VALIDUS HOLDINGS LTD
Form 10-K
February 23, 2017

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K
ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF
THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2016
Commission file number 001-33606
VALIDUS HOLDINGS, LTD.
(Exact name of registrant as specified in its charter)

BERMUDA	98-0501001
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

29 Richmond Road, Pembroke, Bermuda HM 08
(Address of principal executive offices and zip code)
(441) 278-9000
(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 Shares, $0.175 par value per share	New York Stock Exchange
5.875% Preferred Shares, Series A, $0.175 par value 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 o
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 o 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 o
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 during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ý No o
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. o
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes o No ý

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant as of June 30, 2016 was $3,285.5 million computed upon the basis of the closing sales price of the Common Shares on June 30, 2016. For the purposes of this computation, shares held by directors and officers of the registrant have been excluded. Such exclusion is not intended, nor shall it be deemed, to be an admission that such persons are affiliates of the registrant.

As of February 22, 2017, there were 79,132,252 outstanding Common Shares, $0.175 par value per share, of the registrant.

DOCUMENTS INCORPORATED BY REFERENCE

Part III incorporates information from certain portions of the registrant's definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after the fiscal year ended December 31, 2016.

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This Annual Report on Form 10-K contains "Forward-Looking Statements" as defined in the Private Securities Litigation Reform Act of 1995 ("PSLRA"). A non-exclusive list of the important factors that could cause actual results to differ materially from those in such Forward-Looking Statements is set forth under the caption "Management's Discussion and Analysis of Financial Condition and Results of Operations -- Cautionary Note Regarding Forward-Looking Statements."

PART I

Item 1. Business

Overview

Validus Holdings, Ltd. was incorporated under the laws of Bermuda on October 19, 2005. Hereinafter, the "Company", "us" or "we" are used to describe any or all of Validus Holdings, Ltd. and its subsidiary companies. The Company conducts its operations worldwide through four operating segments which have been determined under accounting principles generally accepted in the United States of America ("U.S. GAAP") segment reporting: Validus Re, Talbot, Western World, and AlphaCat. Validus Re is a global reinsurance segment focused primarily on treaty reinsurance. Talbot is a specialty insurance segment, primarily operating within the Lloyd's insurance market through Syndicate 1183. Western World is a U.S. based specialty excess and surplus lines insurance segment operating within the U.S. commercial market. AlphaCat is a Bermuda based investment adviser, managing capital for third parties and the Company in insurance linked securities ("ILS") and other property catastrophe and specialty reinsurance investments.

We seek to establish ourselves as a leader in the global insurance and reinsurance markets. Our principal operating objective is to use our capital efficiently by underwriting primarily short-tail insurance and reinsurance contracts with superior risk and return characteristics. Our primary underwriting objective is to construct a portfolio of short-tail insurance and reinsurance contracts that maximizes our return on equity subject to prudent risk constraints on the amount of capital we expose to any single event. We manage our risks through a variety of means, including contract terms, portfolio selection, diversification, including geographic diversification, and proprietary and commercially available third-party vendor catastrophe models.

Since our formation in 2005, we have been able to achieve substantial success in the development of our business. Selected examples of our accomplishments are as follows:

- Raising approximately $1.0 billion of initial equity capital in December 2005 and underwriting $217.4 million in gross premiums written for the January 2006 renewal season;
- Building a risk analytics staff comprised of over 50 experts, many of whom have PhDs and Masters degrees in related fields;
- Developing Validus Capital Allocation and Pricing System ("VCAPS"), a proprietary computer-based system for modeling, pricing, allocating capital and analyzing catastrophe-exposed risks;
- Acquiring all of the outstanding shares of Talbot Holdings Ltd. ("Talbot") on July 2, 2007;
- Completing an initial public offering ("IPO") on July 30, 2007;
- Acquiring all of the outstanding shares of IPC Holdings Ltd. ("IPC") on September 4, 2009;
- Acquiring all of the outstanding shares of Flagstone Reinsurance Holdings, S.A. ("Flagstone") on November 30, 2012;
- Acquiring all of the outstanding shares of Western World Insurance Group, Inc. ("Western World") on October 2, 2014;
- Successfully launching a series of AlphaCat sidecars and ILS funds beginning on May 25, 2011 and managing third party capital of $2.5 billion as at January 1, 2017;
- Delivering an 11.6% compounded annual growth in book value per diluted common share plus accumulated dividends from formation to December 31, 2016;
- Repurchasing approximately 80.5 million common shares for an aggregate purchase price of approximately $2,704.4 million and paying an aggregate amount of $1,175.5 million in common share dividends from formation to February 22, 2017.
- Raising $150.0 million of additional equity capital through the issuance of preferred shares in June 2016 and paying an aggregate amount of $4.5 million in preferred dividends to February 22, 2017.

Operating Segments

Validus Re

The Validus Re segment operates as a global provider of reinsurance products. The segment operates primarily through two reinsurance companies; Validus Reinsurance, Ltd. and Validus Reinsurance (Switzerland) Ltd. ("Validus Re Swiss"). Validus Reinsurance, Ltd. was registered as a Class 4 insurer under The Insurance Act 1978 of Bermuda, amendments thereto and related regulations (the "Insurance Act") in November 2005. It commenced operations with approximately $1.0 billion of equity capital and a balance sheet unencumbered by any historical losses relating to the 2005 hurricane season, the events of September 11, 2001, asbestos or other legacy exposures affecting our industry. Validus Re Swiss is based in Zurich, Switzerland. Validus Re Swiss is licensed by the Swiss Financial Market Supervisory Authority, or FINMA, in Switzerland. Validus Re Swiss is also licensed as a permit company in Bermuda under the Companies Act and is registered in Bermuda as a Class 4 insurer under the Insurance Act, operating through its Bermuda branch, which complements our Swiss-based underwriters with a separate Bermuda underwriting platform.

Validus Re concentrates on first-party property and other reinsurance risks commonly referred to as short-tail in nature due to the relatively brief period between the occurrence and payment of a claim. During 2006, Validus Re entered the global reinsurance market during a period of imbalance between the supply of underwriting capacity available for reinsurance on catastrophe-exposed property, marine and energy risks and demand for such reinsurance coverage.

The following are the primary lines in which Validus Re conducts its business. Details of gross premiums written by line of business, are provided below:

	Years Ended December 31,					
	2016		2015		2014	
(Dollars in thousands)	Gross Premiums Written	% of Total	Gross Premiums Written	% of Total	Gross Premiums Written	% of Total
Property	$472,965	42.6 %	$547,409	48.6 %	$616,554	55.1 %
Marine	105,698	9.5 %	152,670	13.5 %	190,959	17.1 %
Specialty	532,391	47.9 %	426,680	37.9 %	311,019	27.8 %
Total	$1,111,054	100.0%	$1,126,759	100.0%	$1,118,532	100.0%

Property: Validus Re underwrites property catastrophe reinsurance, property per risk reinsurance and property pro rata reinsurance.

Property catastrophe: Property catastrophe reinsurance provides reinsurance for insurance companies' exposures to an accumulation of property and related losses from separate policies, typically relating to natural disasters or other catastrophic events. Property catastrophe reinsurance is generally written on an excess of loss basis, which provides coverage to insurance companies when aggregate claims and claim expenses from a single occurrence for a covered peril exceed a certain amount specified in a particular contract. Under these contracts, the Company provides protection to an insurer for a portion of the total losses in excess of a specified loss amount, normally up to a maximum amount per loss and/or an aggregate amount across multiple losses, as specified in the contract. In the event of a loss, most contracts provide for coverage of a second occurrence following the payment of a premium to reinstate the coverage under the contract, which is referred to as a reinstatement premium. The coverage provided under excess of loss reinsurance contracts may be on a worldwide basis or limited in scope to specific regions or geographical areas. Coverage can also vary from "all property" perils, which is the most expansive form of coverage, to more limited coverage of specified perils such as windstorm-only coverage. Property catastrophe reinsurance contracts are typically "all risk" in nature, providing protection against losses from earthquakes and hurricanes, as well as other natural and man-made catastrophes such as floods, tornadoes, fires and storms. The predominant exposures covered are losses stemming from property damage and business interruption coverage resulting from a covered peril. Certain risks, such as war or nuclear contamination may be excluded, partially or wholly, from certain contracts. Gross premiums written on property catastrophe business during the year ended December 31, 2016 were $345.5 million.

Property per risk: Property per risk reinsurance provides reinsurance for insurance companies' excess retention on individual property and related risks, such as highly-valued buildings. Per risk reinsurance protects insurance companies on their primary insurance risks on a "single risk" basis. A "risk" in this context might mean the insurance coverage on one building or a group of buildings or the insurance coverage under a single policy which the reinsured treats as a single risk. Coverage is usually triggered by a large loss sustained by an individual risk rather than by smaller losses which fall below the specified retention of the reinsurance contract. Such property per risk coverages are generally written on an excess of loss basis, which provides the reinsured with protection beyond a specified amount up to the limit set within the reinsurance contract. Gross premiums written on property per risk business during the year ended December 31, 2016 were $26.8 million.

Property pro rata: Property pro rata contracts require that the reinsurer share the premiums as well as the losses and loss expenses in an agreed proportion with the reinsured. Gross premiums written on property pro rata business during the year ended December 31, 2016 were $100.6 million.

Marine: Validus Re underwrites reinsurance on marine risks covering damage to or losses of marine vessels and cargo, third-party liability for marine accidents and physical loss and liability from principally offshore energy properties. Validus Re underwrites marine risks on an excess of loss basis and on a pro rata basis. Gross premiums written on marine business during the year ended December 31, 2016 were $105.7 million.

Specialty: Validus Re underwrites other lines of business depending on an evaluation of pricing and market conditions, which include aerospace and aviation, accident and health, agriculture, casualty, composite, contingency, crisis management, financial, life, technical, terrorism, trade credit and workers' compensation lines. The Company seeks to underwrite specialty lines with very limited exposure correlation with its property and marine portfolios. With the exception of the aerospace and aviation, agriculture, financial and trade credit lines of business, which have a meaningful portion of their gross premiums written volume on a proportional basis, the Company's specialty lines are written on an excess of loss basis. Gross premiums written on specialty business during the year ended December 31, 2016 were $532.4 million.

Talbot

Talbot writes primarily short-tail lines of business and focuses mostly on insurance, as opposed to reinsurance risks which are generally written by Validus Re, however, Talbot does have a short-tail treaty reinsurance portfolio. In addition, Talbot provides the Company with access to the Lloyd's marketplace where Validus Re does not operate. As a London-based insurer, Talbot also writes the majority of its premiums on risks outside the United States. Talbot's team of underwriters have, in many cases, spent most of their careers writing niche, short-tail business and bring their expertise to bear on expanding the Company's short-tail insurance franchise.

The Company has expanded and diversified its business through Syndicate 1183's access to Lloyd's license agreements with regulators around the world. Talbot Underwriting Risk Services, Ltd. (London), Validus Specialty Underwriting Services, Inc. (New York), Talbot Underwriting (MENA) Ltd. (Dubai), Validus Reaseguros, Inc. (Miami), Talbot Underwriting (LATAM) S.A. (Chile), Talbot Risk Services (Labuan) Pte. Ltd. (Malaysia), and Talbot Risk Services Pte. Ltd. (Singapore and Australia) act as approved Lloyd's coverholders for Syndicate 1183.

The following are the primary lines in which Talbot conducts its business. Details of gross premiums written by line of business are provided below:

	Years Ended December 31,					
	2016		2015		2014	
(Dollars in thousands)	Gross Premiums Written	% of Total	Gross Premiums Written	% of Total	Gross Premiums Written	% of Total
Property	$317,085	32.7 %	$327,122	32.2 %	$337,210	30.6 %
Marine	261,940	27.0 %	327,539	32.1 %	392,701	35.6 %
Specialty	391,677	40.3 %	364,174	35.7 %	371,859	33.8 %
Total	$970,702	100.0%	$1,018,835	100.0%	$1,101,770	100.0%

Property: The main sub-classes within the property class are International and North American direct and facultative contracts, lineslips and binding authorities, together with a book of business written on a treaty reinsurance basis. The business written is mostly commercial and industrial insurance. Coverage provided includes all risks of direct physical loss or damage, business interruption and natural catastrophe perils. Property also includes downstream energy and construction business. Within the downstream energy sector, covered occupancies include oil, gas, petrochemicals, chemical, power generation and utilities and process industries. Coverage is typically all risks and includes machinery breakdown and business interruption where required. The primary focus within the construction line is on major capital projects, placed on a direct or facultative subscription basis. The property business is mainly short-tail with premiums for reinsurance and direct and facultative business substantially earned within 12 months and premiums for lineslips and binding authorities mainly earned within 12 months of the expiry of the contract, however there are a minority of risks, particularly construction, with long-term policies. Gross premiums written on property business during the year ended December 31, 2016 were $317.1 million, including $40.4 million of treaty reinsurance.

Marine: The main types of business within the marine class are hull, cargo, upstream energy, marine and energy liabilities and a book of business written on a treaty reinsurance basis. Hull consists primarily of ocean going vessels and covers worldwide risks on an all risks or total loss only basis together with yachts. Cargo consists of worldwide transits with a particular emphasis on oil cargo, project cargo, pre-launch satellite and space risks, specie, fine art and high value motor vehicles. Upstream energy covers a variety of oil and gas industry exploration and production risks. The marine and energy liability account provides cover for protection and indemnity clubs and a wide range of companies operating in the marine and energy sectors. Most business written is short-tail, enabling a quicker and more accurate picture of expected profitability than is the case for long-tail business, however the marine and energy liability account, which makes up $53.5 million of gross premiums written during the year ended December 31, 2016, is the primary long-tail business in this class. Gross premiums written on marine business during the year ended December 31, 2016 were $261.9 million.

Specialty: This class consists of political lines (comprising marine & aviation war, political risks and political violence, including war on land), aviation direct, aviation treaty, financial lines, accident and health, and contingency. With the exception of aviation treaty, most of the business within the specialty class is written on a direct or facultative basis or under a binding authority through a coverholder. Gross premiums written on specialty business during the year ended December 31, 2016 were $391.7 million.

Political Lines: The marine and aviation political lines account covers physical damage to aircraft and marine vessels caused by acts of war and terrorism. The political risk account deals primarily with expropriation, contract frustration/trade credit, kidnap and ransom, and malicious and accidental product tamper. The political violence account mainly insures physical loss to property or goods anywhere in the world, caused by war, terrorism or civil unrest. This class is often written in conjunction with cargo, specie, property, upstream energy, contingency and political risk. The period of the risks can extend up to 36 months and beyond. Gross premiums written on political lines business during the year ended December 31, 2016 were $191.6 million.

Aviation: The aviation account insures major airlines, airport operations, aviation products and airports, general aviation, satellites and a book of business written on a treaty reinsurance basis. The coverage includes excess of loss treaties with medium to high attachment points. Gross premiums written on aviation business during the year ended December 31, 2016 were $84.8 million.

Financial Lines: Talbot’s financial lines team underwrites bankers blanket bond, commercial crime, computer crime, cyber- crime, professional indemnity and directors’ and officers’ coverage for various types of financial institutions and similar companies. The team also provides professional indemnity, directors’ and officers’ and cyber liability coverage to a more general selection of commercial clients. Bankers blanket bond and commercial crime insurance products are specifically designed to protect against direct financial loss caused by fraud/criminal actions and to mitigate the damage such activities may have on the asset base of the insured. Computer crime insurance protects against the misappropriation of funds and assets via the insured’s computer system. Professional indemnity insurance protects businesses in the event that legal action is taken against them by third parties claiming a breach of professional duty. Directors’ and officers’ insurance protects the personal liability of directors and officers or policyholder costs for indemnification arising out of an alleged breach of a fiduciary duty. The financial lines account is on a claims made basis; however, it is deemed to be longer tail business due to claims development patterns. Gross premiums written on financial lines business for the year ended December 31, 2016 were $50.5 million.

Accident and Health: The accident and health account provides insurance in respect of individuals in both their personal and business activity together with corporations where they have an insurable interest relating to death or disability of employees or those under contract. Gross premiums written on accident and health business during the year ended December 31, 2016 were $29.3 million.

Contingency: The main types of covers written under the contingency account are event cancellation, non-appearance and prize indemnity business. Gross premiums written on contingency business during the year ended December 31, 2016 were $35.4 million.

Western World

On October 2, 2014, the Company acquired all of the outstanding shares of Western World, a U.S. based specialty excess and surplus lines insurance company. The acquisition provided the Company with enhanced access to the specialty U.S. commercial insurance market, the world’s largest short-tail market, complementing the Company’s existing market positions in both Bermuda reinsurance and the Lloyd’s marketplace and increasing the Company’s ability to leverage operational strengths in short-tail classes of business. In addition, the acquisition improves the Company’s ability to manage (re)insurance cycles.

Western World primarily insures small to medium size commercial and institutional risks covering general liability, professional liability, product liability, miscellaneous malpractice and property classes through three wholly owned insurance subsidiaries: Western World Insurance Company (“WWIC”), Tudor Insurance Company (“Tudor”) and Stratford Insurance Company (“Stratford”). WWIC, Tudor and Stratford are domiciled in New Hampshire. WWIC operates as a surplus lines insurer in all U.S. jurisdictions other than New Hampshire. Tudor is licensed as a domestic surplus lines insurer in New Hampshire and is authorized to conduct business as a surplus lines insurer in all other U.S. jurisdictions. Stratford is an admitted insurer in 50 U.S. jurisdictions.

The following are the primary lines in which Western World conducts its business. Details of gross premiums written by line of business are provided below:

	Years Ended December 31,								
	2016			2015			2014 [(a)]		
(Dollars in thousands)	Gross Premiums Written	Gross Premiums Written (%)		Gross Premiums Written	Gross Premiums Written (%)		Gross Premiums Written	Gross Premiums Written (%)	
Property	$94,440	29.2	%	$53,018	19.0	%	$9,983	15.3	%
Liability	228,780	70.8	%	225,486	81.0	%	55,252	84.7	%
Total	$323,220	100.0	%	$278,504	100.0	%	$65,235	100.0	%

(a) The results of Western World have been included in the Company’s consolidated results from the October 2, 2014 date of acquisition.

Property: This class consists of building, business personal property, and business income (with or without extra expense) coverages, including catastrophe, for small to medium size commercial habitational, industrial, service, and mercantile risks. Gross premiums written on property lines during the year ended December 31, 2016 were $94.4 million.

Liability: This class consists of general liability, professional liability, product liability, and miscellaneous malpractice occurrence-based coverage for contractors, dwellings, special events, manufacturers, social workers, drug clinics and exercise and health facilities. Coverage is also provided on a claims-made basis for lines such as directors’ and officers’ and errors and omissions liability for small to medium size enterprises and financial institutions. Gross premiums written on liability lines during the year ended December 31, 2016 were $228.8 million.

AlphaCat

AlphaCat Managers Ltd. (“AlphaCat Managers”) is an asset manager that leverages the Company’s underwriting and analytical expertise primarily for third party investors. Validus Re also has a direct investment in certain AlphaCat funds and sidecars. As an asset manager, AlphaCat Managers’ primary sources of income are management and performance fees.

The AlphaCat segment is a core element of the Company’s strategy to expand in capital markets activities by participating in the market for ILS. ILS are financial instruments, the fundamental value of which is determined by insurance losses caused primarily by natural catastrophes such as major earthquakes and hurricanes. As such, the returns on ILS are generally uncorrelated with the overall financial markets, making ILS an attractive asset class for capital markets investors. AlphaCat leverages the Company’s extensive business sourcing, underwriting, research and analytic capabilities to construct ILS portfolios subject to prudent risk constraints.

AlphaCat investors access this uncorrelated asset class through various AlphaCat funds and sidecars that participate in the market via AlphaCat Reinsurance Ltd. (“AlphaCat Re”), a Bermuda provider of fully collateralized property catastrophe and specialty reinsurance and retrocession capacity and AlphaCat Master Fund Ltd. (“AlphaCat Master Fund”), a Bermuda investment fund investing in reinsurance related capital markets transactions (collectively the “master funds”). AlphaCat Re also enters into transactions on behalf of third party investors on a direct basis whereby all of the risks and rewards of the underlying transactions are transferred to the investors using notes payable to AlphaCat investors. Furthermore, certain of the funds and direct third party investors purchase catastrophe bonds (“Cat bonds”) directly under instruction from AlphaCat Managers.

BetaCat investors access the market through the BetaCat funds that participate in the market via BetaCat Fund Ltd., a Bermuda investment fund exclusively invested in Cat bonds. Cat bonds purchased by BetaCat are principal-at-risk variable rate notes and other event-linked securities focused on property and casualty risks and issued under Rule 144A of the Securities Act of 1933, as amended, following a passive buy-and-hold investment strategy.

The Company is considered to be the primary beneficiary of the AlphaCat master funds, the AlphaCat sidecars, the AlphaCat ILS funds and the BetaCat ILS funds and therefore the Company is required to consolidate these entities. For further details, refer to Notes 2 and 9 to the Consolidated Financial Statements, “Basis of preparation and consolidation,” and “Variable interest entities,” respectively, in Part II, Item 8.

As at December 31, 2016, the AlphaCat segment included the AlphaCat master funds, the AlphaCat sidecars, the AlphaCat ILS funds and a BetaCat ILS fund.

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The following are the primary financial indicators for the AlphaCat segment:

Assets under management (“AUM”): AUM represents total assets managed by AlphaCat Managers on behalf of third party and related party investors. AUM includes the assets of the AlphaCat sidecars, the AlphaCat ILS funds, the BetaCat ILS funds and direct third-party investors. AUM as at January 1, 2017 was $2.7 billion.

	Assets Under Management January 1,	
(Dollars in thousands)	2017	2016
Third party	$2,498,597	$2,059,519
Related party	242,715	326,643
Total	$2,741,312	$2,386,162

Revenues: Revenues represent management and performance fees earned on third party and related party AUM. Third party fee income for the year ended December 31, 2016 was $18.8 million. Related party fee income for the year ended December 31, 2016 was $3.3 million.

	Revenues Years Ended December 31,		
(Dollars in thousands)	2016	2015	2014
Third party	$18,771	$19,661	18,667
Related party	3,329	5,309	7,467
Total	$22,100	$24,970	$26,134

Investment income from AlphaCat funds and sidecars: Investment income from AlphaCat funds and sidecars represents the Company’s proportional share of income earned by the various AlphaCat funds and sidecars. Investment income from AlphaCat funds and sidecars for the year ended December 31, 2016 was $20.6 million.

	Investment income from AlphaCat funds and sidecars [(a)] Years Ended December 31,		
(Dollars in thousands)	2016	2015	2014
Investment income from AlphaCat funds and sidecars	$20,579	19,176	$21,485

(a) The investment income from the AlphaCat funds and sidecars is based on equity accounting.

Gross premiums written: Gross premiums written represent premiums written by AlphaCat Re on behalf of the AlphaCat funds and sidecars and direct third-party investors. Gross premiums written for the year ended December 31, 2016 were $270.4 million.

	Gross Premiums Written Years Ended December 31,		
(Dollars in thousands)	2016	2015	2014
Gross premiums written	$270,402	$176,126	$126,785

Enterprise Risk Management

Risk Management Framework: The Company believes in having a culture that embraces sound risk management practices at all levels of the organization. We have therefore implemented an Enterprise Risk Management ("ERM") framework (the "Framework") that is aligned with the Company's culture and responds to the needs of the business. The Framework has been established to identify, assess, quantify and manage risks and opportunities. In particular it is designed to:

- Establish the principles by which the Company can evaluate the risk/reward trade-offs associated with key strategic and tactical decisions.
- Establish a risk governance structure that, in respect of all activities related to ERM, operates with clearly defined roles and responsibilities.
- Establish minimum requirements that must be met by each of the Company's segments.
- Identify and assess all risks and causes of risks arising out of the Company's strategic initiatives, internal processes and external environment.
- Establish a set of responses to manage the Company's risks within its stated risk appetite and risk tolerances.
- Establish procedures through which near-miss and actual incidents, that either have the potential to impact or have impacted the Company, are reported and reviewed in order to inform the risk identification and assessment process.

Risk Governance: Our risk governance philosophy reflects the overall governance of the Company, with the segments given broad autonomy over the management of their business, while adhering to the overall strategy of the Company. Similarly, the segments have broad operational latitude over their risk management functions while staying within the parameters set by the Company.

The Company's Board of Directors has established a separate Risk Committee ("RC") that is governed by a charter which is updated and reviewed periodically by the Board of Directors. The RC is responsible for, among other things, approving the Framework, working with management to ensure ongoing, effective implementation of the Framework and reviewing the Company's specific risk limits as defined in the Framework, including limits related to major categories of risk. The implementation of risk policies and oversight of risk management is the responsibility of the Group Risk Management Committee ("GRMC"). The GRMC reports to the RC and is governed by a charter that is reviewed and approved annually by the RC. The GRMC also has two subcommittees, the Model Risk Subcommittee and the Operational Risk Subcommittee, both of which are governed by charters that are reviewed annually by the RC. Various risk policies are in place to facilitate consistent risk assessment across the Company and to ensure that strategic business decisions are supported by effective modeling and analysis.

