, partially offset by a decrease in renewal pricing and a decrease in audit premium. New business written included $4.6 million of premium related to our Eastern Specialty Risk unit and $3.4 million of premium related to the acquisition of Great Falls' book of business. The growth in our alternative market business was driven by new business written, partially offset by a decrease in renewal pricing. We retained the 23 alternative market programs up for renewal for the year ended December 31, 2017. During 2017, we added one new alternative market program at Eastern Re that was a designed consolidation of two unaffiliated captive programs.

New business, audit premium, retention and renewal price changes for both the traditional business and the alternative market business are shown in the table below:

	Year Ended December 31					
	2017			2016		
($ in millions)	Traditional Business	Alternative Market Business	Segment Results	Traditional Business	Alternative Market Business	Segment Results
New business	$37.8	$ 9.9	$47.7	$22.8	$ 10.2	$33.0
Audit premium (including EBUB)	$2.7	$ 1.4	$4.1	$5.2	$ 1.1	$6.3
Retention rate [(1)]	85 %	92 %	87 %	84 %	88 %	85 %
Change in renewal pricing [(2)]	(3 %)	(4 %)	(3 %)	(1 %)	(1 %)	(1 %)

[(1)] We calculate our workers' compensation retention rate as annualized expiring renewed premium divided by all annualized expiring premium subject to renewal. Our retention rate can be impacted by various factors, including price or other competitive issues, insureds being acquired, or a decision not to renew based on our underwriting evaluation.

[(2)] The pricing of our business includes an assessment of the underlying policy exposure and the effects of current market conditions. We continue to base our pricing on expected losses, as indicated by our historical loss data.

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Ceded Premiums Written

Ceded premiums written were as follows:

($ in thousands)	Year Ended December 31 2017	2016	Change	
Premiums ceded to SPCs	$73,761	$68,258	$5,503	8.1 %
Premiums ceded to external reinsurers	9,823	10,255	(432)	(4.2 %)
Premiums ceded to unaffiliated captive insurers	6,784	7,658	(874)	(11.4 %)
Change in return premium estimate under external reinsurance	114	(809)	923	(114.1 %)
Total ceded premiums written	$90,482	$85,362	$5,120	6.0 %

Our Workers' Compensation Insurance segment cedes alternative market business under a 100% quota share reinsurance agreement, net of a ceding commission, to SPCs in our Segregated Portfolio Cell Reinsurance segment. The ceding commission consists of an amount for fronting fees, cell rental fees, commissions, premium taxes, claims administration fees and risk management fees. The fronting fees, commissions, premium taxes and risk management fees are recorded as an offset to underwriting, policy acquisition and operating expenses (see discussion that follows under the heading "Underwriting, Policy Acquisition and Operating Expenses"). Cell rental fees are recorded as a component of other income and claims administration fees are recorded as ceded ULAE. The increase in premiums ceded to SPCs primarily reflected growth in our alternative market business, as previously discussed.

Under our external reinsurance agreement, we retain the first $0.5 million in risk insured by us and cede losses in excess of this amount on each loss occurrence under our primary external reinsurance contract. Per our reinsurance agreements, we cede premiums related to our traditional business on an earned premium basis. The decrease in premiums ceded to external reinsurers during the year ended December 31, 2017 as compared to 2016 primarily reflected an increase in revenue sharing with our reinsurance broker, partially offset by an increase in premiums earned and reinsurance rates.

The decrease in premiums ceded to unaffiliated captive insurers reflected the consolidation of the two programs into the new alternative market program at Eastern Re, as discussed above under the heading "Gross Premiums Written."

Changes in the return premium estimate reflected the loss experience under the reinsurance contract for the years ended December 31, 2017 and 2016. The decrease in the return premium estimate for the year ended December 31, 2017 primarily reflected severity-related claims activity during 2017.

Ceded Premiums Ratio

Ceded premiums ratio was as follows:

	Year Ended December 31 2017	2016	Change
Ceded premiums ratio, as reported	35.7 %	34.4 %	1.3 pts
Less the effect of:			
Premiums ceded to SPCs (100%)	25.9 %	24.3 %	1.6 pts
Premiums ceded to unaffiliated captive insurer (100%)	4.1 %	4.6 %	(0.5) pts
Return premium estimated under external reinsurance	(0.1 %)	0.5 %	(0.6) pts
Assumed premiums earned	(0.3 %)	(0.3 %)	— pts
Ceded premiums ratio, less the effects of above	6.1 %	5.3 %	0.8 pts

The above table reflects ceded premiums earned as a percent of gross premiums earned. As discussed above, we cede premiums related to our traditional business to external reinsurers on an earned premium basis. The increase in the ceded premiums ratio for the year ended December 31, 2017 as compared to 2016 primarily reflected the increase in reinsurance rates.