Risk Appetite: The Company's risk appetite is expressed through a series of qualitative and quantitative statements, principles, limits, and tolerances that, in the aggregate, convey the Company's risk and reward preferences and set the risk parameters within which the Company and its segments operate. The risk appetite is proposed by management and approved by the Board of Directors.

The significant quantitative measures include meeting minimum returns on capital and risk-adjusted capital over a full insurance industry cycle, managing the probability of break-even or better, meeting or exceeding budgeted net income over a calendar year, and managing the probability of losing specified percentages of shareholders' equity in a calendar year. They also include probability thresholds in respect of maintaining a buffer above regulatory and rating agency capital levels.

The Company also sets levels of concentration risks within its risk appetite, including those related to probable maximum losses, zonal aggregates and the contribution of various risk categories to the overall assessment of the Company's risk capital.

Risk Classification: Risks are broadly divided into those that the Company assumes explicitly and from which it derives income and those that are a by-product of the operating and business environment, from which the Company does not earn income.

The risks assumed are categorized as catastrophe, reserve and premium risks (also together referred to as insurance risk), market (or investment) risk and credit risk. The Company's goal is to get adequately compensated for these risks, while creating optimal insurance and investment portfolios subject to the constraints of the Company's risk appetite. The remaining risks are categorized as operational and strategic risks, which typically include emerging risks, for which the Company's goal is to identify, assess and mitigate to the extent considered appropriate.

Risk Ownership: The Company's risk management philosophy is to entrust risk identification and control activities with the employees who have the responsibility for and expertise in the areas giving rise to each risk. This not only creates workflow efficiencies but also promotes awareness of and accountability for risk at all levels of the Company. As such, primary risk ownership is assigned to the managers of functional areas. The risk identification and control activities are embedded in the job descriptions of risk owners and control operators and monitored by the GRMC.

Risk Assessment, Control and Mitigation: The Company performs a regular risk assessment process that considers the likelihood and impact of causes of risk, both before and after the existence of relevant controls. The approaches used to identify and update causes of risk include scenario building, incident and near-miss reporting and market intelligence. Controls have been established to appropriately manage the likelihood and impact of risks, focused on those with the most significance and after considering the tolerance level established for each risk. New controls may also be designed as a result of the incident reporting process.

The Company also has in place policies, including underwriting, investment, and credit policies, to manage the assumption of risk. These policies provide for the Company's risk limits, tolerance levels and other guidelines, as well as the processes for ensuring compliance with the desired risk profile of the Company. The Company has at its disposal a variety of risk mitigation tools, including the purchase of reinsurance and retrocessional coverage, which it uses to ensure that its risk profile stays within prescribed limits and tolerance levels.

Exposure Management: In order to manage the assumption of insurance risk, the Company has established risk limits through both qualitative and quantitative considerations, including market share, history of and expertise in a class of business or jurisdiction, transparency and symmetry of available information, reliability of pricing models and availability and cost of reinsurance. These limits are reviewed at least annually and aligned to the overall risk appetite established by the Company's Board of Directors. In addition, a group exposure management policy is in place to ensure appropriate and consistent risk assessment and aggregation of exposures that accumulate between the operating companies in the group.

Three tools are used to measure and manage exposures:

- Absolute maximum limits - these are defined based on the underlying peril or coverage and include measures such as zonal aggregates, which convey the maximum contractual loss exposure.
- Probable maximum loss - these are defined where probabilistic event sets exist for underlying perils and are established for most natural catastrophe, aviation and upstream energy coverage, and convey an extreme but likely loss exposure.
- Realistic disaster scenarios ("RDSs") - these are either prescribed by third parties or developed internally and convey a more intuitive view of potential loss outcomes.

The Company will often use multiple tools to validate its exposure measurement and ensures that at least one of these tools is available for each class of business.

Model Validation Framework: The Company relies extensively on a wide range of models to support key decisions made across the business. We have therefore implemented a Model Validation Framework to establish a uniform set of validation and governance standards that ensure the quality and reliability of key models across the Company.

Portfolio Optimization: The Company has developed a comprehensive and integrated Economic Capital Model ("ECM") framework to facilitate the consistent assessment of risk, including risks classified as operational. This framework includes assessment at the individual operating company level, as well as across the Company. Using the ECM framework, the Company is able to assess the impact on risk appetite metrics of key strategic and tactical decisions as well as the risk return trade-offs associated with these decisions, including growth strategy, new product launch, business mix and retrocession strategy, mergers and acquisitions, planning and budgeting, investment strategy and capital management.

It is the goal of the Company to make the most efficient use of its capital and to achieve an adequate return for its shareholders. To that end, the Company seeks to maximize net income given the amount of capital at risk and subject to the risk limits, tolerance levels and other constraints that are imposed by our business, regulatory, and rating agency environments. The Company has therefore put in place portfolio optimization procedures, including the integrated use of the ECM within the annual planning process, in order to help shape portfolios that optimize their respective risk return profiles.

Underwriting Risk Management

The Company's underwriters manage risk by monitoring a number of qualitative and quantitative indicators. Our in-house pricing platform, VCAPS, provides reinsurance underwriters with a real-time view of the risk-adjusted profitability of each account. This allows them to examine the effects of contract terms and conditions as well as analyze the contribution of a contract to our overall risk capital and its impact on the projected incurred loss for one of our key stress scenarios. The Company's insurance operations also use sophisticated pricing platforms. Talbot maintains a suite of pricing models for the direct and facultative underwriting teams that includes VCAPS and other proprietary models, as well as models licensed from third parties. Western World is also able to leverage VCAPS for real-time, location level catastrophe pricing, and also utilizes proprietary and vendor developed rating tools through the Western World Integrated Platform (“WWIP”). The Company believes that giving our underwriters the tools to make sound decisions is critical to our long-term success. To that end, we strive to create an environment that promotes close cooperation between our underwriting, catastrophe modeling, risk, claims, and actuarial functions.

All of the Company's underwriters adhere to a strict set of underwriting guidelines and letters of authority that specifically address the limits of their underwriting authority and their referral criteria. The Company's current underwriting guidelines and letters of authority include:

- Lines of business that a particular underwriter is authorized to write;
- Exposure limits by line of business;
- Contractual exposures and limits requiring mandatory referrals; and
- Levels of analysis to be performed by lines of business.

In general, our underwriting approach is to:

- Seek high quality clients who have demonstrated superior performance over an extended period;
- Evaluate our clients' exposures and make adjustments where their exposure is not adequately reflected;
- Apply the comprehensive knowledge and experience of our entire underwriting team to make progressive and cohesive decisions about the business they underwrite; and
- Employ our well-founded and carefully maintained market contacts within the Company to enhance our robust distribution capabilities.

Our underwriters have the responsibility to analyze all submissions and determine if the related potential exposures meet with both the Company's risk profile line size and aggregate limitations, in line with the business plan. In order to ensure compliance, we run appropriate management information reports and all lines are subject to regular audits.

All of the companies managed by AlphaCat are subject to investment or underwriting guidelines. These guidelines are established in the offering documentation of each AlphaCat company. AlphaCat manages investment portfolios in accordance with guidelines, which are subject to oversight by the respective company's board of directors. AlphaCat leverages the Company's underwriting and analytical resources. However, all investment and underwriting decisions are ultimately made by AlphaCat. When services are provided to AlphaCat by the Company's underwriting teams, the relevant underwriting risk management framework outlined in this section applies.

Use of Models

A pivotal factor in determining whether to found and fund the Company was the opportunity for differentiation based upon superior risk management expertise; specifically, managing catastrophe risk and optimizing our portfolio to generate attractive returns on capital while controlling our exposure to risk, and assembling a management team with the experience and expertise to do so. The Company's proprietary models are updated to reflect the latest science and data for the given peril-region of interest. This has enabled the Company to gain a competitive advantage over those reinsurers who rely exclusively on commercial models for pricing and portfolio management. The Company has made a significant investment in expertise in the risk modeling area to capitalize on this opportunity. The Company has assembled an experienced group of professional experts with a wide range of advanced degrees in the physical sciences/mathematics who are operating in an environment designed to enable them to use their expertise as a competitive advantage. While the Company uses both proprietary and commercial probabilistic models, catastrophe risk is ultimately subject to absolute aggregate limitations as discussed above.

Commercial Vendor Models: The Company licenses two major commercial vendor models (RMS and AIR) to assess the adequacy of risk pricing and to monitor its overall exposure to risk in correlated geographic zones for various natural catastrophe perils. The vendor models provide information that enables the Company to aggregate exposures by correlated event loss scenarios, which are probability-weighted. This enables the generation of exceedance probability curves for the portfolio and major geographic areas. All models have their strengths and weaknesses; our internal research efforts target a greater understanding of, and if necessary, changes to frequency and severity for key peril-regions.

The Company also uses its quantitative expertise to improve the reliability of the vendor model outputs and expedite scientific review and operationalization of their findings to formulate its view of risk in the following areas:

- Ceding companies may often report insufficient data and many reinsurers may not be sufficiently critical in their analysis of this data. The Company generally scrutinizes data for anomalies that may indicate insufficient data quality. These circumstances are addressed by either declining the program or, if the variances are manageable, by modifying the model inputs and outputs, and ultimately, pricing to reflect insufficient data quality;
- Performing independent checks on the accuracy of reported building characteristics through third-party tools and the use of licensed data sources;

- Prior to making overall adjustments for changes in variable metrics, the Company carefully examines the adjustment against the latest scientific studies and technology available to ensure its impact to the business is thoroughly evaluated before adopting it into its systems; and

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- To properly quantify risk, the Company frequently adjusts vendor models in advance of their updates based on the latest scientific studies and claims data from recent events.

In addition, many risks, such as second-event covers, aggregate excess of loss, or attritional loss components, cannot be fully evaluated using the vendor models. In order to better evaluate and price these risks, the Company has developed proprietary analytical tools, such as VCAPS and other models and data sets.

Proprietary Models: In addition to making frequency and severity adjustments to the vendor model outputs, the Company has implemented a proprietary pricing and risk management tool, VCAPS, to assist in pricing submissions and monitoring risk aggregation.

VCAPS uses the output of catastrophe models to generate a 100,000-year simulation set, which is used for both pricing and risk management. This approach allows more precise measurement and pricing of risk given the underlying exposures. The two primary benefits of this approach are:

- VCAPS takes into account annual limits, event/franchise/annual aggregate deductibles, and reinstatement premiums. This allows for more accurate evaluation of treaties with a broad range of features, including both common (reinstatement premium and annual limits) and complex features (second or third event coverage, aggregate excess of loss, attritional loss components, covers with varying attachment across different geographical zones or lines of businesses and covers with complicated structures); and
- VCAPS use of 100,000-year simulations enables robust pricing of catastrophe-exposed business. This is possible in real-time operation because the Company has designed a computing hardware platform and software environment to accommodate the significant computing needs.

In addition to VCAPS, the Company uses other proprietary models and other data in evaluating exposures.

Geographic Diversification

The Company actively manages its aggregate exposures by geographic or risk zone to maintain a balanced and diverse portfolio of underlying risks. The coverage the Company is willing to provide for any risk located in a particular zone is limited to a predetermined level, thus limiting the net aggregate loss exposure from all contracts covering risks believed to be located in any zone. Contracts that have “worldwide” territorial limits have exposures in several geographic zones. Generally, if a proposed contract would cause the limit to be exceeded, the contract would be declined, regardless of its desirability, unless the Company buys reinsurance or retrocessional coverage, thereby reducing the net aggregate exposure to the maximum limit permitted or less.

For further details on gross premiums written allocated by the territory of coverage exposure refer to Note 26 to the Consolidated Financial Statements, “Segment Information,” in Part II, Item 8.

The effectiveness of geographic zone limits in managing risk exposure depends on the degree to which an actual event is confined to the zone in question and on the Company’s ability to determine the actual location of the risks believed to be covered under a particular insurance or reinsurance contract. Accordingly, there can be no assurance that risk exposure in any particular zone will not exceed that zone’s limits. Further control over diversification is achieved through guidelines covering the types and amount of business written in product classes and lines within a class.

Reinsurance Management

The Company enters into reinsurance agreements in order to mitigate its accumulation of loss, reduce its liability on individual risks and enable it to underwrite policies with higher limits. The ceding of the insurance risk does not legally discharge the Company from its primary liability for the full amount of the policies, and the Company is therefore required to pay the loss and bear collection risk if the reinsurer fails to meet its obligations under the reinsurance agreement.

Validus Re Retrocession: Validus Re monitors the opportunity to purchase retrocessional coverage on a continual basis and employs the VCAPS modeling system to evaluate the effectiveness of risk mitigation and exposure management relative to the cost. This coverage may be purchased on an indemnity basis as well as on an index basis (e.g., industry loss warranties (“ILWs”)). Validus Re also considers and at times uses alternative retrocessional structures, including collateralized quota share facilities (“sidecars”) and other capital markets products (e.g., catastrophe bonds), where the pricing and terms are attractive.

When Validus Re buys retrocessional coverage on an indemnity basis, payment is for an agreed upon portion of the losses actually suffered. In contrast, when Validus Re buys an ILW cover, which is a reinsurance contract in which the payout is dependent on both the insured loss of the policy purchaser and a measure of the industry-wide loss, payment is made only if both Validus Re and the industry suffer a loss, as reported by one of a number of independent agencies, in excess of specified threshold amounts.

With an ILW, Validus Re bears the risk of suffering a loss while receiving no payment under the ILW if the industry loss was less than the specified threshold amount.

Talbot Ceded Reinsurance: The reinsurance program is reviewed by the reinsurance purchasing team on an on-going basis in line with the main business planning process. This process incorporates advice and analytical work from our brokers, actuarial and capital modeling teams.

The review and any subsequent modification to the program is based upon the following:

- budgeted underwriting activity for the coming year;
- loss experience from prior years;
- loss information from the coming year’s individual capital assessment calculations;
- expected changes to risk limits and aggregation limits and any other changes to Talbot’s risk tolerance;
- scenario planning;
- changes to capital requirements; and
- RDSs prescribed by Lloyd’s.

The main type of reinsurance purchased is losses occurring; however, for a few lines of business, where the timing of the loss event is less easily verified or where such cover is available, risk attaching policies are purchased.

The type, quantity and cost of cover of the proposed reinsurance program is reviewed by the Chief Executive Officer (“CEO”) of the Talbot group, and ultimately authorized by the Talbot Underwriting Ltd. (“TUL”) Board.

All reinsurance contracts arranged are authorized for purchase by the Talbot CEO. Slips are developed prior to inception to ensure that optimum cover is achieved. After purchase, cover notes are reviewed by the relevant class underwriters and presentations are made to all underwriting staff to ensure they are aware of the boundaries of the cover.

Western World Ceded Reinsurance: The reinsurance program is managed by senior management. Western World uses brokers to provide guidance on modeling, prices and preparing contract terms and conditions. The main type of reinsurance purchased is excess of loss on a risk attaching basis. Western World utilizes reinsurance to reduce earnings volatility, protect capital and to limit its exposure to risk concentration.

AlphaCat: AlphaCat has ceded only a minimal level of business to third parties and will typically write contracts on a net retention basis only.

Distribution

Although we conduct some business on a direct basis with our treaty and facultative reinsurance clients, most of our business is derived through insurance and reinsurance intermediaries (“brokers”), who access business from clients and coverholders. We are able to attract business through our recognized lead capability in most classes we underwrite, particularly in classes where such lead ability is rare.

Currently, our largest broker relationships, as measured by gross premiums written, are with Marsh & McLennan Companies, Inc., Aon Benfield Group Ltd. and Willis Towers Watson plc. The following table sets forth the Company’s gross premiums written by broker:

	Gross Premiums Written Year Ended December 31, 2016						
(Dollars in thousands)	Validus Re	Talbot	Western World	AlphaCat	Eliminations	Total	% of Total
Name of Broker							
Marsh & McLennan Companies, Inc.	$478,199	$183,669	$255	$100,098	$ 21	$762,242	28.8 %
Aon Benfield Group Ltd.	243,947	126,600	271	79,163	(19,855)	430,126	16.2 %
Willis Towers Watson plc	189,313	118,092	305	66,954	(1,883)	372,781	14.1 %
Sub-total	911,459	428,361	831	246,215	(21,717)	1,565,149	59.1 %
All Others/Direct	199,595	542,341	322,389	24,187	(4,956)	1,083,556	40.9 %
Total	$1,111,054	$970,702	$323,220	$270,402	$ (26,673)	$2,648,705	100.0%

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Reserve for Losses and Loss Expenses

For insurance and reinsurance companies, a significant judgment made by management is the estimation of the reserve for losses and loss expenses. The Company establishes its reserve for losses and loss expenses to cover the estimated incurred liability for both reported and unreported claims.

Loss reserves are established due to the significant periods of time that may lapse between the occurrence, reporting and payment of a loss. To recognize liabilities for unpaid losses and loss expenses, the Company estimates future amounts needed to pay claims and related expenses with respect to insured events. The Company's reserving practices and the establishment of any particular reserve reflects management's judgment concerning sound financial practice and does not represent any admission of liability with respect to any claim. Unpaid losses and loss expense reserves are established for reported claims ("case reserves") and incurred but not reported ("IBNR") claims. For information regarding the Company's unpaid losses and loss expense reserves on both a gross and net basis see Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations—Loss Reserves."

The nature of the Company's high excess of loss and catastrophe business can result in loss expenses and payments that are both irregular and significant. Such losses are part of the normal course of business for the Company. Adjustments to reserves for individual years can also be irregular and significant. Conditions and trends that have affected development of liabilities in the past may not necessarily occur in the future. Accordingly, it is inappropriate to extrapolate future redundancies or deficiencies based upon historical experience. See Part I, Item 1A, "Risk Factors," and Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations—Cautionary Note Regarding Forward-Looking Statements."

During the fourth quarter of 2016, the Company adopted Accounting Standards Update 2015-09, "Financial Services - Insurance (Topic 944) - Disclosures about Short-Duration Contracts" issued by the United States Financial Accounting Standards Board ("FASB"), which enhance the annual disclosures relating to the Company's reserves for losses and loss expenses. For further information regarding the Company's reserves for losses and loss expenses refer to Note 14 to the Consolidated Financial Statements, "Reserve for losses and loss expenses," in Part II, Item 8, Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations-Critical Accounting Policies and Estimates," and Part I, Item 1A, "Risk Factors."

Investment Management

The overriding goal of our investment management is capital preservation, such that the assets of the Company are invested to provide for the timely payment of all contractual obligations of policyholders and creditors, ensuring our ability to underwrite future business and to satisfy all regulatory and rating agency requirements. We aim to achieve these objectives through a clearly defined process that is driven by the enterprise-wide risk and capital position of the Company to ensure assets are invested in accordance with our defined financial objectives and risk tolerances. Our approach considers the joint impact of underwriting and investment risks to the Company, in the context of clear prioritization of underwriting needs and opportunities. As such, we structure our investment portfolio to support policyholder reserves and contingent risk exposures with a liquid portfolio of high quality fixed-income investments with a comparable duration profile.

The Board of Directors, advised by our Finance Committee, Chief Financial Officer and Chief Investment Officer, oversees our investment strategy and has established the Company's Investment Policy Statement ("IPS"). The IPS provides a framework for the management and oversight of the Company's managed investment portfolio ("managed investments"), which excludes investments held in support of consolidated AlphaCat VIEs ("non-managed investments"). The purpose of the IPS is to:

- Communicate and align the Company's investment philosophy and goals;
- Provide transparency regarding investment policies, procedures and controls;
- Set expectations and priorities of our third party investment managers;
- Establish a framework for integrating investment management into our overall ERM process;
- Mandate our investment parameters, including permissible asset classes and portfolio constraints, and governance structure for portfolio oversight and management;
- Establish formalized criteria to measure, monitor, and evaluate investment performance and risk exposures on a regular basis; and
- Ensure assets are invested in accordance with the overall financial goals and risk tolerances of the Company.

The IPS is updated annually or as otherwise appropriate to reflect changes to the Company, the economy, the regulatory environment or other factors.

Claims Management

Claims management includes the receipt of initial loss notifications, generation of appropriate responses to claim reports, identification and handling of coverage issues, determination of whether further investigation is required and, where appropriate, retention of legal representation, establishment of case reserves, approval of loss payments and notification to brokers and reinsurers.

Our claims departments are responsible for the investigation, evaluation and, if validated, efficient payment of claims. We maintain claims handling guidelines and reporting and control procedures across all of our claims departments. Our primary objective is to ensure that each claim is evaluated, processed and appropriately documented in a timely and efficient manner and to retain information relevant to the management of the claim.

For business written in the Lloyd's market, claims handling and case reserves are established in accordance with the applicable "Lloyd's Claims Scheme" and "Lloyd's Claims Management Principles and Minimum Standards."

Competition

The insurance and reinsurance industries are highly competitive. We compete with major U.S., Bermuda, European and other international insurers and reinsurers and certain underwriting syndicates and insurers. We encounter competition in all of our classes of business but there is less competition in those of our lines where we are a specialist underwriter. The Company competes with insurance and reinsurance providers such as:

- Allied World Assurance Company Holdings, Limited., Arch Capital Group, Limited., Argo Group International Holdings, Ltd., Aspen Insurance Holdings Limited, AXIS Capital Holdings Limited, Endurance Specialty Holdings Ltd., Everest Re Group Limited and RenaissanceRe Holdings Ltd.;
- MS Amlin plc, Beazley plc, Brit plc, Hiscox Ltd., Novae Group plc and others in the Lloyd's market;
- Scottsdale Insurance Company, Burlington Insurance Company, Nautilus Insurance Company, Essex Insurance Company, Penn-America Group, Inc., Colony Specialty Insurance Company, RSUI Group, Inc., and others in the U.S. excess and surplus market;
- Asset managers and reinsurers who provide collateralized reinsurance and retrocessional coverage;
- Treaty and direct insurers, in not only the London but also the global market, that compete with Lloyd's on a worldwide basis;
- Various capital markets participants who access insurance and reinsurance business in securitized form, including through special purpose entities or derivative transactions; and
- Government-sponsored insurers and reinsurers.

Competition varies depending on the type of business being insured or reinsured and whether the Company is in a leading or following position. Competition in the types of business that the Company underwrites is based on many factors, including:

- premiums charged and other terms and conditions offered;
- services provided;
- financial ratings assigned by independent rating agencies;
- speed of claims payment;
- reputation;
- perceived financial strength; and
- the experience of the underwriter in the line of insurance or reinsurance written.

Increased competition could result in fewer submissions, lower premium rates, lower share of allocated cover, and less favorable policy terms, which could adversely impact the Company's growth and profitability. Capital market participants have created alternative products such as catastrophe bonds that are intended to compete with reinsurance products. The Company is unable to predict the extent to which these new, proposed or potential initiatives may affect the demand for products or the risks that may be available to be underwritten.

Regulation

The following is a discussion of the regulatory environment and certain key requirements in the jurisdictions of our significant operating subsidiaries.

Bermuda

General: The Insurance Act 1978 and its related regulations (the "Insurance Act") regulates the Company's operating insurance subsidiaries in Bermuda as well as the insurance group, the Validus Holdings Group, which the Bermuda

Monetary Authority (the “BMA”) is the group supervisor of. The Company has five Bermuda licensed insurance subsidiaries: Validus Reinsurance, Ltd., a Class 4 insurer; Validus Reinsurance (Switzerland) Ltd (Bermuda Branch), a Class 4 insurer; IPCRe Limited (“IPCRe”), a Class

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3A insurer; AlphaCat Reinsurance Ltd., a Class 3 insurer; and Mont Fort Re Ltd., a Class 3 insurer. The Company also has two Bermuda-based insurance subsidiaries, AlphaCat Re 2011, Ltd. and AlphaCat Re 2012, Ltd., each licensed as a Special Purpose Insurer (“SPI”) under the Insurance Act and one licensed insurance manager, AlphaCat Managers Ltd. The summary below is limited to Class 3, 3A and 4 insurers and insurance groups.

Annual Requirements: Class 3, 3A and 4 insurers’ significant requirements include: the appointment of an approved independent auditor; the appointment of a principal representative in Bermuda; maintenance of a principal office in Bermuda; the appointment of a loss reserve specialist; the filing of annual Statutory Financial Returns; the filing of annual GAAP financial statements; the filing of an annual Capital and Solvency Return; compliance with minimum enhanced capital requirements; and compliance with the Insurance Code of Conduct. Class 3A and 4 insurers must also maintain their head office in Bermuda.

Statutory Financial Return: The statutory financial return for Class 3 insurers includes the statutory financial statements, and among other items, an auditor’s report, a cover sheet, a general business solvency certificate in relation to any general business undertaken, statutory declaration, statement of changes of control, own risk statement, underwriting analysis, schedule of segregated accounts where applicable, the opinion of the loss reserve specialist and a special purpose business solvency certificate in relation to any special purpose business undertaken.

The statutory financial return for Class 3A and 4 insurers includes the statutory financial statements, and among other items, an auditor’s report and an insurer information sheet. Class 3, 3A, and 4 insurers are also required to submit a declaration of compliance to the BMA together with the statutory financial statements. In addition, Class 3A and 4 insurers are required to file a capital and solvency return in respect of their general business which include, amongst other items, the regulatory risk based capital model, the opinion of the loss reserve specialist, commercial insurer solvency self-assessment, catastrophe risk return, reconciliation of net loss reserves or schedule of loss triangles and an eligible capital and operational risk assessment.

GAAPs: Class 3A and 4 insurers must prepare and submit, on an annual basis, audited financial statements, including notes, prepared under GAAP standards (“GAAP Financial Statements”). The GAAP Financial Statements must be audited annually by the insurer’s approved auditor who must prepare an auditor’s report in accordance with generally accepted auditing standards. The insurer is required to file with the BMA annually the audited GAAP Financial Statements within four months from the end of the relevant financial year (unless specifically extended) which are published by the BMA on its website.

Minimum Solvency Margins: The value of the general business assets of licensed insurers must exceed the amount of its general business liabilities by an amount greater than its prescribed minimum solvency margin (“MSM”). The MSM for a Class 4 insurer is the greater of (i) $100.0 million, or (ii) 50% of net premiums written (with a deduction for reinsurance premiums ceded not exceeding 25% of gross premiums written) or (iii) 15% of aggregate net loss and loss expense provisions and other insurance reserves, or (iv) 25% of the enhanced capital requirement. The MSM for a Class 3 & 3A insurer is the greater of (i) $1.0 million, or (ii) 20% of the first $6.0 million of net premiums written or where net premiums written exceed $6.0 million, $1.2 million plus 15% of net premiums written in excess of $6.0 million, or (iii) 15% of aggregate net loss and loss expense provisions and other insurance reserves, or (iv) in the case of Class 3A insurers only 25% of the insurer’s enhanced capital requirement.

Enhanced Capital Requirement: Class 3A and 4 insurers are required to maintain available statutory economic capital and surplus with respect to its general business at an amount that is equal to or exceeds the value of the enhanced capital requirement (“ECR”) which is calculated at the end of its relevant year by reference to the Bermuda Solvency Capital Requirement (“BSCR”) model or an approved internal capital model, provided that the ECR must always equal or exceed the MSM. The BMA expects Class 3A and 4 insurers to operate at or above a target capital level (“TCL”) which exceeds the insurer’s ECR. The TCL for a Class 3A and 4 insurer is set at 120% of its ECR.

Minimum Liquidity Ratio: The Insurance Act provides a minimum liquidity ratio for general business insurers. An insurer engaged in general business is required to maintain the value of its relevant assets at not less than 75% of the amount of its relevant liabilities.

Restrictions on Dividends and Distributions: A Class 3A and 4 insurer must not declare or pay any dividends of more than 25% of its total statutory capital and surplus as shown on its previous financial year statutory balance sheet, unless at least seven days before payment of the dividend it files with the BMA an affidavit confirming that it will continue to meet its relevant margins following such dividend payment. If it failed to meet any of its relevant margins on the last day of any financial year, a Class 3, 3A and 4 insurer shall not, without the approval of the BMA, declare or pay any dividends during the next financial year. In addition, Class 3, 3A and 4 insurers must obtain the BMA's prior approval before reducing its total statutory capital, as shown in its previous year's financial statements, by 15% or more. Furthermore, under the Companies Act, a Bermuda company may only declare or pay a dividend, or make a distribution out of contributed surplus as the case may be, if the company has no reasonable grounds for believing that it is, or would after the payment be, unable to pay its liabilities as they become due, or if the realizable value of its assets would be less than its liabilities.

BMA Insurance Code of Conduct: All insurers are required to comply with the BMA’s Insurance Code of Conduct which establishes duties, requirements and standards to be complied with to ensure each insurer implements sound corporate governance, risk management and internal controls. Failure to comply with these requirements may be taken into account by the BMA in determining whether an insurer is conducting its business in a sound and prudent manner.

Group Supervision: The BMA may, in respect of an insurance group, determine whether it is appropriate for it to be the group supervisor of that group. For purposes of the Insurance Act, an insurance group is defined as a group of companies that conducts insurance business. Where the BMA determines that it is the group supervisor, it shall designate a specified insurer that is a member of the insurance group to be the “designated insurer” in respect of that insurance group and it shall give written notice to the designated insurer and other competent authorities that it is the group supervisor. The BMA is the group supervisor of the Validus Holdings Group and has designated Validus Reinsurance, Ltd. as the “designated insurer” of the group. The designated insurer is required to ensure that the Validus Holdings Group complies with the provisions of the Insurance Act pertaining to groups comprising primarily the Insurance (Prudential Standards) (Insurance Group Solvency Requirement) Rules 2011 and Insurance (Group Supervision) Rules 2011 (together, “Group Rules”).

Group Annual Requirements: Every insurance group is required to submit consolidated audited financial statements prepared under International Financial Reporting Standards or any GAAP recognized by the BMA, submit an annual group statutory financial return and a group capital and solvency return including the annual group actuarial opinion. The designated insurer is required to ensure that the group appoints an actuary approved by the BMA to provide an opinion on the insurance group’s insurance technical provisions in accordance with the Group Rules. In addition to the annual filings every insurance group is required to prepare and file quarterly financial returns for the first, second and third financial quarters. The quarterly financial return comprises unaudited consolidated group financial statements, a schedule of material intra-group exposures and risk concentrations.

Group Solvency Margin: An insurance group must ensure that the value of the insurance group’s total statutory economic capital and surplus calculated in accordance with the Group Rules exceeds the aggregate of: (i) the aggregate MSM of each qualifying member of the group controlled by the parent company; and (ii) the parent company’s percentage shareholding in the member multiplied by the member’s MSM, where the parent company exercises significant influence over a member of the group but does not control the member (the “Group MSM”). A member is a qualifying member of the insurance group if it is subject to solvency requirements in the jurisdiction in which it is registered.

Group Enhanced Capital Requirements: Insurance groups are required to maintain available statutory economic capital and surplus to an amount that is equal to or exceeds the value of its group enhanced capital requirement (“Group ECR”) which is calculated at the end of its relevant year by reference to the Group BSCR model or an approved internal capital model provided that the Group ECR shall at all times be an amount equal to or exceeding the Group MSM.

Eligible Capital: To enable the BMA to better assess the quality of an insurer’s capital resources, Class 3A and 4 insurers and insurance groups must maintain available statutory capital and surplus in accordance with a ‘3 tiered capital regime’. All capital instruments are classified as either basic or ancillary capital which in turn are classified into one of three tiers (Tiers 1, 2 and 3) based on their loss absorbency and other characteristics (“Tiered Capital Requirements”). Eligibility limits are then applied to each tier in determining the amounts eligible to cover regulatory capital requirement levels. The highest capital is classified as Tier 1 Capital; lesser quality capital is classified as either Tier 2 Capital or Tier 3 Capital. Under this regime, not more than certain specified percentages of Tier 1, Tier 2 and Tier 3 Capital may be used to satisfy the Class 3A and 4 insurers’ MSM and ECR requirements and Group’s MSM and Group’s ECR requirements.

Public Disclosures: Commercial insurers and insurance groups are required to prepare and publish, on an annual basis, a Financial Condition Report (“FCR”). The FCR provides details of measures governing the business operations, corporate governance framework, solvency and financial performance.

BMA’s Powers of Investigation, Intervention and Obtaining Information: The BMA may require a registered person or a designated insurer to provide such information the BMA may reasonably require with respect to matters that are likely to be material to the performance of its functions under the Insurance Act. In addition, it may require such person’s or designated insurer’s auditor, underwriter, accountant or any other person with relevant professional skill to prepare a report on any aspect pertaining thereto. The BMA has certain powers of investigation relating to insurers and insurance groups which it may exercise in the interest of such insurer's policyholders or potential policyholders. The BMA has certain powers of intervention relating to registered persons including insurers, if amongst other things, there is any significant risk of insolvency or risk of not being able to meet its policyholders' obligations, or a breach of the Insurance Act or the registered person's license conditions or a registered insurer is in breach of its ECR.

The BMA has the power to assist foreign regulatory authorities which have requested assistance in connection with inquiries being carried out by it or on its behalf in certain circumstances.

Shareholder Controller and other Notifications: Under the Insurance Act each shareholder controller or prospective shareholder controller will be responsible for notifying the BMA in writing if the shareholder controller becomes a controller, directly or indirectly, of 10%, 20%, 33% or 50% ("shareholder controller") of the Company or any of its insurance subsidiaries . Such notification must be made within 45 days of the acquisition in respect of the Company or Validus Re, and either in advance or no later than 45 days after the acquisition, in respect of the Company's other insurance subsidiaries depending upon the insurer to which the notification relates.

In addition, where a shareholder controller reduces its shareholding to or past such noted shareholding thresholds in any of the Company's Class 3A or Class 4 insurance subsidiaries such shareholder controller must notify the BMA either in advance or no later than 45 days after the reduction or disposal depending upon the insurer to which the notification relates. The BMA may serve a notice of objection on any controller of the Company's Bermuda insurance subsidiaries if it appears to the BMA that the person is not or is no longer a fit and proper person to be such a controller.

The Company's Bermuda insurance subsidiaries are required to notify the BMA in writing in the event of any person becoming or ceasing to be a controller of the insurer. A controller includes a managing director or a chief executive of the insurer or of another company of which it is a subsidiary, or any other person in accordance with whose directions or instructions the directors or controllers of the insurer or a company of which the insurer is a subsidiary are accustomed to act, including any person who holds, or is entitled to exercise, 10% or more of the voting shares or voting power or is able to exercise a significant influence over the management of the insurer or a company of which the insurer is a subsidiary pursuant to the provisions of the Insurance Act. In addition an insurer and a designated insurer in respect of the parent company of the insurance group is required to notify the BMA in the event of any person becoming or ceasing to be an officer of the insurer or of the parent company of the group. An officer includes a director, chief executive or senior executive performing duties of underwriting, actuarial, risk management, compliance, internal audit, finance or investment matters.

Material Change Notifications: All insurers are required to give 30 days' notice to the BMA of their intention to effect a material change within the meaning of the Insurance Act. Designated insurers are also required to give notice to the BMA if any member of its group intends to give effect to certain material changes within 30 days of such material change taking effect.

United States

General: Western World's operating subsidiaries are domiciled in the state of New Hampshire. Western World Insurance Company operates as a surplus lines insurer in all U.S. jurisdictions other than New Hampshire. Tudor Insurance Company is licensed as a domestic surplus lines insurer in New Hampshire and is authorized to conduct business as a surplus lines insurer in all other U.S. jurisdictions. Stratford Insurance Company operates as an admitted insurer in 50 U.S. jurisdictions. Talbot operates within the Lloyd's insurance market through Syndicate 1183, and Lloyd's operations are subject to regulation in the United States in addition to being regulated in the United Kingdom, as discussed further below. The Lloyd's market is licensed to engage in insurance business in Illinois, Kentucky and the U.S. Virgin Islands and operates as an eligible excess and surplus lines insurer in all states and territories except Kentucky and the U.S. Virgin Islands. Validus Reaseguros, Inc. and Validus Specialty Underwriting Services, Inc. are licensed reinsurance intermediaries in Florida and New York, respectively. Validus Re America (New Jersey) Inc. is a licensed reinsurance intermediary in New Jersey and New York.

Much of state insurance regulation follows model statutes or regulations developed or amended by the National Association of Insurance Commissioners ("NAIC") which is governed by the chief insurance regulators of each U.S. jurisdiction. Through the NAIC, state insurance regulators establish standards, best practices and coordinate regulatory oversight.

Holding Company Regulation: Western World's operating subsidiaries are subject to the insurance holding company laws of the state of New Hampshire. These regulations generally provide that each insurance company in the system is required to register with the state insurance department and furnish information concerning the operations of companies within the holding company system which may materially affect the operations, management or financial condition of the insurers within the system. All transactions within a holding company system affecting insurers must be fair and reasonable and notice to the state insurance department is required prior to the consummation of certain material transactions between an insurer and any entity in its holding company system. In addition, certain of such transactions cannot be consummated without prior approval from the state insurance department, or its failure to disapprove after receiving notice. The holding company acts also prohibit any person from directly or indirectly acquiring control of a U.S. insurance company unless that person has filed an application with specified information with the insurance company’s domiciliary commissioner and has obtained the commissioner’s prior approval. Under most states’ statutes, including New Hampshire, acquiring 10% or more of the voting securities of an insurance company or its parent company is presumptively considered an acquisition of control of the insurance company, although such presumption may be rebutted. Accordingly, any person or entity that acquires, directly or indirectly, 10% or more of the voting securities a U.S. insurance company without the prior approval of the commissioner will be in violation of these laws and may be subject to injunctive action requiring the disposition or seizure of those securities by the commissioner or prohibiting the voting of those securities, or to other actions that may be taken by the commissioner.

In 2010, the NAIC adopted amendments to the Insurance Holding Company System Regulatory Act and Regulation, which, among other changes, introduce the concept of "enterprise risk" within an insurance holding company system. If and when the amendments are adopted by a particular state, the amended Insurance Holding Company System Regulatory Act and Regulation would impose more extensive informational requirements on parents and other affiliates of licensed insurers or reinsurers with the purpose of protecting them from enterprise risk, including requiring an annual enterprise risk report by the ultimate controlling person identifying the material risks within the insurance holding company system that could pose enterprise risk to the licensed companies. The amended Insurance Holding Company System Regulatory Act also requires any controlling person of a U.S. insurance company seeking to divest its controlling interest in the insurance company to file with the commissioner a confidential notice of the proposed divestiture at least 30 days prior to the cessation of control; after receipt of the notice, the commissioner shall determine those instances in which the parties seeking to divest or to acquire a controlling interest will be required to file for or obtain approval of the transaction. The amended Insurance Holding Company System Regulatory Act and Regulation must be adopted by the individual states for the new requirements to apply to U.S. domestic insurers and reinsurers. To date, only certain states, including New Hampshire, have enacted legislation adopting the amended Insurance Holding Company System Regulatory Act in some form.
Enterprise Risk: The NAIC has increased its focus on risks within an insurer's holding company system that may pose enterprise risk to the insurer. "Enterprise risk" is defined as any activity, circumstance, event or series of events involving one or more affiliates of an insurer that, if not remedied promptly, is likely to have a material adverse effect upon the financial condition or the liquidity of the insurer or its insurance holding company system as a whole. As noted above, the NAIC recently adopted amendments to its Model Insurance Holding Company System Regulatory Act and Regulation, which include, among other amendments, a requirement for the ultimate controlling person to file an enterprise risk report. In 2012, the NAIC adopted the Risk Management and Own Risk and Solvency Assessment ("ORSA") Model Act, which requires domestic insurers to maintain a risk management framework and establishes a legal requirement for domestic insurers to conduct an ORSA in accordance with the NAIC's ORSA Guidance Manual. The ORSA Model Act provides that domestic insurers, or their insurance group, must regularly conduct an ORSA consistent with a process comparable to the ORSA Guidance Manual process. The ORSA Model Act also provides that, no more than once a year, an insurer's domiciliary regulator may request that an insurer submit an ORSA summary report, or any combination of reports that together contain the information described in the ORSA Guidance Manual, with respect to the insurer and/or the insurance group of which it is a member. If and when the ORSA Model Act is adopted by a particular state, the ORSA Model Act would impose more extensive filing requirements on parents and other affiliates of domestic insurers.
Statutory Accounting Practices: Statutory accounting practices, or "SAP," are a basis of accounting developed to assist U.S. insurance regulators in monitoring and regulating the solvency of insurance companies. It is primarily concerned with measuring an insurer's surplus to policyholders. Accordingly, statutory accounting focuses on valuing assets and liabilities of insurers at financial reporting dates in accordance with appropriate insurance law and regulatory provisions applicable in each insurer's domiciliary state. U.S. GAAP concerns an insurer's solvency, but it also concerns other financial measurements, such as income and cash flows. Accordingly, U.S. GAAP gives more consideration to appropriate matching of revenue and expenses and accounting for management's stewardship of assets than does SAP. As a direct result, different assets and liabilities and different amounts of assets and liabilities will be reflected in financial statements prepared in accordance with U.S. GAAP as opposed to SAP.
Statutory Accounting Practices established by the NAIC and adopted, in part, by the New Hampshire insurance regulator, determine, among other things, the amount of statutory surplus and statutory net income of Western World's insurance company subsidiaries and thus determine, in part, the amount of funds they have available to pay dividends.
Restrictions on Dividends and Distributions: The ability of an insurer to pay dividends or make other distributions is subject to insurance regulatory limitations of the insurance company's state of domicile. Generally, such laws limit the payment of dividends or other distributions above a specified level. Dividends or other distributions in excess of such thresholds are "extraordinary" and are subject to prior regulatory approval. Such dividends or distributions may be subject to applicable withholding or other taxes. Refer to Note 27 to the Consolidated Financial Statements, "Statutory and regulatory requirements," in Part II, Item 8.

Insurance Regulatory Information System Ratios: The NAIC Insurance Regulatory Information System ("IRIS") was developed by a committee of state insurance regulators and is intended primarily to assist state insurance departments in executing their statutory mandates to oversee the financial condition of insurance companies operating in their respective states. IRIS identifies 13 industry ratios (referred to as "IRIS ratios") and specifies "usual values" for each ratio. Departure from the usual values of the IRIS ratios can lead to inquiries from individual state insurance commissioners as to certain aspects of an insurer's business. Our insurance subsidiaries have consistently met the majority of the IRIS ratio tests.

Risk-Based Capital Requirements: In order to enhance the regulation of insurer solvency, the NAIC adopted in December 1993 a formula and model law to implement risk-based capital requirements for property and casualty insurance companies. These risk-based capital requirements are designed to assess capital adequacy and to raise the level of protection that statutory surplus provides for policyholder obligations. The risk-based capital model for property and casualty insurance companies measures three major areas of risk facing property and casualty insurers:

•underwriting, which encompasses the risk of adverse loss developments and inadequate pricing;
•declines in asset values arising from credit risk; and
•declines in asset values arising from investment risks.

An insurer will be subject to varying degrees of regulatory action depending on how its statutory surplus compares to its risk-based capital calculation. For equity investments in an insurance company affiliate, the risk-based capital requirements for the equity securities of such affiliate would generally be our U.S.-based subsidiaries' proportionate share of the affiliate's risk-based capital requirement.

Under the approved formula, an insurer's total adjusted capital is compared to its authorized control level risk-based capital. If this ratio is above a minimum threshold, no company or regulatory action is necessary. Below this threshold are four distinct action levels at which a regulator can intervene with increasing degrees of authority over an insurer as the ratio of surplus to risk-based capital requirement decreases. The four action levels include:

•insurer is required to submit a plan for corrective action;
•insurer is subject to examination, analysis and specific corrective action;
•regulators may place insurer under regulatory control; and
•regulators are required to place insurer under regulatory control.

Western World's surplus (as calculated for statutory purposes) is above the risk-based capital thresholds that would require either company or regulatory action.

Guaranty Funds: Most states require all admitted insurance companies to participate in their respective guaranty funds which cover certain claims against insolvent insurers. Solvent insurers licensed in these states are required to cover the losses paid on behalf of insolvent insurers by the guaranty funds and are generally subject to annual assessments in the states by the guaranty funds to cover these losses.

Federal Regulation: Although state regulation is the dominant form of regulation for insurance business, the federal government in recent years has shown some concern over the adequacy of state regulation. It is not possible to predict the future impact of any potential federal regulations or other possible laws or regulations on our U.S. based subsidiaries' capital and operations, and such laws or regulations could materially adversely affect their business. In addition, a number of federal laws affect and apply to the insurance industry, including various privacy laws and the economic and trade sanctions implemented by the Office of Foreign Assets Control ("OFAC"). OFAC maintains and enforces economic sanctions against certain foreign countries and groups and prohibits U.S. persons from engaging in certain transactions with certain persons or entities. OFAC has imposed civil penalties on persons, including insurance companies, arising from violations of its economic sanctions program.

The Dodd-Frank Wall Street Reform and Consumer Protection Act: The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (the "Dodd-Frank Act") created the Federal Insurance Office ("FIO") within the Department of Treasury, which is not a federal regulator or supervisor of insurance, but monitors the insurance industry for systemic risk, consults with the states regarding insurance matters and develops federal policy on aspects of international insurance matters. The Dodd-Frank Act also created a uniform system for non-admitted insurance premium tax payments based on the home state of the policyholder and provides for single state regulation for financial solvency and credit for reinsurance as discussed below.

Credit for Reinsurance: Certain provisions of the Dodd-Frank Act, which became effective on July 21, 2011, provide that only the state in which a primary insurer is domiciled may regulate the financial statement credit for reinsurance taken by that primary insurer. U.S. domiciled ceding companies typically receive full credit for outwards reinsurance protections in their statutory financial statements with respect to liabilities ceded to admitted U.S. domestic reinsurers. However, most states in the U.S. do not confer full credit for outwards reinsurance protections for liabilities ceded to non-admitted or unlicensed reinsurers, unless the reinsurer specifically collateralizes its obligations to the ceding company or is an authorized or trusteed reinsurer in the ceding company's state of domicile through the establishment of a Multi-Beneficiary Reinsurance Trust ("MBRT").

In December 2014, Validus Reinsurance, Ltd. established a MBRT to collateralize its (re)insurance liabilities associated with and for the benefit of U.S. domiciled cedants, and was approved as a trusteed reinsurer in the State of New Jersey. As a result, cedants domiciled in that state will receive automatic credit in their regulatory filings for the reinsurance provided prospectively by the Company. Following the approval by the State of New Jersey, the

Company submitted applications in most other U.S. states and territories, respectively, to become a trusteed reinsurer. As of December 31, 2016, Validus Reinsurance, Ltd. was approved as a trusteed reinsurer in 48 states as well as Puerto Rico and the District of Columbia. In addition, Validus Re Swiss established a MBRT in December 2015 and was approved as a trusteed reinsurer in 44 states as well as Puerto Rico and the District of Columbia as of December 31, 2016. It is our intention over time to transition U.S. domiciled cedants with outstanding letters of credit to the MBRT and therefore reduce our reliance on letters of credit. Through Lloyd's, Talbot is also an accredited reinsurer in all states and territories of the United States. Lloyd's maintains various trust funds in the state of New York to protect its U.S. business and is therefore subject to regulation by the New York Department of Financial Services, which acts as the domiciliary department for Lloyd's U.S. trust funds. There are deposit trust funds in other states to support Lloyd's reinsurance and excess and surplus lines insurance business.

As a result of the requirements relating to the provision of credit for reinsurance, our reinsurance companies are indirectly subject to certain regulatory requirements imposed by jurisdictions in which ceding companies are approved as trusteed reinsurers. In addition, the insurance and reinsurance regulatory framework of Bermuda and the insurance of U.S. risk by companies based in Bermuda and not licensed or authorized in the United States recently has become the subject of increased scrutiny in many jurisdictions, including the United States. We are not able to predict the future impact of changes in the laws and regulation to which we are or may become subject on the Company's financial condition or results of operations.

Tax Regulations: Talbot is subject to a Closing Agreement between Lloyd's and the U.S. Internal Revenue Service pursuant to which Talbot is subject to U.S. federal income tax to the extent its income is attributable to U.S. agents who have authority to bind Talbot. Specifically, U.S. federal income tax is imposed on 35% of its income attributable to U.S. binding authorities (70% for Illinois or Kentucky business).

Other Regulations: AlphaCat Managers Ltd. is a licensed insurance manager and is registered as an investment adviser with the U.S. Securities and Exchange Commission under the U.S. Investment Advisers Act of 1940, as amended. AlphaCat Managers Ltd. is also registered as a "commodity pool operator" with the Commodity Futures Trading Commission (the "CFTC") and is a member of the National Futures Association.

United Kingdom

U.K. regulation of insurance is provided for by the Financial Services and Markets Act 2000 and operated, following the Financial Services Act 2012, by two focused regulators; the Financial Conduct Authority ("FCA") and the Prudential Regulation Authority ("PRA").

The FCA has a strong mandate for promoting confidence and transparency in financial services and gives greater protection for consumers of financial services. The PRA is responsible for the day-to-day supervision of financial institutions that are subject to significant prudential risk. It adopts a more judgment-based approach to regulation so that business models can be challenged, risks identified and action taken to preserve financial stability. The PRA also has an insurance objective of contributing to the securing of an appropriate degree of protection for those who are or may become policyholders.

In relation to insurance, the FCA and PRA both regulate insurers, insurance intermediaries and Lloyd's itself. The FCA, PRA and Lloyd's have common objectives in ensuring that the Lloyd's market is appropriately regulated. To minimize duplication, there are arrangements with Lloyd's for co-operation on supervision and enforcement.

Talbot's underwriting activities are therefore regulated by both the FCA and PRA as well as being subject to the Lloyd's "franchise" rules. All three have powers to remove their respective authorization for Talbot to manage Lloyd's syndicates. Lloyd's approves Syndicate 1183's business plan annually as well as any subsequent material changes, together with the amount of capital (known as Funds at Lloyd's or "FAL") required to support that plan. Lloyd's may require changes to any business plan presented to it or additional FAL to be provided to support the underwriting.