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Net Premiums Earned

Net premiums earned were as follows:

	Year Ended December 31			
($ in thousands)	2017	2016	Change	
Gross premiums earned	$253,944	$247,092	$6,852	2.8%
Less: Ceded premiums earned	90,635	85,104	5,531	6.5%
Net premiums earned	$163,309	$161,988	$1,321	0.8%

Net premiums earned consist of gross premiums earned less the portion of earned premiums that we cede to SPCs in our Segregated Portfolio Cell Reinsurance segment, external reinsurers or unaffiliated captive insurers. Because premiums are generally earned pro rata over the entire policy period, fluctuations in premiums earned tend to lag those of premiums written. Our workers’ compensation policies are twelve-month policies and premiums are earned on a pro rata basis over the policy period. Net premiums earned also include premium adjustments related to the audit of our insureds' payrolls. Payroll audits are conducted subsequent to the end of the policy period and any related adjustments are recorded as fully earned in the current period. In addition, we record an estimate for EBUB and evaluate the estimate on a quarterly basis. We did not adjust the EBUB estimate for the year ended December 31, 2017. We increased the EBUB estimate by $0.4 million for the year ended December 31, 2016. The increase in net premiums earned primarily reflected the pro rata effect of higher net premiums written during the preceding twelve months.

Losses and Loss Adjustment Expenses

The following table summarizes calendar year net loss ratios by separating losses between the current accident year and all prior accident years. Calendar year and current accident year net loss ratios by component were as follows:

	Year Ended December 31		
	2017	2016	Change
Calendar year net loss ratio	62.6%	66.5%	(3.9)pts
Less impact of prior accident years on the net loss ratio	(3.5 %)	(1.0 %)	(2.5)pts
Current accident year net loss ratio	66.1%	67.5%	(1.4)pts

The current accident year net loss ratio for the year ended December 31, 2017 was 66.1% as compared to 67.5% for 2016. The improvement in the current accident year net loss ratio primarily reflected more favorable trends in claims closing results in 2017 as compared to 2016, which reduced loss indications for the 2017 accident year.

Current accident year incurred losses (excluding IBNR) ceded to our external reinsurers totaled $9.8 million for the year ended December 31, 2017 as compared to ceded incurred losses of $6.9 million for 2016. The increase in ceded incurred losses in 2017 primarily reflected the aforementioned increase in severity-related claim activity.

We recognized net favorable prior year development related to our previously established reserve of $5.7 million for the year ended December 31, 2017 as compared to $1.6 million for 2016. The net favorable prior year development in 2017 reflected overall favorable trends in claim closing patterns, primarily in the 2015 and 2016 accident years. For each of the years ended December 31, 2017 and 2016, the net favorable prior year development included $1.6 million related to amortization of the purchase accounting fair value adjustment.

We estimate our current accident year loss and loss adjustment expenses based on an expected loss ratio. Incurred losses and loss adjustment expenses are determined by applying the expected loss ratio to net premiums earned, which includes audit premium, for the respective period.

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Underwriting, Policy Acquisition and Operating Expenses

Underwriting, policy acquisition and operating expenses includes the amortization of commissions, premium taxes and underwriting salaries, which are capitalized and deferred over the related workers' compensation policy period, net of ceding commissions earned. The capitalization of underwriting salaries can vary as they are subject to the success rate of our contract acquisition efforts. These expenses also include a management fee charged by our Corporate segment, which represents intercompany charges pursuant to a management agreement, and the amortization of intangible assets, primarily related to the acquisition of Eastern by ProAssurance. The management fee is based on the extent to which services are provided to the subsidiary and the amount of gross premium written by the subsidiary.

Our Workers' Compensation Insurance segment underwriting, policy acquisition and operating expenses were comprised as follows:

	Year Ended December 31			
($ in thousands)	2017	2016	Change	
DPAC amortization	$31,433	$29,325	$2,108	7.2 %
Management fees	1,975	1,857	118	6.4 %
Other underwriting and operating expenses	36,791	39,159	(2,368)	(6.0%)