Talbot Risk Services Pte, Ltd. operates in Singapore and Australia to source business in the Far East and Australia. In Singapore, Talbot Risk Services Pte, Ltd. operates under the Lloyd's Asia Scheme which permits underwriters to write Singaporean business and non-Singaporean business locally through service companies in Singapore. In Australia, Talbot Risk Services Pte, Ltd sources business from the local region and holds an Australian Financial Services License which is issued by Australian Securities & Investments Commission. Talbot Underwriting (MENA) Ltd. operates in Dubai to source business from the Middle East and North Africa and is regulated by the Dubai Financial Services Authority.

An EU directive covering the capital adequacy, risk management and regulatory reporting for insurers, known as Solvency II was adopted by the European Parliament in April 2009. Solvency II came into force on January 1, 2016. Insurers and reinsurers have been and continue to undertake a significant amount of work to ensure that they meet the new requirements and this may divert resources from other operational roles. The Lloyd's Solvency II internal model, which covers all members at Lloyd's, in aggregate, was approved by the PRA in December 2015. Talbot is currently in compliance with all Solvency II requirements.

Switzerland

Our Swiss reinsurance subsidiary, Validus Re Swiss, is a company limited by shares and headquartered in Zurich, Switzerland. Validus Re Swiss maintains a branch office in Bermuda, Validus Reinsurance (Switzerland) Ltd. (Bermuda Branch), a Class 4 insurer.

Regulation and Supervision: Validus Re Swiss obtained its reinsurance license from the Swiss Federal Office of Private Insurance (now the Swiss Financial Market Supervisory Authority or “FINMA”) in December 2006.

Under Swiss rules and regulations, Swiss reinsurance companies are generally subject to many, but not all, of the same provisions that apply to direct insurers, and include the following obligations:

Adequacy of Financial Resources: The minimum capital for the reinsurance license that Validus Re Swiss holds is CHF 10 million. In addition, Validus Re Swiss must maintain adequate solvency and disposable and unencumbered capital resources to cover its entire activities in accordance with solvency requirement as stipulated by Swiss insurance legislation.

Solvency is determined based on the Swiss Solvency Test (“SST”). Under this approach, a company’s capital is considered adequate if its risk bearing capital (“RBC”) exceeds its target capital (“TC”). RBC is defined as the difference between assets at a market-consistent value and discounted best estimated liabilities. TC is defined as the sum of a market value margin and the difference between the discounted one-year RBC and the current year RBC. The SST involves a sophisticated analysis to calculate the market-consistent valuation of all assets and liabilities with a methodological approach to risk categories (insurance risk, credit risk, etc.) subjecting them to scenario stress tests at a basic level in the context of the standard regulatory approach but, where appropriate, permitting the use of internal models in the overall management of risk, once such models are validated.

The SST is very close to the “Solvency II” standard of the European Union. On June 5, 2015, Switzerland was granted full equivalence by the European Commission in all three areas of Solvency II: solvency calculation, group supervision and reinsurance. This decision was the outcome of a detailed assessment conducted by the European Insurance and Occupational Pensions Authority (“EIOPA”).

For the SST all assets of Validus Re Swiss are considered. There is no direct constraint on permitted investments since the provisions regarding assets linked to reserves in the Swiss insurance legislation do not apply to reinsurance firms. However, the use of derivative instruments is required to be fully considered as part of the risk management processes and limited to reducing investment or insurance risk or to secure investment efficiencies.

Annual Reporting and Disclosure: Validus Re Swiss is required to prepare an annual report at the end of each financial year on the solvency margins available, as well as an annual report on the calculation of target capital and on risk bearing capital. Validus Re Swiss also files a corporate report incorporating audited financial statements prepared in accordance with Swiss law and a supervisory report in the prescribed format.

In addition and as a result of the Solvency II equivalence achievement, effective January 1, 2016, FINMA implemented new supervisory regulations resulting in new reporting and disclosure requirements with the most important requirements for Validus Re Swiss being the following:

Own Risk and Solvency Assessment (“ORSA”): The new requirements provide that Swiss domiciled reinsurance companies must maintain a risk management framework and ORSA process which is defined in an internal “ORSA policy.” The ORSA policy must outline all the processes and procedures undertaken to identify, evaluate, monitor and manage risks during the course of business as well as the processes and procedures performed to determine capital adequacy. The ORSA process is required to be performed on a yearly basis and an ORSA report has to be submitted to FINMA no later than January 31 of each year.

Public Disclosure: The new legislation requires Swiss domiciled reinsurance companies to publish a report on their financial situation. Going forward, the report needs to be submitted to FINMA and made accessible to the public. It requires companies to provide details on their business activities, company results, corporate governance and risk management, risk profile, the valuation basis for assets and liabilities, capital and solvency.

Capital Structure and Dividends: Validus Re Swiss is funded by equity in the form of paid in share capital and share premium. Under Swiss corporate law as modified by insurance supervisory law, a non-life insurance company is obliged to contribute to statutory legal reserves a minimum of 20% of any annual profit up to 50% of statutory capital, being paid in share capital (or capital contribution reserves). Validus Re Swiss has been substantially funded by share premium, exceeding 50% of the company’s share capital. As of the date of this Annual Report, capital contribution reserves can be distributed to shareholders without being subject to withholding tax. However, the distribution of any dividend to shareholders remains subject to the approval of FINMA which has regard to the maintenance of solvency and the interests of reinsureds and creditors.

Employment Practices

The following table details our personnel by geographic location as at December 31, 2016:

Location	Validus Re	Talbot	Western World	AlphaCat	Corporate	Total	%
London, United Kingdom	—	284	—	—	66	350	39.5 %
Parsippany, New Jersey	7	—	183	2	6	198	22.3 %
Pembroke, Bermuda	69	—	—	10	57	136	15.3 %
New York, New York	2	13	9	—	21	45	5.1 %
Republic of Singapore	12	25	—	—	—	37	4.2 %
Waterloo, Canada	1	—	—	—	28	29	3.3 %
Miami, Florida	14	9	—	—	2	25	2.8 %
Other U.S. locations	—	—	19	—	6	25	2.8 %
Dubai, United Arab Emirates	—	12	—	—	—	12	1.4 %
Santiago, Chile	—	8	—	—	—	8	0.9 %
Toronto, Canada	—	—	—	—	6	6	0.7 %
Sydney, Australia	—	6	—	—	—	6	0.7 %
Zurich, Switzerland	6	—	—	—	—	6	0.7 %
Shanghai, China	—	2	—	—	—	2	0.2 %
Dublin, Ireland	1	—	—	—	—	1	0.1 %
Total	112	359	211	12	192	886	100.0%

We believe our relations with our employees are excellent.

Executive Officers of the Company

The following table provides information regarding our executive officers and key employees as of February 23, 2017:

Name	Age	Position
Edward J. Noonan	58	Chairman of the Board of Directors and Chief Executive Officer of the Validus Group
Jeffrey D. Sangster	44	Executive Vice President and Chief Financial Officer
Peter Bilsby	47	Chief Executive Officer of the Talbot Group
Patrick Boisvert	43	Executive Vice President and Chief Accounting Officer
Kean D. Driscoll	43	Chief Executive Officer of Validus Reinsurance, Ltd.
John J. Hendrickson	56	Director of Strategy, Risk Management and Corporate Development
Andrew E. Kudera	57	Executive Vice President and Chief Actuary
Robert F. Kuzloski	53	Executive Vice President and General Counsel
Michael R. Moore	47	Executive Vice President and Chief Operating Officer
Romel Salam	50	Executive Vice President and Chief Risk Officer
Jonathan P. Ritz	49	Chief Executive Officer of Validus Specialty
Lixin Zeng	48	Chief Executive Officer of AlphaCat Managers Ltd.

Edward J. Noonan has been Chairman of our Board and the Chief Executive Officer of the Company since its formation. Mr. Noonan has over 30 years of experience in the insurance and reinsurance industry, serving most recently as the acting Chief Executive Officer of United America Indemnity Ltd. from February 2005 through October 2005 and as a member of the Board of Directors from December 2003 to May 2007. Mr. Noonan served as President and Chief Executive Officer of American Re-Insurance Company from 1997 to 2002, having joined American Re in 1983. Mr. Noonan also served as Chairman of Inter-Ocean Reinsurance Holdings of Hamilton, Bermuda from 1997 to 2002. Prior to joining American Re, Mr. Noonan worked at Swiss Reinsurance from 1979 to 1983. Mr. Noonan received a B.S. in Finance from St. John’s University in 1979. Mr. Noonan is also a director of Central Mutual Insurance Company and All American Insurance Company, both of which are property and casualty companies based in Ohio.

Jeffrey D. Sangster has served as Executive Vice President and Chief Financial Officer of the Company since February 2013. Mr. Sangster joined the Company in October 2006 and has served in various finance positions during that time, including Chief Accounting Officer and Chief Financial Officer of Validus Reinsurance, Ltd. Mr. Sangster has 19 years of experience in the reinsurance industry and was previously with Endurance, Centre Group and Ernst & Young. Mr. Sangster is Chartered Accountant and a member of the Chartered Professional Accountants of Bermuda and the Chartered Professional Accountants of Manitoba.

Peter Bilsby currently serves as Chief Executive Officer of Talbot. Prior to this, Mr. Bilsby served as Managing Director of Talbot. Mr. Bilsby joined Talbot as Head of Global Aerospace from XL London Market Ltd. in September 2009 and served as Director of Underwriting until his appointment as Managing Director in November 2013. Peter Bilsby has almost 30 years' experience in the insurance market.

Patrick Boisvert was appointed Executive Vice President and Chief Accounting Officer of the Company in July 2016. Prior to his role, he was Managing Director & Chief Financial Officer of Validus Reinsurance (Switzerland) Ltd. Before joining Validus in 2013, Mr. Boisvert was Chief Financial Officer of Flagstone Reinsurance Holdings SA from 2008 to 2012 and Chief Accounting Officer and Treasurer from 2006 to 2008. Prior to joining Flagstone, he was Vice President Fund Administration for BISYS Hedge Fund Services. Mr. Boisvert began his career in 1995 with Ernst & Young in Montreal, Canada. He holds a Bachelor in Accounting from Université du Quebec à Trois-Rivieres, is a member of the C.F.A. Institute and a member of the Chartered Professional Accountants of Canada.

Kean D. Driscoll is the Chief Executive Officer of Validus Reinsurance, Ltd., the reinsurance segment for the Validus Group. He was a founding member of the Company, and previously served as Chief Underwriting Officer. Mr. Driscoll has over 20 years of experience as a reinsurance underwriter, and was previously with Quanta Re, and Zurich Re N.A. (Converium). Mr. Driscoll holds a B.A. in Literature from Colgate University and an M.B.A. from Columbia University, where he graduated with Honors.

John J. Hendrickson has been a director of the Company since its formation. In February 2013, Mr. Hendrickson joined Validus Group as Director of Strategy, Risk Management and Corporate Development. Prior to this, Mr. Hendrickson was the Founder and Managing Partner of SFRi LLC, an independent investment and advisory firm specializing in the insurance industry. From 1995 to 2004, Mr. Hendrickson held various positions with Swiss Re, including as Member of the Executive Board, Head of Capital Partners (Swiss Re's Merchant Banking Division) and Managing Partner of Securitas Capital. From 1985 to 1995, Mr. Hendrickson was with Smith Barney, the U.S. investment banking firm. Mr. Hendrickson has also served as a director of insurance and reinsurance companies, including serving as audit committee chair.

Andrew E. Kudera has served as Chief Actuary of the Company since January 2010. Previously, Mr. Kudera operated an independent actuarial consulting firm which served as corporate actuary and loss reserve specialist for Validus Reinsurance, Ltd. from its inception through to the end of 2008. Prior to establishing his own consulting firm, Mr. Kudera was the Chief Reserving Actuary for Endurance Specialty Holdings Ltd., a large international insurance and reinsurance company. Mr. Kudera has over 35 years of actuarial and financial management experience in the insurance industry in both company and consulting capacities. Mr. Kudera is a Fellow of the Casualty Actuarial Society, a Member of the American Academy of Actuaries, an Associate of the Society of Actuaries, a Fellow of the Canadian Institute of Actuaries and a Fellow of the Institute of Actuaries.

Robert F. Kuzloski joined the company in January 2009 and served as Executive Vice President and Chief Corporate Legal Officer of the Company until August of 2012 when he was appointed Executive Vice President and General Counsel of the Company. Prior to joining the Company in January of 2009, Mr. Kuzloski served as Senior Vice President and Assistant General Counsel of XL Capital Ltd. Prior to that, Mr. Kuzloski worked as an attorney at the law firm of Cahill Gordon & Reindel LLP where he specialized in general corporate and securities law, mergers and acquisitions and corporate finance.

Michael R. Moore serves as Executive Vice President and Group Chief Operating Officer of the Company, a position he has held since May 2016, having previously held the position of Chief Accounting Officer since June 2013. Mr. Moore has over 20 years of experience, including 17 years in the insurance and reinsurance industry. Prior to joining Validus, Mr. Moore served as a Senior Vice President, Corporate Operations at Axis Capital, Chief Accounting Officer at Endurance Specialty Holdings Ltd. and as a Senior Manager with Ernst & Young. Mr. Moore received a Bachelor of Commerce, with distinction, from the University of Alberta in 1993 and he is a Chartered Accountant and member of the Chartered Professional Accountants of Bermuda and Chartered Professional Accountants of Canada.

Romel Salam serves as Executive Vice President and Chief Risk Officer of the Company, a position he has held since April 2013. He was promoted to his current role after serving for three years as Chief Actuary and Chief Risk Officer of Validus Reinsurance, Ltd, the reinsurance arm of Validus Group. Prior to joining the Company in 2010, Mr. Salam was a Senior Vice President at Transatlantic Reinsurance where he spent 20 years in positions of increasing responsibility. Mr. Salam is a Fellow of the Casualty of Actuarial Society and a Member of the American Academy of

Actuaries.

Jonathan P. Ritz serves as Chief Executive Officer of Validus Specialty, a position he has held since May 2016, having previously held the position of Chief Operating Officer since October 2010. Mr. Ritz has over 20 years of experience in the (re)insurance and brokerage industries. Most recently, Mr. Ritz served as Chief Operating Officer of IFG Companies-Burlington Insurance Group. Prior to IFG, Mr. Ritz served as Chief Operating Officer of the specialty lines division of ICAT Holdings LLC. From 2007 to 2008, Mr. Ritz was a Managing Director at Guy Carpenter and from 1997 to 2007 he held various positions with United America Insurance Group including Chief Operating Officer and Senior Vice President of ceded reinsurance.

Lixin Zeng, Ph.D., CFA serves as Chief Executive Officer of AlphaCat Managers Ltd. and has played a key role in the Manager since its formation in 2008. Prior to this role, he was Executive Risk Officer of Validus Reinsurance Ltd, responsible for developing and executing the catastrophe risk strategy of the entire Validus Group. Dr. Zeng was one of the original employees at the founding of Validus in 2005. His prior positions include: Chief Catastrophe Risk Officer at the ACE Group from 2004 to 2005, Head of Development at Willis Re Inc from 2001 to 2004, Analyst at EW Blanch Co. from 1998 to 2001 and Research Scientist at Arkwright Mutual Insurance Co from 1996 to 1998. Mr. Zeng has expertise in insurance portfolio optimization and risk management and has published multiple articles in professional journals on related topics. He has a Ph.D. in atmospheric sciences from the University of Washington where he graduated in 1996. He received a B.S. in Meteorology from Beijing University, graduating in 1990 and is a CFA charterholder.

Available Information

The Company files periodic reports, proxy statements and other information with the SEC. The public may read and copy any materials filed with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains a website that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The SEC's website address is http://www.sec.gov. The Company's common shares are traded on the NYSE under the symbol "VR." Similar information concerning the Company can be reviewed at the office of the NYSE at 20 Broad Street, New York, New York, 10005. The Company's website address is http://www.validusholdings.com. Information contained in this website is not part of this report.

The Company's Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act are available free of charge, including through our website, as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. Copies of the charters for the audit committee, the compensation committee, the corporate governance and nominating committee, the finance committee and the risk committee, as well as the Company's Corporate Governance Guidelines, Code of Business Conduct and Ethics for Directors, Officers and Employees (the "Code"), which applies to all of the Company's Directors, officers and employees, and Code of Ethics for Senior Officers, which applies to the Company's principal executive officer, principal accounting officer and other persons holding a comparable position, are available free of charge on the Company's website at http://www.validusholdings.com or by writing to Investor Relations, Validus Holdings, Ltd., 29 Richmond Road, Pembroke, HM 08, Bermuda. The Company will also post on its website any amendment to the Code and any waiver of the Code granted to any of its directors or executive officers to the extent required by applicable rules.

Item 1A. Risk Factors

Risks Related to Our Company

Claims on policies written under our short-tail insurance lines that arise from unpredictable and severe catastrophic events could adversely affect our financial condition or results of operations.

The majority of our gross premiums written to date are in short-tail lines, many of which have the potential to accumulate, which means we could become liable for a significant amount of losses in a brief period. The short-tail policies we write expose us to claims arising out of unpredictable natural and other catastrophic events, whether arising from natural causes such as hurricanes, windstorms, tsunamis, severe winter weather, earthquakes and floods, or man-made causes such as fires, explosions, acts of terrorism, war or political unrest. Many observers believe that the Atlantic basin is in the active phase of a multi-decade cycle in which conditions in the ocean and atmosphere, including warmer-than-average sea-surface temperatures and low wind shear, enhance hurricane activity. This increase in the number and intensity of tropical storms and hurricanes can span multiple decades (approximately 20 to 30 years). These conditions may translate to a greater potential for hurricanes to make landfall in the U.S. at higher intensities over the next several years. In addition, climate change may be causing changes in global temperatures, which may in the future increase the frequency and severity of natural catastrophes and the losses resulting therefrom. The extent of losses from catastrophes is a function of both the number and severity of the insured events and the total amount of insured exposure in the areas affected. Increases in the value and concentrations of insured property, the effects of inflation and changes in cyclical weather patterns may increase the severity of claims from natural catastrophic events in the future. Similarly, changes in global political and economic conditions may increase both the frequency and severity of man-made catastrophic events in the future. Claims from catastrophic events could reduce our earnings and cause substantial volatility in our results of operations for any fiscal quarter or year, which could adversely affect our financial condition, possibly to the extent of eliminating our shareholders' equity. Our ability to write new reinsurance policies could also be affected as a result of corresponding reductions in our capital. Underwriting is inherently a matter of judgment, involving important assumptions about matters that are unpredictable and beyond our control, and for which historical experience and probability analysis may not provide sufficient guidance. One or more catastrophic or other events could result in claims that substantially exceed our expectations and which would become due in a short period of time, which could materially adversely affect our financial condition, liquidity or results of operations.

Emerging claim and coverage issues could adversely affect our business.

As industry practices and legal, judicial, social and other environmental conditions change, unexpected and unintended issues related to claims and coverage may emerge. These issues may adversely affect our business by either extending coverage beyond our underwriting intent or by increasing the number or size of claims. In some instances, these changes may not become apparent until sometime after we have issued insurance or reinsurance contracts that are affected by the changes. For example, a (re)insurance contract might limit the amount that can be recovered as a result of flooding. However, if the flood damage was caused by an event that also caused extensive wind damage, the quantification of the two types of damage is often a matter of judgment. Similarly, one geographic zone could be affected by more than one catastrophic event. In this case, the amount recoverable from an insurer or reinsurer may in part be determined by the judgmental allocation of damage between the events. Given the magnitude of the amounts at stake, these types of issues occasionally necessitate judicial resolution. In addition, our actual losses may vary materially from our current estimate of the loss based on a number of factors, including receipt of additional information from insureds or brokers, the attribution of losses to coverages that had not previously been considered as exposed and inflation in repair costs due to additional demand for labor and materials. As a result, the full extent of liability under an insurance or reinsurance contract may not be known for many years after such contract is issued and a loss occurs. Our exposure to this uncertainty is greater in our longer tail lines (marine and energy liabilities, aviation products and airports (aviation direct), financial lines, construction, political risk and liability).

As a property and casualty insurer and reinsurer, we could face losses from war, terrorism and political unrest.

We may have substantial exposure to losses resulting from acts of war, acts of terrorism and political instability. These risks are inherently unpredictable, although recent events may lead to increased frequency and severity. It is difficult to predict the occurrence of these perils with statistical certainty or to estimate the amount of loss an occurrence will generate. We closely monitor the amount and types of coverage we provide for terrorism risk under insurance policies and reinsurance treaties. We often seek to exclude terrorism when we cannot reasonably evaluate the risk of loss or charge an appropriate premium for such risk. Even in cases where we have deliberately sought to exclude coverage, we may not be able to eliminate our exposure to terrorist acts, and thus it is possible that these acts could have a material adverse effect on us.

We depend on ratings from third party rating agencies. Our financial strength rating could be revised downward, which could affect our standing among brokers and customers, cause our premiums and earnings to decrease and limit our ability to pay dividends on our common shares.

Third-party rating agencies assess and rate the financial strength of insurers and reinsurers based upon criteria established by the rating agencies, which criteria are subject to change. The financial strength ratings assigned by rating agencies to insurance and reinsurance companies represent independent opinions of financial strength and ability to meet policyholder obligations and are not directed toward the protection of investors. Ratings have become an increasingly important factor in establishing the competitive position of insurance and reinsurance companies. Insurers and intermediaries use these ratings as one measure by which to assess the financial strength and quality of insurers and reinsurers. These ratings are often a key factor in the decision by an insured or intermediary of whether to place business with a particular insurance or reinsurance provider. These ratings are not an evaluation directed toward the protection of investors or a recommendation to buy, sell or hold our common shares.

If our financial strength rating is reduced from current levels, our competitive position in the (re)insurance industry could suffer, and it would be more difficult for us to market our products. A downgrade could result in a significant reduction in the number of (re)insurance contracts we write as our customers and brokers that place such business, move to other competitors with higher financial strength ratings.

The substantial majority of reinsurance contracts issued through reinsurance brokers contain provisions permitting the ceding company to cancel such contracts in the event of a downgrade of the reinsurer by A.M. Best below “A-” (Excellent). We cannot predict in advance the extent to which this cancellation right would be exercised, if at all, or what effect any such cancellations would have on our financial condition or future operations, but such effect could be material and adverse. Consequently, substantially all of Validus Re’s business could be affected by a downgrade of our A.M. Best rating below “A-”.

The indenture governing our Junior Subordinated Deferrable Debentures would restrict us from declaring or paying dividends on our common shares if we are downgraded by A.M. Best to a financial strength rating of “B” (Fair) or below or if A.M. Best withdraws its financial strength rating on any of our material insurance subsidiaries. A downgrade of the Company’s A.M. Best financial strength rating below “B++” (Fair) would also constitute an event of default under our credit facilities. Either of these events could, among other things, reduce the Company’s financial flexibility.

If our risk management and loss limitation methods fail to adequately manage exposure to losses from catastrophic events, our financial condition and results of operations could be adversely affected.

We manage exposure to catastrophic losses by analyzing the probability and severity of the occurrence of catastrophic events and the impact of such events on our overall (re)insurance and investment portfolio. We use various tools to analyze and manage the reinsurance exposures assumed from insureds and ceding companies and risks from a catastrophic event that could have an adverse effect on our investment portfolio. VCAPS, our proprietary risk modeling software, enables us to assess the adequacy of reinsurance risk pricing and to monitor the overall exposure to insurance and reinsurance risk in correlated geographic zones. There can be no assurance that the models and assumptions used by the software will accurately predict losses. Further, there can be no assurance that the models are free of defects in the modeling logic or in the software code. In addition, we have not sought copyright or other legal protection for VCAPS.

In addition, much of the information that we enter into the risk modeling software is based on third-party data that may not be reliable, as well as estimates and assumptions that are dependent on many variables, such as assumptions about building material and labor demand surge, storm surge, the expenses of settling claims (known as loss adjustment expenses), insurance-to-value and storm intensity. Accordingly, if the estimates and assumptions that are entered into the proprietary risk model are incorrect, or if the proprietary risk model proves to be an inaccurate forecasting tool, the losses we might incur from an actual catastrophe could be materially higher than the expectation of losses generated from modeled catastrophe scenarios, and our financial condition and results of operations could be adversely affected.

A modeled outcome of net loss from a single event also relies in significant part on the reinsurance and retrocessional arrangements in place, or expected to be in place at the time of the analysis, and may change during the year. Modeled outcomes assume that the reinsurance in place responds as expected with minimal reinsurance failure or dispute.

Reinsurance and retrocessional coverage is purchased to protect the inwards exposure in line with our risk appetite, but it is possible for there to be a mismatch or gap in cover which could result in higher than modeled losses. In addition, many parts of our reinsurance program are purchased with limited reinstatements and, therefore, the number of claims or events which may be recovered from second or subsequent events is limited. It should also be noted that renewal dates of the reinsurance and retrocessional program do not necessarily coincide with those of the inwards business written. Where inwards business is not protected by risks attaching reinsurance and retrocessional programs, the programs could expire resulting in an increase in the possible net loss retained and as such, could have a material adverse effect on our financial condition and results of operations.

We also seek to limit loss exposure through loss limitation provisions in policies we write, such as limitations on the amount of losses that can be claimed under a policy, limitations or exclusions from coverage and provisions relating to choice of forum, which are intended to assure that our policies are legally interpreted as intended. There can be no assurance that these contractual provisions will be enforceable in the manner expected or that disputes relating to coverage will be resolved in our favor. If the loss limitation provisions in the policies are not enforceable or disputes arise concerning the application of such provisions, the losses we incur from a catastrophic event could be materially higher than expected and our financial condition and results of operations could be adversely affected.

The insurance and reinsurance business is historically cyclical and we expect to experience periods with excess underwriting capacity and unfavorable premium rates and policy terms and conditions, which could materially adversely affect our financial condition and results of operations.

The insurance and reinsurance industry has historically been cyclical. Insurers and reinsurers have experienced significant fluctuations in operating results due to competition, frequency of occurrence or severity of catastrophic events, levels of underwriting capacity, underwriting results of primary insurers, general economic conditions and other factors. The supply of insurance and reinsurance is related to prevailing prices, the level of insured losses and the level of industry surplus which, in turn, may fluctuate, including in response to changes in rates of return on investments being earned in the reinsurance industry.

The insurance and reinsurance pricing cycle has historically been a market phenomenon, driven by supply and demand rather than by the actual cost of coverage. The upward phase of a cycle is often triggered when a major event forces insurers and reinsurers to make large claim payments, thereby drawing down capital. This, combined with increased demand for insurance against the risk associated with the event, pushes prices upwards. Over time, insurers' and reinsurers' capital is replenished with the higher revenues. At the same time, new entrants flock to the industry seeking a part of the profitable business. This combination prompts a slide in prices—the downward cycle—until a major insured event potentially restarts the upward phase. As a result, the insurance and reinsurance business has been characterized by periods of intense competition on price and policy terms due to excessive underwriting capacity, which is the percentage of surplus or the dollar amount of exposure that a reinsurer is willing to place at risk, as well as periods when shortages of capacity result in favorable premium rates and policy terms and conditions.

Premium levels may be adversely affected by a number of factors which fluctuate and may contribute to price declines generally in the reinsurance industry. For example, as premium levels for many products increased subsequent to the significant natural catastrophes of 2004 and 2005, the supply of reinsurance increased, either as a result of capital provided by new entrants or by the commitment of additional capital by existing reinsurers. Increases in the supply of insurance and reinsurance may have consequences for the reinsurance industry generally and for us including fewer contracts written, lower premium rates, increased expenses for customer acquisition and retention, and less favorable policy terms and conditions. As a consequence, the Company will experience greater competition on most insurance and reinsurance lines. This could adversely affect the rates we receive for our (re)insurance and our gross premiums written. The insurance and reinsurance industry is currently experiencing a soft market whereby premiums tend to be lower, capacity is higher and competition increases.

The cyclical trends in the industry and the industry's profitability can also be affected significantly by volatile and unpredictable developments, such as natural disasters (e.g., catastrophic hurricanes, windstorms, tornadoes, earthquakes and floods), courts granting large awards for certain damages, fluctuations in interest rates, changes in the investment environment that affect market prices of investments and inflationary pressures that may tend to affect the size of losses experienced by insureds and primary insurance companies. We expect to experience the effects of cyclicality, which could materially adversely affect our financial condition and results of operations.

Competition for business in our industry is intense, and if we are unable to compete effectively, we may not be able to retain market share and our business may be materially adversely affected.

The insurance and reinsurance industries are highly competitive. We face intense competition, based upon (among other things) global capacity, product breadth, reputation and experience with respect to particular lines of business, relationships with (re)insurance intermediaries, quality of service, capital and perceived financial strength (including independent rating agencies' ratings), innovation and price. We compete with major global insurance and reinsurance companies and underwriting syndicates, many of which have extensive experience in (re)insurance and may have greater financial, marketing and employee resources available to them than us. Other financial institutions, such as banks and hedge funds, now offer products and services similar to our products and services through alternative capital markets products that are structured to provide protections similar to those provided by reinsurers. These products, such as catastrophe-linked bonds, compete with our products. In the future, underwriting capacity will continue to enter the market from these identified competitors and perhaps other sources. Increased competition could result in fewer submissions and lower rates, which could have a material adverse effect on our growth and profitability. If we are unable to compete effectively against these competitors, we may not be able to retain market share and this could adversely affect our financial condition and results of operations.

In addition, insureds have been retaining a greater proportion of their risk portfolios than previously, and industrial and commercial companies have been increasingly relying upon their own subsidiary insurance companies, known as captive insurance companies, self-insurance pools, risk retention groups, mutual insurance companies and other mechanisms for funding their risks, rather than risk transferring insurance. This has also put downward pressure on (re)insurance premiums.

Consolidation in the (re)insurance industry could adversely affect our business.

We believe that several (re)insurance industry participants are seeking to consolidate. These consolidated entities may try to use their enhanced market power to negotiate price reductions for our products and services and/or obtain a larger market share through increased line sizes. If competitive pressures reduce our prices, we would expect to write less business. As the (re)insurance industry consolidates, competition for customers will become more intense and the importance of acquiring and properly servicing each customer will become greater. We could incur greater expenses relating to customer acquisition and retention, further reducing our operating margins. In addition, insurance companies that merge may be able to spread their risks across a consolidated, larger capital base so that they require less reinsurance. Reinsurance intermediaries could also continue to consolidate, potentially adversely impacting our ability to access business and distribute our products. We could also experience more robust competition from larger, better capitalized competitors. Any of the foregoing could adversely affect our business or our results of operations.

If we underestimate our reserve for losses and loss expenses, our financial condition and results of operations could be adversely affected.

Our success depends on our ability to accurately assess the risks associated with the businesses and properties that we insure/reinsure. If unpredictable catastrophic events occur, or if we fail to adequately manage our exposure to losses or fail to adequately estimate our reserve requirements, our actual losses and loss expenses may deviate, perhaps substantially, from our reserve estimates.

We estimate the risks associated with our outstanding obligations, including the risk embedded within our unearned premiums. To do this, we establish reserves for losses and loss expenses (or loss reserves), which are liabilities that we record to reflect the estimated costs of claim payment and the related expenses that we will ultimately be required to pay in respect of premiums written and include case reserves and IBNR reserves. However, under U.S. GAAP, we are not permitted to establish reserves for losses until an event which gives rise to a claim occurs. As a result, only reserves applicable to losses incurred up to the reporting date may be set aside on our financial statements, with no allowance for the provision of loss reserves to account for possible other future losses, unless we deem the unearned premium reserve to be insufficient to cover future losses on risks that have already incepted. Case reserves are reserves established with respect to specific individual reported claims. IBNR reserves are reserves for estimated losses that we have incurred but that have not yet been reported to us.

Our reserve estimates do not represent an exact calculation of liability. Rather, they are estimates of what we expect the ultimate settlement and administration of claims will cost. These estimates are based upon actuarial and statistical projections, on our assessment of currently available data, predictions of future developments and estimates of future trends and other variable factors such as inflation. Establishing an appropriate level for our loss reserve estimates is an inherently uncertain process. It is likely that the ultimate liability will be greater or less than these estimates and that, at times, this variance will be material. Our reserve estimates are regularly refined as experience develops and claims are reported and settled. In addition, as we operate largely through intermediaries, reserving for our business can involve added uncertainty arising from our dependence on information from ceding companies which, in addition to the risk of receiving inaccurate information, involves an inherent time lag between reporting information from the primary insurer to us. Additionally, ceding companies employ differing reserving practices which add further uncertainty to the establishment of our reserves. Moreover, in certain circumstances, the Company has necessitated the use of industry loss emergence patterns in deriving IBNR. Loss emergence patterns are development patterns used to project current reported or paid loss amounts to their ultimate settlement value or amount. Further, expected losses and loss ratios are typically developed using vendor and proprietary computer models and these expected loss ratios are a material component in the calculation of IBNR. Actual loss ratios will deviate from expected loss ratios and ultimate loss ratios will be greater or less than expected loss ratios. Because of these uncertainties, it is possible that our estimates for reserves at any given time could prove inadequate.

To the extent we determine that actual losses and loss adjustment expenses from events which have occurred exceed our expectations and the loss reserves reflected in our financial statements, we will be required to reflect these changes in the current reporting period. This could cause a sudden and material increase in our liabilities and a reduction in our profitability, including operating losses and reduction of capital, which could materially restrict our ability to write new business and adversely affect our financial condition and results of operations and potentially our A.M. Best rating.

The preparation of our financial statements requires us to make many estimates and judgments which, if inaccurate, could cause volatility in our results.

Our Consolidated Financial Statements have been prepared in accordance with U.S. GAAP. Management believes the item that requires the most subjective and complex estimates is the reserve for losses and loss expenses. Following a major catastrophic event, the possibility of future litigation or legislative change that may affect interpretation of policy terms further increases the degree of uncertainty in the reserving process. The uncertainties inherent in the reserving process, together with the potential for unforeseen developments, including changes in laws and the prevailing interpretation of policy terms, may result in losses and loss expenses materially different than the reserves initially established. Changes to prior year reserves will affect current underwriting results by increasing net income if the prior year reserves prove to be redundant or by decreasing net income if the prior year reserves prove to be insufficient. We expect volatility in results in periods in which significant loss events occur because U.S. GAAP does not permit insurers or reinsurers to reserve for loss events until they have occurred and are expected to give rise to a claim. As a result, we are not allowed to record contingency reserves to account for expected future losses. We anticipate that claims arising from future events will require the establishment of substantial reserves from time to time.

Changes in current accounting practices and future pronouncements could materially impact our reported financial results.

Unanticipated developments in accounting practices may require us to divert resources from other operational roles to comply with such developments, particularly if we are required to prepare information relating to prior periods for comparative purposes or significantly modify existing processes to apply the new requirements prospectively. The impact of changes in current accounting practices and future pronouncements cannot be predicted; however, they may affect the calculation of net income, net equity and other relevant financial statement line items.

We rely on key personnel and the loss of their services may adversely affect us. The Bermuda location of our head office may be an impediment to attracting and retaining experienced personnel.

Various aspects of our business depend on the services and skills of key personnel of the Company. We believe there are only a limited number of available qualified executives in the business lines in which we compete. We rely substantially upon the services of our executive officers, among other key employees of the Company. For a listing of our executive officers refer to Part I, Item 1 “Business.” The loss of any of their services or the services of other members of our management team or any difficulty in attracting and retaining other talented personnel could impede the further implementation of our business strategy, reduce our revenues and decrease our operational effectiveness. Although we have an employment agreement with each of our executive officers, there is a possibility that these employment agreements may not be enforceable in the event any of these employees leave. The employment agreements for each of our executive officers provide that the terms of the agreement will continue for a defined period after either party giving notice of termination, and will terminate immediately upon the Company giving notice of termination for cause. We do not currently maintain key man life insurance policies with respect to these or any of our other employees. In addition, changes in employment laws, taxation and remuneration practices within our operating jurisdiction may adversely impact the retention or recruitment of key personnel.

The operating location of our head office and our primary Validus Re subsidiary may be an impediment to attracting and retaining experienced personnel. Under Bermuda law, non-Bermudians (other than spouses of Bermudians or permanent resident certificate holders) may not engage in any gainful occupation in Bermuda without an appropriate governmental work permit. Our success may depend in part on the continued services of key employees in Bermuda. A work permit may be granted or renewed upon demonstrating that, after proper public advertisement, no Bermudian (or spouse of a Bermudian or a holder of a permanent resident’s certificate) is available who meets the minimum standards reasonably required by the employer. A work permit is issued with an expiry date (up to ten years for senior executives) and no assurances can be given that any work permit will be issued or, if issued, renewed upon the expiration of the relevant term. If work permits are not obtained, or are not renewed, for our principal employees, we would lose their services, which could materially affect our business. Work permits are currently required for 44 of our Bermuda employees, the majority of whom have obtained three- or five-year work permits.

Certain of our directors and officers may have conflicts of interest with us.

Entities affiliated with some of our directors have sponsored or invested in, and may in the future sponsor or invest in, other entities engaged in or intending to engage in insurance and reinsurance underwriting, some of which compete with us. They have also entered into, or may in the future enter into, agreements with companies that compete with us. We have a policy in place applicable to each of our directors and officers which provides for the resolution of potential conflicts of interest. However, we may not be in a position to influence any party’s decision to engage in activities that would give rise to a conflict of interest, and they may take actions that are not in our shareholders’ best interests.

We may require additional capital or credit in the future, which may not be available or only available on unfavorable terms.

We monitor our capital adequacy on a regular basis. The capital requirements of our business depend on many factors, including our premiums written, loss reserves, investment portfolio composition and risk exposures, as well as satisfying regulatory and rating agency capital requirements. Our ability to underwrite is largely dependent upon the quality of our claims paying and financial strength ratings as evaluated by independent rating agencies. To the extent that our existing capital is insufficient to fund our future operating requirements and/or cover claim losses, we may need to raise additional funds through financings or limit our growth. Any equity or debt financing, if available at all, may be on terms that are unfavorable to us. In the case of equity financings, dilution to our shareholders could result, and, in any case, such securities may have rights, preferences and privileges that are senior to those of our outstanding securities. In addition, the capital and credit markets have recently been experiencing extreme volatility and disruption. In some cases, the markets have exerted downward pressure on the availability of liquidity and credit capacity for certain issuers. If we are not able to obtain adequate capital, our business, results of operations and financial condition could be adversely affected.

In addition, for certain of our subsidiaries as an alien insurer and reinsurer (not licensed in the U.S.), we are required to post collateral security with respect to any (re)insurance liabilities that we assume from insureds or ceding insurers domiciled in the U.S. in order for U.S. ceding companies to obtain full statutory and regulatory credit for our reinsurance. Other jurisdictions may have similar collateral requirements. Under applicable statutory provisions, these security arrangements may be in the form of letters of credit, insurance or reinsurance trusts maintained by trustees or funds-withheld arrangements where assets are held by the ceding company. We intend to satisfy such statutory requirements by maintaining the trust fund requirements for Talbot’s underwriting at Lloyd’s and Validus Re and by providing to primary insurers letters of credit issued under our credit facilities or access to our multi-beneficiary trusts. To the extent that we are required to post additional security in the future, we may require additional letter of credit capacity and there can be no assurance that we will be able to obtain such additional capacity or arrange for other types of security on commercially acceptable terms or on terms as favorable as under our current letter of credit facilities. Our inability to provide collateral satisfying the statutory and regulatory guidelines applicable to insureds and primary insurers would have a material adverse effect on our ability to provide (re)insurance to third parties and negatively affect our financial position and results of operations.

Security arrangements may subject our assets to security interests and/or require that a portion of our assets be pledged to, or otherwise held by, third parties. Although the investment income derived from our assets while held in trust typically accrues to our benefit, the investment of these assets is governed by the investment regulations of the state of domicile of the ceding insurer and therefore the investment returns on these assets may not be as high as they otherwise would be.

We may be adversely impacted by inflation.

Our operations, like those of other property and casualty insurers and reinsurers, are susceptible to the effects of inflation because premiums are established before the ultimate amounts of loss and loss expense are known. Although we consider the potential effects of inflation when setting premium rates, our premiums may not fully offset the effects of inflation and essentially result in our underpricing the risks we insure and reinsure. Our reserve for losses and loss expenses includes assumptions about future payments for settlement of claims and claims handling expenses, such as the value of replacing property and associated labor costs for the property business we write, the value of medical treatments and litigation costs. To the extent inflation causes these costs to increase above reserves established for these claims, we will be required to increase our loss reserves with a corresponding reduction in our net income in the period in which the deficiency is identified, which may have a material adverse effect on our financial condition or results of operations.

Loss of business from one or more major brokers could adversely affect us.

We market our insurance and reinsurance on a worldwide basis primarily through brokers, and we depend on a small number of brokers for a large portion of our revenues. For the year ended December 31, 2016, our business was primarily sourced from the following brokers: Marsh & McLennan Companies, Inc. 28.8%, Aon Benfield Group Ltd. 16.2%, and Willis Towers Watson plc 14.1%. These three brokers provided a total of 59.1% of our gross premiums written for the year ended December 31, 2016. Loss of all or a substantial portion of the business provided by one or more of these brokers could adversely affect our business.

We assume a degree of credit risk associated with substantially all of our brokers.

In accordance with industry practice, we frequently pay amounts owed on claims under our policies to brokers and the brokers, in turn, pay these amounts over to the insured and reassured that have reinsured a portion of their liabilities with us. In some jurisdictions, if a broker fails to make such a payment, we might remain liable to the insured or reassured for the deficiency notwithstanding the broker’s obligation to make such payment. Conversely, in certain jurisdictions, when the insured or reassured pays premiums for these policies to the insurance and reinsurance brokers for payment to us, these premiums are considered to have been paid and the insured or reassured will no longer be liable to us for these premiums, whether or not we have actually received them. Consequently, we assume a degree of credit risk associated with substantially all of our brokers.

Our utilization of brokers, managing general agents and other third parties to support our business exposes us to operational and financial risks

Our insurance business relies upon brokers, managing general agents and other third parties to produce and service a portion of its operations. In these arrangements, we typically grant the third party the right to bind us to new and renewal policies, subject to underwriting guidelines we provide and other contractual restrictions and obligations. Should these third parties issue policies that contravene these guidelines, restrictions or obligations, we could nonetheless be deemed liable for such policies. Although we would intend to resist claims that exceed or expand on our underwriting intention, it is possible that we would not prevail in such an action, or that our managing general agent would be unable to adequately indemnify us for their contractual breach.

We also rely on managing general agents, third party administrators or other third parties we retain, to collect premiums and to pay valid claims. We could also be exposed to their or their producer's operational risk, including, but not limited to, contract wording errors, technological and staffing deficiencies and inadequate disaster recovery plans. We could also be exposed to potential liabilities relating to the claims practices of the third party administrators we have retained to manage the claims activity on this business. Although we have implemented monitoring and other oversight protocols, we cannot assure that these measures will be sufficient to mitigate all of these exposures.

Our success depends on our ability to establish and maintain effective operating procedures and internal controls. Failure to detect control issues and any instances of fraud could adversely affect us.

Our success is dependent upon our ability to establish and maintain operating procedures and internal controls (including the timely and successful implementation of information technology systems and programs) to effectively support our business and our regulatory and reporting requirements. We may not be successful in such efforts. Even when implemented, as a result of the inherent limitations in all control systems, no evaluation of controls can provide full assurance that all control issues and instances of fraud, if any, within the Company will be detected.

We may be unable to purchase reinsurance or retrocessional reinsurance in the future, and if we do successfully purchase reinsurance or retrocessional reinsurance, we may be unable to collect on claims submitted under such policies, which could adversely affect our business, financial condition and results of operations.

We purchase reinsurance and retrocessional reinsurance in order that we may offer insureds and cedants greater capacity, and to mitigate the effect of large and multiple losses on our financial condition. Reinsurance is a transaction whereby an insurer or reinsurer cedes to a reinsurer or retrocessional reinsurer all or part of the insurance it has written or reinsurance it has assumed. A reinsurer's or retrocessional reinsurer's insolvency or inability or refusal to make timely payments under the terms of its reinsurance agreement with us could have an adverse effect on us because we remain liable to our client. From time to time, market conditions have limited, and in some cases have prevented, insurers and reinsurers from obtaining the types and amounts of reinsurance or retrocessional reinsurance that they consider adequate for their business needs. Accordingly, we may not be able to obtain our desired amounts of reinsurance or retrocessional reinsurance or negotiate terms that we deem appropriate or acceptable or obtain reinsurance or retrocessional reinsurance from entities with satisfactory creditworthiness.

Our investment portfolio may suffer reduced returns or losses which could adversely affect our results of operations and financial condition. Any increase in interest rates or volatility in the fixed income markets could result in significant unrealized losses in the fair value of our investment portfolio which would reduce our net income.

Our operating results depend in part on the performance of our investment portfolio, which currently consists largely of fixed maturity securities, as well as the ability of our investment managers to effectively implement our investment strategy. Our Board of Directors, led by our Finance Committee, Chief Financial Officer and Chief Investment Officer oversees our investment strategy and IPS, which provides the framework for the management and oversight of the Company's investment portfolio. Refer to Part I, Item 1 "Business - Investment Management" for further details on the Company's IPS.

While we follow a conservative investment strategy designed to emphasize the preservation of invested assets and to provide sufficient liquidity for the prompt payment of claims, we will nevertheless be subject to market-wide risks including illiquidity and pricing uncertainty and fluctuations, as well as to risks inherent in particular securities. Our investment performance may vary substantially over time, and there can be no assurance that we will achieve our investment objectives. The investment return including net investment income, income (loss) from investment affiliates, net realized and the change in net unrealized gains (losses) on managed investments was $168.4 million, or 2.79% for the year ended December 31, 2016.

Investment results will also be affected by general economic conditions, market volatility, interest rate fluctuations, liquidity and credit risks beyond our control. In addition, our need for liquidity may result in investment returns below our expectations. Also, with respect to certain of our investments, we are subject to prepayment or reinvestment risk. At December 31, 2016, 28.8% of our managed fixed maturities portfolio is comprised of mortgage-backed and asset-backed securities which are subject to prepayment risk. Although we attempt to manage the risks of investing in a changing interest rate environment, a significant increase in interest rates could result in significant losses, realized or unrealized, in the fair value of our investment portfolio and, consequently, could have an adverse effect on our results of operations.

A portion of our investment portfolio is allocated to investments which have risk characteristics different from our short-term and fixed maturity investment portfolio which could adversely affect our results of operations, financial condition and cash flows.

A portion of our investment portfolio is allocated to hedge funds, investment funds and private equity investments, including our investments in investment affiliates, which contain risk characteristics different from our short-term and fixed maturity investment portfolio. These investments expose us to market risk and may experience significant volatility in their investment returns and valuations which could have an adverse impact our results of operations and financial condition. Furthermore, certain of these investments also expose us to liquidity risk and may be illiquid due to contractual provisions or market conditions. If we require significant amounts of cash on short notice in excess of anticipated cash obligations, then we may have difficulty selling these investments in a timely manner or we may be forced to sell or terminate them at unfavorable values which could adversely impact our results of operations, financial condition and cash flows.

Investment methodologies and assumptions are subject to differing interpretations which could adversely affect our results of operations and financial condition.

The valuation of our investments may include methodologies, estimations and assumptions that are subject to differing interpretations and could result in changes to our investment valuations. During periods of market disruptions, it may be difficult to value certain securities if trading becomes less frequent or market data less observable. There may also be certain asset classes that become illiquid due to the financial environment. As a result, valuation of securities in our investment portfolio may require more subjectivity and management judgment. Valuation methods that require greater estimation may result in values which may be greater or less than the value at which the investments may be ultimately sold. In addition, rapidly changing and unpredictable credit and equity market conditions could materially affect the valuation of securities as reported in our Consolidated Financial Statements.

Our operating results may be adversely affected by currency fluctuations.

Our reporting currency is the U.S. dollar and the majority of our operating companies have a functional currency of the U.S. dollar. Many of our companies maintain both assets and liabilities in local currencies. Therefore, we are exposed to foreign exchange risk on the assets and liabilities denominated in those foreign currencies. Foreign exchange risk is reviewed as part of our risk management process. Locally required capital levels may be invested in home currencies in order to satisfy regulatory requirements and to support local insurance operations. The principal currencies potentially creating unhedged foreign exchange risk are the Australian dollar, New Zealand dollar, Japanese yen, British pound sterling and the Euro. As a result of the accounting treatment for non-monetary items, we may experience volatility in our income statement during a period when movement in foreign exchange rates fluctuate significantly. In accordance with U.S. GAAP, non-monetary items are not re-measured at the reporting date and are therefore translated at historic exchange rates. Non-monetary items include unearned premiums and deferred acquisition costs. Therefore, a mismatch arises in the income statement between the amount of premium recognized at historical exchange rates and the related claims which are re-measured using currency rates at the reporting date which can cause volatility in the income statement. We look to manage our economic foreign currency exposure through matching our major foreign-denominated assets and liabilities, as well as through the use of currency derivatives. However, there is no guarantee that we will effectively mitigate our exposure to foreign exchange losses. Refer to Part II, Item 7A “Quantitative and Qualitative Disclosures About Market Risk” for further discussion of foreign currency risk.

System security risks, data protection breaches, cyber-attacks and systems integration issues could disrupt our internal operations or information technology services provided to customers, and any such disruption could affect our ability to conduct our business, our financial condition and our ability to meet the demands of our customers and stakeholders.

We depend on the proper functioning and availability of our information technology platform, including communications and data processing systems, in operating our business. These systems consist of proprietary software programs that are integral to the efficient operation of our business and include our pricing and exposure management system, VCAPS, and other non-proprietary systems such as our policy administration, actuarial and accounting systems. A prolonged failure of, or inability to access, one or more of our operational systems could significantly impair our ability to process premiums and claims, pay claims, perform actuarial modeling, prepare internal and external financial statements and information, as well as conduct other daily business activities. Such failure could have a material adverse effect on our results of operations.

We are also required to effect electronic transmissions with third parties including brokers, client’s vendors and others with whom we do business, and to facilitate the oversight conducted by our Board of Directors. Security breaches arising from cyber-attacks could expose us to a risk of loss or misuse of our information, litigation and potential liability and could impact the availability, reliability, speed, accuracy or other proper functioning of our IT systems. We may not have the resources or technical sophistication to anticipate or prevent rapidly evolving types of cyber-attacks. A significant cyber incident, including system failure, security breach, disruption by malware or other damage could interrupt or delay our operations, result in a violation of applicable privacy and other laws, damage our reputation, cause a loss of customers or give rise to monetary fines and other penalties, which could be significant.

The Company has a Business Continuity Program which has been developed to provide reasonable assurance of business continuity in the event of disruptions at the company's critical facilities. The key elements of the program are business recovery, systems and data recovery. In the area of information security, we have developed and implemented a framework of principles, policies and technology to protect the information provided to us by our clients and that of the company from cyber-attacks and other misappropriation, corruption or loss. Safeguards are applied to maintain the confidentiality, integrity and availability of information; however, there is no guarantee that these measures will be sufficient to mitigate all of these exposures.

We may be exposed to risk in connection with our management of third party capital.

Our operating subsidiaries may owe certain legal duties and obligations to third party investors (including reporting obligations) and are subject to a variety of often complex laws and regulations relating to the management of third party capital. Compliance with some of these laws and regulations requires significant management time and attention. Although we seek to continually monitor our policies and procedures to attempt to ensure compliance, there could be faulty judgments, simple errors or mistakes, or the failure of our personnel to adhere to established policies and procedures that could result in our failure to comply with applicable laws or regulations which could result in significant liabilities, penalties or other losses to the Company, and seriously harm our business and results of operations. In addition to the forgoing, our third party capital providers may redeem their interests in our managed funds, which could materially impact the financial condition of such funds, and could in turn materially impact our financial condition and results of operations. Moreover, we can provide no assurance that we will be able to attract and raise additional third party capital for our existing funds or for potential new funds and therefore we may forego existing and/or potential fee income and other income generating opportunities.

The ongoing development of our U.S. excess and surplus lines insurance operations is subject to increased risk from changing market conditions.

Excess and surplus lines insurance is a substantial portion of the business written by our U.S. operating subsidiary, Western World. Excess and surplus lines insurance covers risks that are typically more complex and unusual than standard risks and require a high degree of specialized underwriting. As a result, excess and surplus lines risks do not often fit the underwriting criteria of standard insurance carriers. Our excess and surplus lines insurance business fills the insurance needs of businesses with unique characteristics and is generally considered higher risk than those in the standard market. If our underwriting staff inadequately judges and prices the risks associated with the business underwritten in the excess and surplus lines market, our financial results could be adversely impacted.

Further, the excess and surplus lines market is significantly affected by the conditions of the property and casualty insurance market in general. The impact of this cyclicality can be more pronounced in the excess and surplus market than in the standard insurance market. During times of hard market conditions (when market conditions are more favorable to insurers), as rates increase and coverage terms become more restrictive, business tends to move from the admitted market to the excess and surplus lines market and growth in the excess and surplus market can be significantly more rapid than growth in the standard insurance market. When soft market conditions are prevalent (when market conditions are less favorable to insurers), standard insurance carriers tend to loosen underwriting standards and expand market share by moving into business lines traditionally characterized as excess and surplus lines, exacerbating the effect of rate decreases. If we fail to manage the cyclical nature and volatility of the revenues and profit we generate in the excess and surplus lines market, our financial results could be adversely impacted.

A decrease in the fair value of Talbot, Western World and/or our intangible assets may result in future impairments.

Goodwill and intangible assets are assessed for impairment on an annual basis or more frequently if events or changes in circumstances indicate that the carrying amount may not be recoverable. These assessments require us to use significant judgment in making various estimates and assumptions, such as the determination of expected future cash flows and/or earnings, and actual results may ultimately be materially different from such estimates and assumptions. For example, expected future cash flows and/or earnings may be materially and negatively impacted as a result of, among other things, a decrease in renewals and new business, loss of key personnel, lower-than-expected yields and/or cash flows from our investment portfolio or higher-than-expected claims activity and incurred losses as well as other general economic factors. As a result of these potential changes, the estimated fair value of Talbot, Western World and/or our intangible assets may decrease, causing the carrying value to exceed the fair value and the goodwill and/or intangible assets to be impaired. If an impairment is determined to exist, the carrying value of the goodwill and/or intangible asset is adjusted to its implied fair value with the corresponding expense recorded in our income statement in the period in which the impairment is determined. If we are required to record goodwill impairments in the future, our financial condition and results of operations would be negatively affected.

Risks Related to Acquisitions and New Ventures

Any future acquisitions or new ventures may expose us to operational risks.

We may in the future make strategic acquisitions, either of other companies or selected books of business, or grow our business organically. Any future acquisitions or new ventures may expose us to operational challenges and risks, including:

- integrating financial and operational reporting systems;
- integration into new geographical regions;
- establishing satisfactory budgetary and other financial controls;
- funding increased capital needs and overhead expenses;
- retaining management personnel required for existing operations;
- obtaining management personnel required for expanded operations;
- obtaining necessary regulatory permissions;
- funding cash flow shortages that may occur if anticipated revenues are not realized or are delayed, whether by general economic or market conditions or unforeseen internal difficulties;
- the value of assets related to acquisitions or new ventures may be lower than expected or may diminish due to credit defaults or changes in interest rates and liabilities assumed may be greater than expected;
- the assets and liabilities related to acquisitions or new ventures may be subject to foreign currency exchange rate fluctuation; and
- financial exposures in the event that the sellers of the entities we acquire are unable or unwilling to meet their indemnification, reinsurance and other obligations to us.

Our failure to manage successfully these operational challenges and risks may adversely impact our results of operations.

Risks Related to Lloyd’s and Other U.K. Regulatory Matters

The regulation of Lloyd’s members and of Lloyd’s by the U.K. Financial Conduct Authority (“FCA”) and Prudential Regulation Authority (“PRA”) and under European Directives and other local laws may result in intervention that could have a significant negative impact on Talbot.

Talbot operates in a regulated jurisdiction. Its underwriting activities are regulated by the FCA and PRA and franchised by Lloyd’s. The FCA and PRA have substantial powers of intervention in relation to the Lloyd’s managing agents that it regulates (such as Talbot Underwriting Ltd.), including the power to remove their authorization to manage Lloyd’s syndicates. In addition, the Lloyd’s Franchise Board is responsible for approving every syndicate’s annual business plan, including the maximum premium volume they may write, and may require changes to any business plan presented to it or additional capital (known as Funds at Lloyd’s or “FAL”) to be provided to support underwriting. An adverse determination in any of these areas could lead to a change in business strategy which may have an adverse effect on Talbot’s financial condition and results of operations.

Additionally, Lloyd’s worldwide insurance and reinsurance business is subject to local regulation. Changes in such regulation may have an adverse effect on Lloyd’s generally and on Talbot in particular.

Should Lloyd’s Council decide additional levies are required to support the central fund, this could adversely affect Talbot.

The central fund, which is funded by annual contributions from Lloyd’s members and loans, acts as a policyholders’ protection fund to make payments where any Lloyd’s member has failed to pay, or is unable to pay, valid claims. The Lloyd’s Council may resolve to make payments from the central fund for the advancement and protection of policyholders, which could lead to additional or special contributions being payable by Lloyd’s members, including Talbot. This, in turn, could adversely affect Talbot and the Company.

The failure of Lloyd’s to satisfy the PRA’s annual solvency test could result in limitations on managing agents’ ability, including Talbot’s ability, to underwrite or the commencement of legal proceedings against Lloyd’s.

The PRA requires Lloyd’s to satisfy an annual solvency test. The solvency requirement in essence measures whether Lloyd’s has sufficient assets in the aggregate to meet all outstanding liabilities of its members, both current and in run-off. If Lloyd’s fails to satisfy the test in any year, the PRA may require Lloyd’s to cease trading and/or its members to cease or reduce underwriting. In

the event of Lloyd's failing to meet any solvency requirement, either the Society of Lloyd's or the PRA may apply to the court for a Lloyd's Market Reorganization Order ("LMRO"). On the making of an order a "reorganization controller" is appointed, and for its duration, a moratorium is imposed preventing any proceedings or legal process from being commenced or continued against any party that is the subject of such an order, which, if made, would apply to the market as a whole, including members, former members, managing agents, members' agents, Lloyd's brokers, approved run-off companies and managing general agents unless individual parties are specifically excluded.

A downgrade in Lloyd's ratings would have an adverse effect on Syndicate 1183's standing among brokers and customers and cause its premiums and earnings to decrease.

The ability of Lloyd's syndicates to trade in certain classes of business at current levels is dependent on the maintenance of a satisfactory credit rating issued by a recognized rating agency. The financial security of the Lloyd's market is regularly assessed by three independent rating agencies, A.M. Best, Standard & Poor's and Fitch Ratings. Lloyd's current ratings are: A.M. Best: A, Stable Outlook; Standard & Poor's: A+, Stable Outlook; Fitch Ratings: AA-, Stable Outlook.

An increase in the charges paid by Talbot to participate in the Lloyd's market could adversely affect Talbot's financial and operating results.

Lloyd's imposes a number of charges on businesses operating in the Lloyd's market, including, for example, annual subscriptions and central fund contributions for members and policy signing charges. The basis and amounts of charges may be varied by Lloyd's and could adversely affect Talbot and the Company.

An increase in the level or type of deposits required by U.S. Situs Trust Deeds to be maintained by Lloyd's syndicates could result in Syndicate 1183 being required to make a cash call which could adversely affect Talbot's financial performance.

The U.S. Situs Trust Deeds require syndicates transacting certain types of business in the United States to maintain minimum deposits as protection for U.S. policyholders. These deposits represent the syndicates' estimates of unpaid claims liabilities (less premiums receivable) relating to this business, adjusted for provisions for potential bad debt on premiums earned but not received and for any anticipated profit on unearned premiums. No credit is generally allowed for potential reinsurance recoveries. The New York Insurance Department and the U.S. National Association of Insurance Commissioners ("NAIC") currently require funding of 30% of gross liabilities in relation to insurance business classified as "Surplus Lines." The "Credit for Reinsurance" trust fund is usually required to be funded at 100% of gross liabilities. The funds contained within the deposits are not ordinarily available to meet trading expenses. U.S. regulators may increase the level of funding required or change the requirements as to the nature of funding. Accordingly, in the event of a major claim arising in the United States, for example from a major catastrophe, syndicates participating in such U.S. business may be required to make cash calls on their members to meet claims payments and deposit funding obligations. This could adversely affect Talbot.

Risks Related to Taxation

Our non U.S companies may be subject to U.S. tax.

We intend to operate in such a manner that none of our non-U.S. companies would be unintendedly considered engaged in a U.S. trade or business. No definitive standards, however, are provided by the Internal Revenue Code of 1986, as amended (the "Code"), U.S. Treasury regulations or court decisions regarding activities that constitute the conduct of a U.S. trade or business. Because that determination is essentially factual, there can be no assurance that the Internal Revenue Service (the "IRS") will not contend that we are engaged in a U.S. trade or business. If we were found to be so engaged, we could be subject to U.S. corporate income and branch profits tax on our earnings that are effectively connected to such U.S. trade or business.

If the group company involved is entitled to the benefits of a U.S. income tax treaty (the "Treaty"), it would not be subject to U.S. income tax on any income protected by the Treaty unless that income is attributable to a permanent establishment in the U.S. The income tax treaty between the U.S. and Bermuda (the "Bermuda Treaty") clearly applies to premium income, but may be construed as not protecting other income such as investment income. If any of the Company's Bermuda based subsidiaries were found to be engaged in a trade or business in the U.S. and were entitled to the benefits of the Bermuda Treaty in general, but the Bermuda Treaty was found not to protect investment income, a portion of the relevant subsidiary's investment income could be subject to U.S. tax.

U.S. persons who hold common shares may be subject to U.S. income taxation at ordinary income rates on our undistributed earnings and profits.

Controlled Foreign Corporation Status: The Company should not be a controlled foreign corporation ("CFC") because its organizational documents provide that if the common shares owned, directly, indirectly or by attribution, by any person would otherwise represent more than 9.09% of the aggregate voting power of all the Company's common shares, the voting rights attached to those common shares will be reduced so that such person may not exercise and is not attributed more than 9.09% of the total voting power of the common shares. There can be no assurance, however, that the provisions of the Organizational Documents will operate as intended and that the Company will not be considered a CFC. If the Company were considered a CFC, any shareholder that is a U.S. person that owns directly, indirectly or by attribution, 10% or more of the voting power of the Company may be subject to current U.S. income taxation at ordinary income tax rates on all or a portion of the Company's undistributed earnings and profits attributable to the Company's insurance and reinsurance income, including underwriting and investment income. Any gain realized on sale of common shares by such shareholder may also be taxed as a dividend to the extent of the Company's earnings and profits attributed to such shares during the period that the shareholder held the shares and while the Company was a CFC (with certain adjustments).

Related Person Insurance Income: If the related person insurance income ("RPII") of any of the Company's non-U.S. insurance subsidiaries were to equal or exceed 20% of that subsidiary's gross insurance income in any taxable year, and U.S. persons were treated as owning 25% or more of the subsidiary's stock, by vote or value, a U.S. person who directly or indirectly owns any common shares on the last day of such taxable year on which the 25% threshold is met would be required to include in income for U.S. federal income tax purposes that person's ratable share of that subsidiary's RPII for the taxable year. The amount to be included in income is determined as if the RPII were distributed proportionately to U.S. shareholders on that date, regardless of whether that income is distributed. The amount of RPII to be included in income is limited by such shareholder's share of the subsidiary's current-year earnings and profits, and possibly reduced by the shareholder's share of prior year deficits in earnings and profits. The amount of RPII earned by a subsidiary will depend on several factors, including the identity of persons directly or indirectly insured or reinsured by that subsidiary. Although we do not believe that the 20% threshold will be met for our non-U.S. insurance subsidiaries, some of the factors that might affect that determination in any period may be beyond our control. Consequently, we cannot assure that we will not exceed the RPII threshold in any taxable year.

If a U.S. person disposes of shares in a non-U.S. insurance corporation that had RPII (even if the 20% threshold was not met) and the 25% threshold is met at any time during the five-year period ending on the date of disposition, and the U.S. person owned any shares at such time, any gain from the disposition will generally be treated as a dividend to the extent of the holder's share of the corporation's undistributed earnings and profits that were accumulated during the period that the holder owned the shares (possibly whether or not those earnings and profits are attributable to RPII). In addition, the shareholder will be required to comply with specified reporting requirements, regardless of the amount of shares owned. We believe that those rules should not apply to a disposition of common shares because the Company is not itself directly engaged in the insurance business. We cannot assure, however, that the IRS will not successfully assert that those rules apply to a disposition of common shares.

U.S. persons who hold common shares will be subject to adverse tax consequences if the Company is considered a passive foreign investment company for U.S. federal income tax purposes.

If the Company is considered a passive foreign investment company ("PFIC") for U.S. federal income tax purposes, a U.S. holder who owns common shares will be subject to adverse tax consequences, including a greater tax liability than might otherwise apply and an interest charge on certain taxes that are deferred as a result of the Company's non-U.S. status. We currently do not expect that the Company will be a PFIC for U.S. federal income tax purposes in the current taxable year or the foreseeable future because, through Validus Reinsurance, Ltd., Talbot 2002 Underwriting Capital Ltd., Validus Reinsurance (Switzerland) Ltd and Talbot Underwriting Ltd., it intends to be predominantly engaged in the active conduct of a global insurance and reinsurance business. We cannot assure you, however, that the Company will not be deemed to be a PFIC by the IRS. No regulations currently exist regarding the application of the PFIC provisions to an insurance company.

Changes in U.S. tax laws may be retroactive and could subject a U.S. holder of our common shares to other adverse tax consequences.

The tax treatment of non-U.S. companies and their U.S. and non-U.S. insurance and reinsurance subsidiaries has been the subject of Congressional discussion and legislative proposals in the U.S. We cannot assure you that future legislative action will not increase the amount of U.S. tax payable by us.

In addition, the U.S. federal income tax laws and interpretations, including those regarding whether a company is engaged in a U.S. trade or business or is a PFIC, or whether U.S. holders would be required to include "subpart F income" or RPII in their gross income, are subject to change, possibly on a retroactive basis. The regulations regarding the application of the PFIC rules to insurance companies and the regulations regarding RPII are still in proposed form and we cannot be certain if, when, or in what form, such regulations or pronouncements may be finalized, and whether such guidance will have a retroactive effect.

Changes in U.S. tax laws may increase the tax in our U.S. subsidiaries

The U.S. Congress has proposed introducing sweeping new tax legislation in the U.S., including, but not limited to, reducing the corporate tax rate, eliminating net interest deductibility and border tax adjustments. The most significant part of the proposal relates to border tax adjustments. If border adjustments were to be applied to the (re)insurance industry, a U.S. company purchasing offshore reinsurance would not be allowed to deduct the expense of the premium in computing their taxable income. In essence, this would add a “border tax” of 20% (the expected rate under the proposed legislation) on top of the cost of the premium. As such, the purchase of offshore reinsurance may not be efficient for any U.S. company. If such proposed legislation were to become law it could have a material adverse effect on the Company.

We may become subject to taxes in Bermuda after March 31, 2035, which may have a material adverse effect on our results of operations.

Under current Bermuda law, we are not subject to tax on income or capital gains. We have received from the Minister of Finance under The Exempted Undertaking Tax Protection Act 1966, as amended, an assurance that, in the event that Bermuda enacts legislation imposing tax computed on profits, income, any capital asset, gain or appreciation, or any tax in the nature of estate duty or inheritance, then the imposition of any such tax shall not be applicable to us or to any of our operations or shares, debentures or other obligations, until March 31, 2035. We could be subject to taxes in Bermuda after that date. This assurance is subject to the provision that it is not to be construed to prevent the application of any tax or duty to such persons as are ordinarily resident in Bermuda or to prevent the application of any tax payable in accordance with the provisions of the Land Tax Act 1967 or otherwise payable in relation to any property leased to us. The Company’s Bermuda-domiciled subsidiaries each pay annual Bermuda government fees and each Bermuda subsidiary licensed insurer and reinsurer pays an annual insurance license fee. In addition, all entities employing individuals in Bermuda are required to pay a payroll tax and there are other sundry taxes payable, directly or indirectly, to the Bermuda government.

The impact of Bermuda’s letter of commitment to the Organization for Economic Cooperation and Development (“OECD”) to eliminate harmful tax practices is uncertain and could adversely affect our tax status in Bermuda.

The OECD has published reports and launched a global initiative among member and non-member countries on measures to limit harmful tax competition. These measures are largely directed at counteracting the effects of tax havens and preferential tax regimes in countries around the world. Bermuda was not listed in the most recent report as an uncooperative tax haven jurisdiction because it had previously committed to eliminate harmful tax practices, to embrace international tax standards for transparency, to exchange information and to eliminate an environment that attracts business with no substantial domestic activity. We are not able to predict what changes will arise from the commitment or whether such changes will subject us to additional taxes.

Our non-U.K. companies may be subject to U.K. tax.

We intend to operate in such a manner that none of our non-U.K. companies would be resident in the U.K. for tax purposes. A company incorporated outside the U.K. will be deemed resident if its business is centrally managed and controlled from the U.K. The concept of central management and control is not defined in statute but derives from case law and the determination of residence is subjective, therefore Her Majesty’s Revenue and Customs (“HMRC”) might contend successfully that one or more of our companies are resident in the U.K.

Furthermore, we intend to operate in such a manner that none of our non-U.K. companies carry on a trade wholly or partly in the U.K. Case law has held that whether or not a trade is being carried on is a matter of fact and emphasis is placed on where operations take place from which the profits in substance arise. This judgment is subjective. The HRMC might contend successfully that one or more of our non-U.K. companies, is conducting business in the U.K. For tax purposes, a non-U.K. tax resident company will only be subject to corporation tax if it carries on a trade in the U.K. through a permanent establishment. However, that company will still have an income tax liability if it carries on a trade in the U.K., even absent a permanent establishment, unless that company is treaty-protected.

We may become subject to taxation on profits generated in Bermuda as a result of the OECD’s final recommendations on Base erosion and profit shifting (“BEPS”)

In 2015, the OECD published final recommendations on BEPS. These recommendations propose the development of rules to prevent base erosion and profit shifting which may drive fundamental changes in the perception of tax structuring and transfer pricing by tax authorities. The recommendations include adopting transfer pricing rules or special measures to ensure that returns will not accrue to an entity solely because it has contractually assumed risks or has provided capital. BEPS will likely put a much greater emphasis on the location of individuals and their contributions towards profit generation. This would notably result in a significant change to the existing transfer pricing rules and could potentially have a significant impact on the allocation of taxable profits throughout the Company. Furthermore, these developments might also result in significant changes to the rules that govern the creation of a taxable presence in a foreign country. As a consequence, profits currently generated in Bermuda may become subject to taxation outside Bermuda.

Our non-Swiss companies may be subject to taxation in Switzerland.

We intend to operate in such a manner that none of our non-Swiss companies would be resident in Switzerland for tax purposes. A company incorporated outside Switzerland will be deemed resident if its business is centrally managed and controlled from Switzerland. However, the analysis is factual and the Swiss tax authorities might contend successfully that one or more of our non-Swiss group companies are resident in Switzerland.

Furthermore, a group company incorporated and managed outside of Switzerland should not be liable for Swiss corporation taxation unless it carries on business through a permanent establishment in Switzerland. From a Swiss tax perspective, a permanent establishment is a fixed place of business through which a company performs business activities that are considered as being quantitatively and qualitatively significant by the tax authorities, and may include a branch, office, agency or place of management. As of the date of this Annual Report, the Validus group intends to operate in such a manner so that none of our non-Swiss companies will carry on business through a permanent establishment in Switzerland. If any of our companies were to be treated as carrying on business in Switzerland through a branch or agency or of having a permanent establishment in Switzerland, our results of operations could be adversely affected.

Diverted Profit Tax in the U.K.

The U.K. Authorities enacted a new Diverted Profits Tax as of April 1, 2015 on profits of multinationals artificially diverted from the U.K. The tax rate will be 25%. Diverted Profits Tax will apply in two situations; (a) where a foreign company has artificially avoided having a taxable presence in the U.K, or (b) where a group has entered into a tax advantageous structure or transaction that lacks economic substance.

Although the legislation intends to address aggressive tax planning which is artificial or lacks economic substance, the legislation has a wider reach. The Validus group has significant U.K. operations and several intragroup reinsurance agreements. We believe that these transactions have economic substance and should fall outside the intended reach of the Diverted Profit Tax. However, we are not able to predict the financial impact of the new Diverted Profits Tax and such impact may be adverse.

Risks Related to Laws and Regulations Applicable to Us

If we become subject to insurance statutes and regulations in addition to the statutes and regulations that currently apply to us, there could be a significant and negative impact on our business.

We currently conduct our business in a manner such that we expect the Company will not be subject to insurance and/or reinsurance licensing requirements or regulations in any jurisdiction other than Bermuda, Switzerland, the United States, and, with respect to Talbot, the U.K. and jurisdictions to which Lloyd’s is subject. Refer to Part I, Item 1 “Business — Regulation.” Although we do not currently intend to engage in activities which would require us to comply with insurance and reinsurance licensing requirements of other jurisdictions, should we choose to engage in activities that would require us to become licensed in such jurisdictions, we cannot assure you that we will be able to do so or that we will be able to do so in a timely manner.

The insurance and reinsurance regulatory framework has recently become subject to increased scrutiny in many jurisdictions. Governmental authorities in both the U.S. and worldwide have become increasingly interested in the potential risks posed by the insurance industry as a whole, and to commercial and financial systems in general. For example, the U.S. Congress and the current administration have made, or called for consideration of, several additional proposals relating to a variety of issues with respect to financial regulation reform, including the Dodd-Frank Act that was signed into law by President Obama on July 21, 2010. The Dodd-Frank Act represented a comprehensive overhaul of the regulation of the financial services industry within the United States and established a Federal Insurance Office under the U.S. Treasury Department to monitor all aspects of the insurance industry and of lines of business other than certain health insurance, certain long-term care insurance and crop insurance. The director of the Federal

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Insurance Office has the ability to recommend that an insurance company or an insurance holding company be subject to heightened prudential standards under the supervision of the Federal Reserve. In addition, some state legislators have considered or enacted laws that will alter and likely increase state regulation of insurance and reinsurance companies and holding companies. Furthermore, the NAIC, which is an association of the insurance commissioners of all 50 states and the District of Columbia, regularly reexamines existing laws and regulations.

Government regulators are generally concerned with the protection of policyholders rather than other constituencies, such as our shareholders. We are not able to predict the exact nature, timing or scope of changes in laws and regulations to which we are or may become subject; however, compliance with such laws and regulations may result in additional costs which may adversely impact our results of operations.

Our international business is subject to applicable laws and regulations relating to sanctions and foreign corrupt practices, the violation of which could adversely affect our operations.

We must comply with all applicable economic sanctions and anti-bribery laws and regulations of the United States and other foreign jurisdictions where we operate, including the United Kingdom and the European Community. United States laws and regulations applicable to us include the economic trade sanctions laws and regulations administered by the United States Department of the Treasury's Office of Foreign Assets Control ("OFAC") as well as certain laws administered by the United States Department of State. In addition, we are subject to the Foreign Corrupt Practices Act ("FCPA") and other anti-bribery laws such as the UK Bribery Act that generally bar corrupt payments or unreasonable gifts to foreign governments or officials. Although we have policies and controls in place that are designed to ensure compliance with these laws and regulations, it is possible that an employee or intermediary could fail to comply with applicable laws and regulations. In such event, we could be exposed to civil penalties, criminal penalties and other sanctions, including fines or other punitive actions. In addition, such violations could damage our business and/or our reputation. Such criminal or civil sanctions, penalties, other sanctions, and damage to our business and/or reputation could have a material adverse effect on our financial condition and results of operations.

Risks Related to Ownership of Our Common Shares

Because Validus Holdings, Ltd. is a holding company and substantially all of our operations are conducted by our main operating subsidiaries our ability to meet any ongoing cash requirements and to pay dividends will depend on our ability to obtain cash dividends or other cash payments or obtain loans from these subsidiaries.

We conduct substantially all of our operations through subsidiaries. Our ability to meet our ongoing cash requirements, including any debt service payments or other expenses, and pay dividends on our common shares in the future, will depend on our ability to obtain cash dividends or other cash payments or obtain loans from these subsidiaries and as a result will depend on the financial condition of these subsidiaries. The inability of these subsidiaries to pay dividends in an amount sufficient to enable us to meet our cash requirements could have a material adverse effect on us and the value of our common shares. Each of these subsidiaries is a separate and distinct legal entity that has no obligation to pay any dividends or to lend or advance us funds and may be restricted from doing so by contract, including other financing arrangements, charter provisions or applicable legal and regulatory requirements or rating agency constraints. The payment of dividends by these subsidiaries to us is limited under Bermuda, U.K. and U.S. laws and regulations. The Insurance Act provides that our Bermuda Class 3B and 4 insurance subsidiaries may not declare or pay in any financial year dividends of more than 25% of their total statutory capital and surplus (as shown on their statutory balance sheets in relation to the previous financial year) unless they file an affidavit with the BMA at least seven days prior to the payment signed by at least two directors and such subsidiary's principal representative, stating that in their opinion such subsidiaries will continue to satisfy the required margins following declaration of those dividends, though there is no additional requirement for BMA approval. In addition, before reducing its total statutory capital by 15% or more (as set out in its previous years' statutory financial statements) each of our Class 3A and Class 4 insurance subsidiaries must make application to the BMA for permission to do so, such application to consist of an affidavit signed by at least two directors and such subsidiary's principal representative stating that in their opinion the proposed reduction in capital will not cause such subsidiaries to fail to meet its relevant margins, and such other information as the BMA may require. Each of our Class 3 insurance subsidiaries must make application to the BMA before reducing its total statutory capital by 15% or more and should provide such information as the BMA may require. As at December 31, 2016, the Bermuda regulated subsidiaries have the ability to distribute up to $1,335.3 million of unrestricted net assets as dividend payments or return of capital to Validus Holdings, Ltd. without prior regulatory approval.

Talbot manages Syndicate 1183 (the “Syndicate”) at Lloyd’s. Lloyd’s requires Talbot to hold cash and investments in trust for the benefit of policyholders either as Syndicate trust funds or as Funds at Lloyd’s (“FAL”). Talbot may not distribute funds from the Syndicate into its corporate member’s trust accounts unless, firstly, they are represented by audited profits and, secondly, the Syndicate has adequate future cash flow to service its policyholders. Talbot’s corporate member may not distribute funds to Talbot’s unregulated bank or investment accounts unless they are represented by a surplus of cash and investments over the FAL requirement. Additionally, U.K. company law prohibits Talbot’s corporate name from declaring a dividend to the Company unless it has profits available for distribution. The determination of whether a company has profits available for distribution is based on its accumulated realized profits less its accumulated realized losses. While the U.K. insurance regulatory laws do not impose statutory restrictions on a corporate name's ability to declare a dividend, the FCA and PRA rules require maintenance of each insurance company's solvency margin within its jurisdiction.

Western World's operating subsidiaries are domiciled in the state of New Hampshire. New Hampshire insurance laws limit the amount of dividends Western World may pay to the Company in any 12 month period without prior approval of the New Hampshire State Insurance Department. These limitations are based on the lesser of: a maximum of 10% of prior year end statutory surplus as determined under statutory accounting practices or the net income, not including realized capital gains, for the 12-month period ending December 31, next preceding, but shall not include pro rata distributions of any class of the insurer's own securities. In determining whether a dividend or distribution is extraordinary, an insurer may carry forward net income from the previous two calendar years that has not already been paid out as dividends. This carry-forward shall be computed by taking the net income from the second and third preceding calendar years, not including realized capital gains, less dividends paid in the second and immediate preceding calendar years. As at December 31, 2016, the maximum dividend that may be paid to the Company by Western World without obtaining prior approval was $0.5 million.

The timing and amount of any cash dividends on our common shares are at the discretion of our Board of Directors and will depend upon our results of operations and cash flows, our financial position and capital requirements, general business conditions, legal, tax, regulatory, rating agency and contractual constraints or restrictions and any other factors that our Board of Directors deems relevant. In addition, the indentures governing our Junior Subordinated Deferrable Debentures would restrict us from declaring or paying dividends on our common shares if we are downgraded by A.M. Best to a financial strength rating of "B" (Fair) or below or if A.M. Best withdraws its financial strength rating on any of our material insurance subsidiaries.

Future sales of our common shares and grants of restricted shares may affect the market price of our common shares and the future exercise of options may result in immediate and substantial dilution of the common shares.

As of December 31, 2016 (but without giving effect to unvested restricted shares), we had 79,132,252 common shares outstanding. Approximately 2,653,949 of these outstanding shares were subject to the volume limitations and other conditions of Rule 144 under the Securities Act of 1933, as amended, which we refer to as the "Securities Act." In addition, we have filed one or more registration statements on Form S-8 under the Securities Act to register common shares issued or reserved for issuance under our Amended and Restated 2005 Long Term Incentive Plan (the "Plan"). The number of common shares that have been reserved for issuance under the Plan is equal to 2,753,292 of which 1,251,411 shares remain available as of December 31, 2016. We cannot predict what effect, if any, future sales of our common shares, or the availability of common shares for future sale, will have on the market price of our common shares. Sales of substantial amounts of our common shares in the public market, or the perception that sales of this type could occur, could depress the market price of our common shares and may make it more difficult for our shareholders to sell their common shares at a time and price that they deem appropriate.

Our Bye-laws authorize our Board of Directors to issue one or more series of common shares and preferred shares without shareholder approval. Specifically, we have an authorized share capital of 571,428,571 shares ($0.175 par value per share), which can consist of common shares and/or preference shares, as determined by our Board of Directors. The Board of Directors has the right to issue the remaining shares without obtaining any approval from our shareholders and to fix the rights, preferences, privileges and restrictions thereof, including dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences and the number of shares constituting any series or designation of such series. Any issuance of our preferred stock could adversely affect the voting power of the holders of our common shares and could have the effect of delaying, deferring, or preventing the payment of any dividends (including any liquidating dividends) and any change in control of us. If a significant number of either common or preferred shares are issued, it may cause the market price of our common shares to decline.

Our classified board structure may prevent a change in our control.

Our Board of Directors is divided into three classes of directors. Each year one class of directors is elected by the shareholders for a three year term. The staggered terms of our directors may reduce the possibility of a tender offer or an attempt at a change in control, even though a tender offer or change in control might be in the best interest of our shareholders.

There are provisions in our Bye-laws that reduce the voting rights of voting common shares that are held by a person or group to the extent that such person or group holds more than 9.09% of the aggregate voting power of all common shares entitled to vote on a matter.

In general, and except as provided below, shareholders have one vote for each common share held by them and are entitled to vote at all meetings of shareholders. However, if, and for so long as, the common shares of a shareholder, including any votes conferred by "controlled shares" (as defined below), would otherwise represent more than 9.09% of the aggregate voting power of all common shares entitled to vote on a matter, including an election of directors, the votes conferred by such shares will be reduced by whatever amount is necessary such that, after giving effect to any such reduction (and any other reductions in voting power required by our Bye-laws), the votes conferred by such shares represent 9.09% of the aggregate voting power of all common shares entitled to vote on such matter. "Controlled shares" include, among other things, all shares that a person is deemed to own directly, indirectly or constructively (within the meaning of Section 958 of the Code, or Section 13(d) (3) of the Securities and Exchange Act of 1934, as amended (the "Exchange Act")). At December 31, 2016, there were 81,602,234 common shares, of which 7,417,643 common shares would confer votes that represent 9.09% of the aggregate voting power of all common shares entitled to vote generally at an election of directors. An investor who does not hold, and is not deemed under the provisions of our Bye-laws to own, any of our common shares may therefore purchase up to such amount without being subject to voting cutback provisions in our Bye-laws.

In addition, we have the authority under our Bye-laws to request information from any shareholder for the purpose of determining ownership of controlled shares by such shareholder.

There are regulatory limitations on the ownership and transfer of our common shares which could result in the delay or denial of any transfers shareholders might seek to make.

The BMA must approve all issuances and transfers of securities of a Bermuda exempt company except where a general permission applies under the Exchange Control Act 1972 and related regulations. We have received permission from the BMA to issue our common shares and securities, and for the free transferability of our common shares and securities, as long as the common shares are listed on the New York Stock Exchange or other appointed exchange, to and among persons who are residents and non-residents of Bermuda for exchange control purposes. Any other transfers remain subject to approval by the BMA and such approval may be denied or delayed. Additionally issuances and transfers of voting or controlling shares of Bermuda registered insurance subsidiaries requires application to, or notification to, the BMA Insurance Division (depending on the circumstances) pursuant to the Insurance Act.

A shareholder of our Company may have greater difficulties in protecting its interests than as a shareholder of a U.S. corporation.

The Companies Act 1981 (the "Companies Act"), which applies to us, differs in material respects from laws generally applicable to U.S. corporations and their shareholders. Taken together with the provisions of our Bye-laws, some of these differences may result in a shareholder having greater difficulties in protecting its interests as a shareholder of our company than it would have as a shareholder of a U.S. corporation. This affects, among other things, the circumstances under which transactions involving an interested director are voidable, whether an interested director can be held accountable for any benefit realized in a transaction with our Company, what approvals are required for business combinations by our Company with a large shareholder or a wholly owned subsidiary, what rights a shareholder may have as a shareholder to enforce specified provisions of the Companies Act or our Bye-laws, and the circumstances under which we may indemnify our directors and officers.

We are a Bermuda company and it may be difficult for our shareholders to enforce judgments against us or against our directors and executive officers.

We were incorporated under the laws of Bermuda and our business is based in Bermuda. In addition, certain of our directors and officers reside outside the United States, and a portion of our assets and the assets of such persons may be located in jurisdictions outside the United States. As such, it may be difficult or impossible to effect service of process within the United States upon us or those persons, or to recover against us or them on judgments of U.S. courts, including judgments predicated upon the civil liability provisions of the U.S. federal securities laws. Further, no claim may be brought in Bermuda against us or our directors and officers in the first instance for violation of U.S. federal securities laws because these laws have no extraterritorial application under Bermuda law and do not have force of law in Bermuda; however, a Bermuda court may impose civil liability, including the possibility of monetary damages, on us or our directors and officers if the facts alleged in a complaint constitute or give rise to a cause of action under Bermuda law. Currently, of our executive officers, Kean Driscoll, Jeffrey Sangster, Robert Kuzloski, Michael Moore, Patrick Boisvert and Lixin Zeng reside in Bermuda, Edward Noonan, Romel Salam and Andrew Kudera maintain residences in both Bermuda and the United States, Peter Bilsby resides in the United Kingdom and the remainder reside in the United States. Of our directors, Edward Noonan maintains residences in both Bermuda and the United States, Jean-Marie Nessi resides in France, Michael Carpenter resides in the United Kingdom and the remainder reside in the United States.

We have been advised by Bermuda counsel that there is doubt as to whether the courts of Bermuda would enforce judgments of U.S. courts obtained in actions against us or our directors and officers, predicated upon the civil liability provisions of the U.S. federal securities laws, or original actions brought in Bermuda against us or such persons predicated solely upon U.S. federal securities laws. Further, we have been advised by Bermuda counsel that there is no treaty in effect between the United States and Bermuda providing for the enforcement of judgments of U.S. courts in civil and commercial matters, and there are grounds upon which Bermuda courts may decline to enforce the judgments of U.S. courts. Some remedies available under the laws of U.S. jurisdictions, including some remedies available under the U.S. federal securities laws, may not be allowed in Bermuda courts as contrary to public policy in Bermuda. Because judgments of U.S. courts are not automatically enforceable in Bermuda, it may be difficult for our shareholders to recover against us based upon such judgments.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

The Company and its subsidiaries occupy office space in Australia, Bermuda, Canada, Chile, England, Ireland, Malaysia, Singapore, Switzerland, United Arab Emirates and the United States. We renew and enter into leases in the ordinary course of business as required. We believe our current facilities and the leaseholds with respect thereto are sufficient for us to conduct our operations. The main operating locations of the Company and its primary leaseholders are as follows:

Legal entity	Location	Expiration date
Validus Holdings, Ltd.	Pembroke, Bermuda	December 31, 2021
Validus Research Inc.	Waterloo, Canada	March 31, 2020
Validus Specialty, Inc.	New York, New York, USA	June 30, 2032
Talbot Holdings Ltd. and Talbot Underwriting Services Ltd.	London, England	June 22, 2024
Validus Reinsurance (Switzerland) Ltd	Zurich, Switzerland	January 31, 2019
Western World Insurance Group, Inc.	Parsippany, New Jersey, USA	March 31, 2030

Item 3. Legal Proceedings

During the normal course of business, the Company and its subsidiaries are subject to litigation and arbitration. Legal proceedings such as claims litigation are common in the insurance and reinsurance industry in general. The Company and its subsidiaries may be subject to lawsuits and regulatory actions in the normal course of business that do not arise from or directly relate to claims on reinsurance treaties or contracts or insurance policies.

Litigation typically can include, but is not limited to, allegations of underwriting errors or misconduct, employment claims, regulatory activity, shareholder disputes or disputes arising from business ventures. These events are difficult, if not impossible, to predict with certainty. It is Company policy to dispute all allegations against the Company and/or its subsidiaries that management believes are without merit.

As at December 31, 2016, the Company was not a party to, or involved in any litigation or arbitration that it believes could have a material adverse effect on the financial condition, results of operations or liquidity of the Company.

Item 4. Mine Safety Disclosure

Not applicable.

PART II
All amounts presented in this part are in U.S. dollars except as otherwise noted.

Item 5. Market for Registrant's Common Equity, Related Shareholder Matters and Issuer Purchases of Equity Securities

The Company's common shares are listed on the New York Stock Exchange ("NYSE") under the symbol "VR." On February 22, 2017, the last reported sale price for the Company's common shares was $57.74 per share.

The following tables set forth the high and low sales prices per share, as reported on the NYSE Composite Tape, of the Company's common shares per fiscal quarter for the two most recent fiscal years.

	2016		2015	
Period	High	Low	High	Low
1st Quarter	$47.58	$41.73	$42.34	$38.88
2nd Quarter	$48.77	$44.23	$45.50	$41.50
3rd Quarter	$51.43	$47.14	$47.49	$42.81
4th Quarter	$56.41	$48.77	$48.49	$42.00

On December 31, 2016, the number of holders of record for the Company's common shares were 42. This figure does not represent the actual number of beneficial owners of our common shares because such shares are frequently held in "street name" by securities dealers and others for the benefit of individual owners.

Performance Graph

The following graph compares the cumulative total shareholder return on the Company's common shares, including reinvestment of dividends on our common shares, as compared to the cumulative total return of the S&P 500 Composite Stock Price Index ("S&P 500") and the cumulative total return of an index of the Company's peer group for the five year period commencing December 31, 2011 and ending December 31, 2016, assuming $100 was invested on December 31, 2011.

The Company's peer group index is comprised of the following companies: Allied World Assurance Company Holdings, Ltd., Arch Capital Group, Ltd., Argo Group International Holdings, Ltd., Aspen Insurance Holdings Limited, AXIS Capital Holdings Limited, Endurance Specialty Holdings Ltd., Everest Re Group, Ltd., and RenaissanceRe Holdings Ltd.

Dividend Policy

We are a holding company and have no direct operations. Our ability to pay dividends depends, in part, on the ability of our principal operating subsidiaries to pay dividends to us. As a holding company, Validus Holdings, Ltd.'s principal source of income is dividends or other sources of permitted payments from its subsidiaries. These funds provide the cash flow required for dividend payments to the Company's shareholders. As at December 31, 2016, the Bermuda regulated subsidiaries have the ability to distribute up to $1,335.3 million of unrestricted net assets as dividend payments or return of capital to Validus Holdings, Ltd. without prior regulatory approval. For addition information refer to Part 1, Item 1, “Business—Regulation,” Part II, Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Sources of Liquidity,” and Note 27 to the Consolidated Financial Statements, “Statutory and regulatory requirements,” in Part II, Item 8.

For the years ended December 31, 2016 and 2015, the Company declared and paid quarterly dividends of $0.35 and $0.32 per common share, respectively. The Company also declared and paid a cash dividend of $0.3753472 per depositary share during the quarter ended September 30, 2016 and $0.3671875 per depositary share during the quarter ended December 31, 2016 on its outstanding Series A Preferred Shares. These dividends were paid on September 15, 2016 and December 15, 2016, to holders of record on September 1, 2016 and December 1, 2016, respectively.

On February 9, 2017, the Company announced a quarterly cash dividend of $0.38 per common share, payable on March 31, 2017 to shareholders of record as of March 15, 2017 and a cash dividend of $0.3671875 per depositary share on the outstanding Series A Preferred Shares, payable on March 15, 2017 to shareholders of record on March 1, 2017.

Issuer Repurchases of Equity Securities

On February 3, 2015, the Board of Directors of the Company approved an increase to the Company’s common share repurchase authorization to $750.0 million. This amount is in addition to the $2.3 billion of common shares repurchased by the Company through February 3, 2015 under its previously authorized share repurchase programs. The common share repurchase program (“the Program”) may be modified, extended or terminated by the Board of Directors at any time. Unless terminated earlier by resolution of the Board of Directors of the Company, the Program will expire when the Company has repurchased the full value of the common shares authorized.

Share repurchases include repurchases by the Company from time to time of shares from employees in order to facilitate the payment of withholding taxes on restricted shares which have vested. The Company repurchases these shares at their fair market value, as determined by reference to the closing price of our common shares on the day the restricted shares vested.

The table below details the following repurchases that were made under the Program through to February 22, 2017.

	Total shares repurchased under publicly announced repurchase program			
(Dollars in thousands, except share and per share amounts)	Total number of shares repurchased	Aggregate Purchase Price [(a)]	Average Price per Share [(a)]	Approximate dollar value of shares that may yet be purchased under the Program
Cumulative inception-to-date to December 31, 2015	76,031,280	$2,491,731	$ 32.77	$ 532,670
Cumulative for the nine months ended September 30, 2016	4,160,168	196,015	$ 47.12	$ 336,655
October 1 - 31, 2016	81,174	4,029	$ 49.63	$ 332,626
November 1 - 30, 2016	174,734	9,250	$ 52.94	$ 323,376
December 1 - 31, 2016	61,493	3,381	$ 54.98	$ 319,995
Cumulative for the three months ended December 31, 2016	317,401	16,660	$ 52.49	
Cumulative for the year ended December 31, 2016	4,477,569	212,675	$ 47.50	

Cumulative inception-to-date to December 31, 2016	80,508,849	$2,704,406	$ 33.59	$ 319,995
Repurchases made subsequent to year-end:				
January 1 - 31, 2017	—	$—	$ —	$ 319,995
February 1 - 22, 2017	—	$—	$ —	$ 319,995

(a) Share transactions are on a trade date basis through February 22, 2017 and are inclusive of commissions. Average share price is rounded to two decimal places.

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Item 6. Selected Financial Data

The following tables set forth our selected historical consolidated financial information for the last five years ended December 31. The Company was formed on October 19, 2005 and completed the acquisitions of Talbot, IPC, Flagstone and Western World on July 2, 2007, September 4, 2009, November 30, 2012 and October 2, 2014, respectively. Flagstone is included in the Company's consolidated results for the one month ended December 31, 2012 and for subsequent fiscal year ends. Western World is included in the Company's consolidated results from the October 2, 2014 date of acquisition.

	Years Ended December 31,				
(Dollars in thousands)	2016	2015	2014	2013	2012
Revenues					
Gross premiums written	$2,648,705	$2,557,506	$2,358,865	$2,388,446	$2,284,917
Reinsurance premiums ceded	(289,705)	(328,681)	(313,208)	(375,800)	(307,506)
Net premiums written	2,359,000	2,228,825	2,045,657	2,012,646	1,977,411
Change in unearned premiums	(109,835)	18,064	(52,602)	86,149	14,315
Net premiums earned	2,249,165	2,246,889	1,993,055	2,098,795	1,991,726
Gain on bargain purchase, net of expenses [(a)]	—	—	—	—	17,701
Net investment income	150,385	127,824	100,086	96,089	107,947
Net realized gains (losses) on investments	15,757	2,298	14,917	(764)	18,233
Change in net unrealized gains (losses) on investments	16,871	(32,395)	(2,842)	(52,419)	36,766
(Loss) income from investment affiliate	(2,083)	4,281	8,411	4,790	(964)
Other insurance related income and other income (loss)	2,195	5,111	1,229	(6,607)	22,362
Foreign exchange gains (losses)	10,864	(8,731)	(12,181)	3,949	5,084
Total revenues	2,443,154	2,345,277	2,102,675	2,143,833	2,198,855
Expenses					
Losses and loss expenses	1,065,097	977,833	765,015	776,796	1,035,390
Policy acquisition costs	449,482	410,058	339,467	360,403	349,766
General and administrative expenses	336,294	363,709	329,362	316,008	276,092
Share compensation expenses	42,907	38,341	33,073	27,630	26,709
Finance expenses	58,520	74,742	68,324	68,007	59,710
Transaction expenses [(b)]	—	—	8,096	—	—
Total expenses	1,952,300	1,864,683	1,543,337	1,548,844	1,747,667
Income before taxes, (loss) income from operating affiliate and (income) attributable to AlphaCat investors	490,854	480,594	559,338	594,989	451,188
Tax benefit (expense)	19,729	(6,376)	(155)	(383)	(2,501)
(Loss) income from operating affiliate	(23)	(3,949)	(4,340)	542	(1,758)
(Income) attributable to AlphaCat investors	(23,358)	(2,412)	—	—	—
Net income	487,202	467,857	554,843	595,148	446,929
Net (income) attributable to noncontrolling interests	(123,363)	(92,964)	(74,880)	(62,482)	(38,491)
Net income available to Validus	363,839	374,893	479,963	532,666	408,438
Dividends on preferred shares	(4,455)	—	—	—	—
Net income available to Validus common shareholders	$359,384	$374,893	$479,963	$532,666	$408,438

(a) The gain on bargain purchase, net of expenses, arose from the acquisition of Flagstone on November 30, 2012 and is net of transaction related expenses.

(b)

Transaction expenses incurred during 2014 relate to the acquisition of Western World. Transaction expenses are primarily comprised of legal, financial advisory and audit related services.

	Years Ended December 31,				
	2016	2015	2014	2013	2012
Earnings per share					
Weighted average number of common shares and common share equivalents outstanding					
Basic	81,041,974	84,107,236	90,354,745	102,202,274	97,184,110
Diluted	82,359,460	86,426,760	94,690,271	103,970,289	102,384,923
Basic earnings per share available to common shareholders	$ 4.43	$ 4.47	$ 5.24	$ 5.02	$ 4.13
Earnings per diluted share available to common shareholders	$ 4.36	$ 4.34	$ 5.07	$ 4.94	$ 3.99
Cash dividends declared per share	$ 1.40	$ 1.28	$ 1.20	$ 3.20	$ 1.00
Selected financial ratios:					
Losses and loss expense ratio [a]	47.4 %	43.5 %	38.4 %	37.0 %	52.0 %
Policy acquisition cost ratio [b]	20.0 %	18.3 %	17.0 %	17.1 %	17.6 %
General and administrative expense ratio [c]	16.8 %	17.9 %	18.2 %	16.4 %	13.8 %
Expense ratio [d]	36.8 %	36.2 %	35.2 %	33.5 %	31.4 %
Combined ratio [e]	84.2 %	79.7 %	73.6 %	70.5 %	83.4 %
Return on average equity [f]	9.7 %	10.3 %	13.0 %	14.0 %	11.3 %

(a) The losses and loss expense ratio is calculated by dividing losses and loss expenses by net premiums earned.

(b) The policy acquisition cost ratio is calculated by dividing policy acquisition costs by net premiums earned.

(c) The general and administrative expense ratio is calculated by dividing the sum of general and administrative expenses and share compensation expenses by net premiums earned.

(d) The expense ratio is calculated by combining the policy acquisition cost ratio and the general and administrative expense ratio.

(e) The combined ratio is calculated by combining the losses and loss expense ratio, the policy acquisition cost ratio and the general and administrative expense ratio.

(f) Return on average equity is calculated by dividing the net income available to Validus common shareholders for the period by the average of the beginning, ending and intervening quarter end shareholders' equity available to Validus common shareholders balances.

The following table sets forth summarized balance sheet data as at December 31st for the last five years:

	December 31,				
(Dollars in thousands, except share and per share amounts)	2016	2015	2014	2013	2012
Investments at fair value	$8,845,343	$7,876,495	$7,444,634	$6,739,461	$7,225,646
Cash and cash equivalents and restricted cash	490,932	796,379	723,404	929,825	1,138,096
Total assets	11,349,755	10,515,812	10,112,564	9,457,046	10,266,212
Reserve for losses and loss expenses	2,995,195	2,996,567	3,243,147	3,047,933	3,553,604
Unearned premiums	1,076,049	966,210	989,229	822,280	903,734
Senior notes payable	245,362	245,161	244,960	244,758	244,556
Debentures payable	537,226	537,668	539,277	541,416	540,709
Total shareholders' equity available to Validus	$3,838,291	$3,638,975	$3,586,586	$3,704,094	$4,020,827
Book value per common share [a]	$46.61	$43.90	$42.76	$38.57	$37.26
Book value per diluted common share [b]	44.97	42.33	39.65	36.23	35.22
Tangible book value per common share [c]	42.66	40.06	38.91	37.25	36.04
Tangible book value per diluted common share [d]	$41.16	$38.63	$36.19	$35.03	$34.11

(a) Book value per common share is defined as total shareholders' equity available to Validus common shareholders divided by the number of common shares outstanding as at the end of the period, giving no effect to dilutive securities.

(b) Book value per diluted common share is calculated based on total shareholders' equity available to Validus common shareholders plus the assumed proceeds from the exercise of outstanding options and warrants, divided by the sum of common shares, unvested restricted shares and options and warrants outstanding (assuming their exercise). Book value per diluted common share is a non-GAAP financial measure, which are described in the section entitled "Non-GAAP Financial Measures."

(c) Tangible book value per common share is defined as total shareholders' equity available to Validus common shareholders, less goodwill and other intangible assets, divided by the number of common shares outstanding as at the end of the period, giving no effect to dilutive securities. Tangible book value per common share is a non-GAAP financial measure, which are described in the section entitled "Non-GAAP Financial Measures."

(d) Tangible book value per diluted common share is calculated based on total shareholders' equity available to Validus common shareholders, less goodwill and other intangible assets, plus the assumed proceeds from the exercise of outstanding options and warrants, divided by the sum of common shares, unvested restricted shares and options outstanding and warrants (assuming their exercise). Tangible book value per diluted common share is a non-GAAP financial measure, which are described in the section entitled "Non-GAAP Financial Measures."

The above summary consolidated financial information should be read together with the other information contained in this Annual Report on Form 10-K, including "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the Consolidated Financial Statements and related notes included elsewhere herein.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following is a discussion and analysis of the Company's consolidated results of operations for the years ended December 31, 2016, 2015 and 2014 and the Company's consolidated financial condition, liquidity and capital resources at December 31, 2016 and 2015. This discussion and analysis should be read in conjunction with the Company's audited Consolidated Financial Statements and related notes thereto included elsewhere within this filing. For a variety of reasons, the Company's historical financial results may not accurately indicate future performance. See "Cautionary Note Regarding Forward-Looking Statements." The Risk Factors set forth in Item 1A above present a discussion of important factors that could cause actual results to differ materially from the results described in or implied by the forward-looking statements contained herein.

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Executive Overview

The Company conducts its operations worldwide through four operating segments which have been determined under U.S. GAAP segment reporting to be Validus Re, Talbot, Western World, and AlphaCat.

In addition, the Company has a corporate and investment function (“Corporate and Investments”), which includes the activities of the parent company, and which carries out certain functions for the group, including investment management. Corporate and Investments includes investment income on a managed basis and other non-segment expenses, predominantly general and administrative, stock compensation and finance expenses. Corporate and Investments also denotes the activities of certain key executives such as the Chief Executive Officer and Chief Financial Officer. For internal reporting purposes, Corporate and Investments is reflected separately; however, it is not considered an operating segment. The Company’s corporate expenses, capital servicing and debt costs and investment results are presented separately within the corporate and investments discussion.

The Company’s strategy is to concentrate primarily on short-tail risks, which has been an area where management believes prices and terms provide an attractive risk-adjusted return and the management team has proven expertise. The Company’s profitability in any given period is a function of net earned premium and investment revenues, less net losses and loss expenses, acquisition expenses and operating expenses. The Company’s insurance and reinsurance portfolio, as measured by gross premium written, was comprised of 43% insurance and 57% reinsurance for the year ended December 31, 2016 compared to 46% insurance and 54% reinsurance for the year ended December 31, 2015. Financial results in the insurance and reinsurance industry are influenced by the frequency and/or severity of claims and losses, including as a result of catastrophic events; changes in interest rates, financial markets and general economic conditions; the supply of insurance and reinsurance capacity and changes in legal, regulatory and judicial environments.

Business Outlook and Trends

We underwrite global property insurance and reinsurance and have large aggregate exposures to natural and man-made disasters. The occurrence of claims from catastrophic events results in substantial volatility, and can have material adverse effects on the Company’s financial condition and results and its ability to write new business. This volatility affects results for the period in which the loss occurs because U.S. GAAP does not permit reinsurers to reserve for such catastrophic events until they occur. Catastrophic events of significant magnitude historically have been relatively infrequent, although management believes the property catastrophe reinsurance market has experienced a higher level of worldwide catastrophic losses in terms of both frequency and severity in the period from 1992 to the present. We also expect that increases in the values and concentrations of insured property will increase the severity of such occurrences in the future. The Company seeks to reflect these types of trends when pricing contracts.

Property and other reinsurance premiums have historically risen in the aftermath of significant catastrophic losses. As loss reserves are established, industry surplus is depleted and the industry’s capacity to write new business diminishes. The global property and casualty insurance and reinsurance industry has historically been highly cyclical. Since 2007, increased capital provided by new entrants or by the commitment of capital by existing insurers and reinsurers increased the supply of insurance and reinsurance which resulted in a softening of rates on most lines. From 2010 to 2012, there was an increased level of catastrophe activity, principally the Chilean earthquake, Deepwater Horizon, the Tohoku earthquake, the New Zealand earthquakes and Superstorm Sandy, but the Company continues to see increased competition and decreased premium rates in most classes of business. In the absence of significant catastrophes in recent years, the market supply of capital is greater than the demand and therefore we expect to see continued pressure on rates in the near term.

The following tables present the Validus Re and AlphaCat segments' January 2017 and 2016 reinsurance renewals by line of business:

	Validus Re segment premium [a]					
	Property		Specialty			
(Dollars in thousands)	U.S.	International	Casualty	Other Specialty	Marine	Total
2017	$96,601	$97,719	$21,783	$151,081	$98,489	$465,673
2016	$93,782	$92,302	$22,643	$137,942	$95,310	$441,979
Increase (Decrease)	3.0 %	5.9 %	(3.8)%	9.5 %	3.3 %	5.4 %

	AlphaCat segment premium					
	Property		Specialty			
(Dollars in thousands)	U.S.	International	Casualty	Other Specialty	Marine	Total
2017	$136,574	$21,538	$—	$5,128	$—	$163,240
2016	$127,192	$37,942	$—	$3,346	$—	$168,480
Increase (Decrease)	7.4 %	(43.2)%	—	53.3 %	—	(3.1)%

	Validus Re and AlphaCat segments' combined premium[a]					
	Property		Specialty			
(Dollars in thousands)	U.S.	International	Casualty	Other Specialty	Marine	Total
2017	$233,175	$119,257	$21,783	$156,209	$98,489	$628,913
2016	$220,974	$130,244	$22,643	$141,288	$95,310	$610,459
Increase (Decrease)	5.5 %	(8.4)%	(3.8)%	10.6 %	3.3 %	3.0 %

(a) The renewal data above does not include intercompany eliminations between Validus Re and Talbot.

During the January 2017 renewal season, the Validus Re and AlphaCat segments underwrote $628.9 million in gross premiums written (excluding U.S. agriculture premiums and net of intercompany eliminations between Validus Re and AlphaCat), an increase of 3.0% from the prior year renewal period. This increase was driven by an increase in U.S. property, marine and other specialty renewals and was partially offset by decreases in international property and casualty renewals. Terms and conditions across the market were generally unchanged, however the overall market continues to see downwards pressure on rates in the low single-digits.

Business written by the Talbot and Western World segments is distributed evenly throughout the year. Through December 31, 2016, the Talbot segment experienced a whole account rate decrease of approximately 5.8% driven primarily by decreases in the downstream energy and power and political lines. The Western World segment experienced a whole account rate increase of approximately 0.5% through December 31, 2016.

Financial Measures

The Company believes that the key financial indicator for evaluating our performance and measuring the overall growth in value generated for its shareholders is book value per diluted common share plus accumulated dividends. Book value per diluted common share plus accumulated dividends, together with other key book value financial indicators, are shown in the table below:

	December 31, 2016	December 31, 2015
Book value per diluted common share plus accumulated dividends [a]	$56.53	$52.49
Book value per diluted common share [a]	$44.97	$42.33
Tangible book value per diluted common share [a]	$41.16	$38.63

(a) These are non-GAAP financial measures which are described in the section entitled "Non-GAAP Financial Measures."

Book value per diluted common share plus accumulated dividends is considered by management to be the key financial indicator of performance, as the Company believes growth in book value on a diluted basis, plus the dividends that have accumulated, ultimately translates into the return that a shareholder will receive. Book value per diluted common share plus accumulated dividends is calculated based on total shareholders’ equity available to Validus excluding the $150.0 million liquidation value of the preferred shares, plus the assumed proceeds from the exercise of outstanding options; divided by the sum of common shares, unvested restricted shares and options outstanding (assuming their exercise), plus accumulated dividends. Book value per diluted common share plus accumulated dividends increased by $4.04, or 7.7%, from $52.49 at December 31, 2015 to $56.53 at December 31, 2016. Cash dividends per common share are an integral part of the value created for shareholders. During the year ended December 31, 2016 the Company paid cash dividends of $1.40 (2015: $1.28) per common share.

Book value per diluted common share is considered by management to be a measure of returns to common shareholders, as the Company believes growth in book value on a diluted basis ultimately translates into growth in stock price. Book value per diluted common share after dividends paid increased by $2.64, or 6.2%, from $42.33 at December 31, 2015 to $44.97 at December 31, 2016. Growth in book value per diluted common share inclusive of dividends was 9.5% and 10.0% for the year ended December 31, 2016 and 2015, respectively. All outstanding warrants expired on December 12, 2015 and no further warrants are anticipated to be issued.

Tangible book value per diluted common share is considered by management to be a measure of returns to common shareholders excluding goodwill and other intangible assets, as the Company believes growth in tangible book value on a diluted basis ultimately translates into growth in the tangible value of the Company. Tangible book value per diluted common share is calculated based on total shareholders' equity available to Validus excluding the $150.0 million liquidation value of the preferred shares, less goodwill and other intangible assets, plus the assumed proceeds from the exercise of outstanding options; divided by the sum of common shares, unvested restricted shares, options outstanding (assuming their exercise). Tangible book value per diluted common share increased by $2.53, or 6.5%, from $38.63 at December 31, 2015 to $41.16 at December 31, 2016.

The Company believes that the following other financial indicators are beneficial in evaluating our performance and measuring the overall growth in value generated for shareholders:

	Years Ended December 31,		
(Dollars in thousands)	2016	2015	2014
Underwriting income [(a)]	$358,346	$463,061	$529,610
Net operating income available to Validus common shareholders [(a)]	$319,198	$409,749	$480,762
Return on average equity	9.7%	10.3%	13.0%
Net operating return on average equity [(a)]	8.6%	11.3%	13.1%

(a) This is a non-GAAP financial measure which is described in the section entitled "Non-GAAP Financial Measures."

Underwriting income measures the performance of the Company's core underwriting function, excluding revenues and expenses such as net investment income, finance expenses, dividends on preferred shares, tax (expense) benefit, income (loss) from operating affiliate, (income) attributable to AlphaCat investors, net realized and change in unrealized gains (losses) on investments, income (loss) from investment affiliates, foreign exchange gains (losses), other income (loss), non-recurring items and net (income) attributable to noncontrolling interests. The Company believes the reporting of underwriting income enhances the understanding of results by highlighting the underlying profitability of the Company's core insurance and reinsurance operations. Underwriting income for the years ended December 31, 2016, 2015 and 2014 was $358.3 million, $463.1 million and $529.6 million, respectively.

Net operating income available to Validus common shareholders is defined as net income (loss) excluding net realized and change in net unrealized gains (losses) on investments, income (loss) from investment affiliates, foreign exchange gains (losses), other income (loss), non-recurring items and operating (income) attributable to noncontrolling interests. This measure focuses on the underlying fundamentals of the Company's operations without the influence of gains (losses) from the sale of investments, translation of non-U.S. dollar currencies, non-recurring items and (income) attributable to noncontrolling interests. Net operating income available to Validus common shareholders for the years ended December 31, 2016, 2015 and 2014 was $319.2 million, $409.7 million and $480.8 million, respectively.

Return on average equity represents the return generated on common shareholders' equity during the year. Return on average equity is calculated by dividing the net income available to Validus common shareholders for the year by the average shareholders' equity available to Validus during the year. Average shareholders' equity is the average of the beginning, ending and intervening quarter end shareholders' equity balances, excluding the $150.0 million liquidation value of the preferred shares. The Company's objective is to generate superior returns on capital that appropriately reward shareholders for the risks assumed. The return on average equity for the years ended December 31, 2016, 2015 and 2014 was 9.7%, 10.3% and 13.0%, respectively.

Net operating return on average equity represents the net operating return generated on common shareholders' equity during the year. Net operating return on average equity is calculated by dividing the net operating income available to Validus common shareholders for the year by the average shareholders' equity available to Validus during the year.

Average shareholders’ equity is the average of the beginning, ending and intervening quarter end shareholders’ equity balances, excluding the $150.0 million liquidation value of the preferred shares. The net operating return on average equity for the years ended December 31, 2016, 2015 and 2014 was 8.6%, 11.3% and 13.1%, respectively.

For further discussion of the components driving the Company’s financial indicators refer to the “Results of Operations” sections below.

Results of Operations - Fourth Quarter 2016 - Consolidated

The following table presents the results of operations for the three months ended December 31, 2016 and 2015:

	Three Months Ended December 31,	
(Dollars in thousands)	2016	2015
Underwriting revenues		
Gross premiums written	$339,454	$309,605
Reinsurance premiums ceded	(40,635)	(33,128)
Net premiums written	298,819	276,477
Change in unearned premiums	241,580	266,823
Net premiums earned	540,399	543,300
Other insurance related income	561	969
Total underwriting revenues	540,960	544,269
Underwriting deductions		
Losses and loss expenses	275,126	214,748
Policy acquisition costs	120,889	102,285
General and administrative expenses	77,955	98,563
Share compensation expenses	10,442	10,062
Total underwriting deductions	484,412	425,658
Underwriting income [(a)]	$56,548	$118,611
Net investment income	38,153	31,612
Finance expenses	(14,630)	(16,581)
Dividends on preferred shares	(2,203)	—
Tax benefit	21,147	756
Loss from operating affiliate	—	(1,708)
(Income) attributable to AlphaCat investors	(7,080)	(974)
Net (income) attributable to noncontrolling interests	(27,612)	(26,321)
Net operating income available to Validus common shareholders [(a)]	$64,323	$105,395
Supplemental information:		
Losses and loss expenses:		
Current period excluding items below	$269,301	$272,889
Current period—notable loss events	52,310	(86)
Current period—non-notable loss events	302	56
Change in prior accident years	(46,787)	(58,111)
Total losses and loss expenses	$275,126	$214,748
Selected ratios:		
Ratio of net to gross premiums written	88.0 %	89.3 %
Losses and loss expense ratio:		
Current period excluding items below	49.8 %	50.2 %
Current period—notable loss events	9.7 %	— %
Current period—non-notable loss events	0.1 %	— %
Change in prior accident years	(8.7)%	(10.7)%
Losses and loss expense ratio	50.9 %	39.5 %
Policy acquisition cost ratio	22.4 %	18.8 %
General and administrative expense ratio [(b)]	16.3 %	20.0 %
Expense ratio	38.7 %	38.8 %
Combined ratio	89.6 %	78.3 %

(a)

Non-GAAP Financial Measures. In presenting the Company's results, management has included and discussed underwriting income and operating income that are not calculated under standards or rules that comprise U.S. GAAP. Such measures are referred to as non-GAAP. Further discussion of these measures is presented in the section entitled "Non-GAAP Financial Measures."

(b) The general and administrative expense ratio includes share compensation expenses.

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Fourth Quarter 2016 Results

Highlights for the fourth quarter 2016 as compared to 2015 were as follows:

- Gross premiums written for the three months ended December 31, 2016 were $339.5 million compared to $309.6 million for the three months ended December 31, 2015, an increase of $29.8 million, or 9.6%. The increase was primarily driven by increases in the Validus Re and Western World segments and was partially offset by decreases in the Talbot and AlphaCat segments.
- Underwriting revenues for the three months ended December 31, 2016 were $541.0 million compared to $544.3 million for the three months ended December 31, 2015, a decrease of $3.3 million or 0.6%.
- Losses and loss expenses for the three months ended December 31, 2016 were $275.1 million compared to $214.7 million for the three months ended December 31, 2015, an increase of $60.4 million or 28.1%. The increase was primarily driven by an increase in notable loss events during the three months ended December 31, 2016.

Notable and Non-notable Loss Events

- The Company defines a notable loss event as an event whereby consolidated net losses and loss expenses aggregate to a threshold greater than or equal to $30.0 million. The Company defines a non-notable loss event as an event whereby consolidated net losses and loss expenses aggregate to a threshold greater than or equal to $15.0 million but less than $30.0 million.
- There were no non-notable loss events occurring during the three months ended December 31, 2016. There were no notable or non-notable loss events occurring during the three months ended December 31, 2015. Losses and loss expenses incurred from notable loss events during the three months ended December 31, 2016 included losses and loss expenses from the fourth quarter 2016 notable loss events, Hurricane Matthew and the 2016 New Zealand earthquake, and were partially offset by a reduction on the second quarter 2016 notable loss event, the Canadian Wildfires, as follows:

	Three Months Ended December 31, 2016			
	Notable Loss Events			
(Dollars in thousands)	Hurricane Matthew	2016 New Zealand Earthquake	Canadian Wildfires	Total
Net Losses and Loss Expenses	$39,140	$ 31,421	$(18,251)	$52,310
Less: Net Losses and Loss Expenses Attributable to AlphaCat Third Party Investors and Noncontrolling Interests	(8,943)	(9,068)	2,726	(15,285)
Validus' Share of Net Losses and Loss Expenses	30,197	22,353	(15,525)	37,025
Less: Reinstatement Premiums, net	(2,781)	(65)	2,136	(710)
Net Loss Attributable to Validus	$27,416	$ 22,288	$(13,389)	$36,315

- For the three months ended December 31, 2016, losses and loss expenses from notable loss events were $52.3 million, or 9.7 percentage points of the loss ratio. Net of losses attributable to AlphaCat investors and noncontrolling interests of $15.3 million and reinstatement premiums of $0.7 million, the net loss attributable to the Company from these events was $36.3 million.

Loss Ratios

- The loss ratio for the three months ended December 31, 2016 was 50.9%, which included $46.8 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 8.7 percentage points compared to a loss ratio for the three months ended December 31, 2015 of 39.5%, which included $58.1 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 10.7 percentage points. The favorable loss reserve development on prior accident years of $46.8 million was primarily due to favorable development on attritional losses of $41.5 million and favorable development on events of $5.3 million. The favorable loss reserve development on prior accident years of $58.1 million was primarily due to favorable development of attritional losses of $48.1 million and favorable development on events of $10.0 million. The term "events" refers to aggregate notable and non-notable losses incurred.
- The combined ratio for the three months ended December 31, 2016 was 89.6% compared to 78.3% for the three months ended December 31, 2015, an increase of 11.3 percentage points.

- Loss ratios by line of business for the three months ended December 31, 2016 and 2015 were as follows:

	Three Months Ended December 31,	
	2016	2015
Property	50.4 %	25.7 %
Marine	50.0 %	34.7 %
Specialty	46.6 %	54.2 %
Liability	68.0 %	61.8 %
All lines	50.9 %	39.5 %

- Policy acquisition costs for the three months ended December 31, 2016 were $120.9 million compared to $102.3 million for the three months ended December 31, 2015, an increase of $18.6 million or 18.2%. The increase was primarily driven by an increase in the Validus Re segment as a result of profit commissions on agriculture business.
- General and administrative expenses for the three months ended December 31, 2016 were $78.0 million compared to $98.6 million for the three months ended December 31, 2015, a decrease of $20.6 million or 20.9%. The decrease was primarily driven by a decrease in the performance bonus accrual.
- Underwriting income for the three months ended December 31, 2016 was $56.5 million compared to $118.6 million for the three months ended December 31, 2015, a decrease of $62.1 million or 52.3% primarily as a result of the changes in underwriting revenues and deductions described above.
- Net operating income available to Validus common shareholders for the three months ended December 31, 2016 was $64.3 million compared to $105.4 million for the three months ended December 31, 2015, a decrease of $41.1 million, or 39.0%.

Results of Operations - Fourth Quarter 2016 - Validus Re Segment

The following table presents underwriting income for the three months ended December 31, 2016 and 2015:

	Three Months Ended December 31,							
	2016				2015			
(Dollars in thousands)	Property	Marine	Specialty	Total	Property	Marine	Specialty	Total
Underwriting revenues								
Gross premiums written	$10,533	$(4,178)	$32,480	$38,835	$15,563	$(681)	$(533)	$14,349
Reinsurance premiums ceded	99	22	(27)	94	(305)	69	149	(87)
Net premiums written	10,632	(4,156)	32,453	38,929	15,258	(612)	(384)	14,262
Change in unearned premiums	87,112	28,203	70,269	185,584	92,252	34,938	90,462	217,652
Net premiums earned	97,744	24,047	102,722	224,513	107,510	34,326	90,078	231,914
Other insurance related income				52				257
Total underwriting revenues				224,565				232,171
Underwriting deductions								
Losses and loss expenses	39,221	5,034	53,801	98,056	30,061	11,272	59,152	100,485
Policy acquisition costs	17,207	5,459	30,714	53,380	16,601	6,766	14,111	37,478
Total underwriting deductions before G&A	56,428	10,493	84,515	151,436	46,662	18,038	73,263	137,963
Underwriting income before G&A	$41,316	$13,554	$18,207	$73,129	$60,848	$16,288	$16,815	$94,208
General and administrative expenses				20,191				20,174
Share compensation expenses				2,663				2,685
Total underwriting deductions				174,290				160,822
Underwriting income [(a)]				$50,275				$71,349
Supplemental information:								
Losses and loss expenses:								

Current period excluding items below	$25,966	$13,844	$66,661	$106,471	$41,899	$21,231	$59,577	$122,707
Current period—notable loss events	19,108	1,420	—	20,528	12	276	—	288
Current period—non-notable loss events	(1)	(762)	759	(4)	56	—	—	56
Change in prior accident years	(5,852)	(9,468)	(13,619)	(28,939)	(11,906)	(10,235)	(425)	(22,566)
Total losses and loss expenses	$39,221	$5,034	$53,801	$98,056	$30,061	$11,272	$59,152	$100,485
Selected ratios:								
Ratio of net to gross premiums written	100.9 %	99.5 %	99.9 %	100.2 %	98.0 %	89.9 %	72.0 %	99.4 %
Losses and loss expense ratio:								
Current period excluding items below	26.6 %	57.6 %	65.0 %	47.5 %	39.0 %	61.9 %	66.2 %	52.9 %
Current period—notable loss events	19.5 %	5.9 %	— %	9.1 %	— %	0.8 %	— %	0.1 %
Current period—non-notable loss events	— %	(3.2)%	0.7 %	— %	0.1 %	— %	— %	— %
Change in prior accident years	(6.0)%	(39.4)%	(13.3)%	(12.9)%	(11.1)%	(29.8)%	(0.5)%	(9.7)%
Losses and loss expense ratio	40.1 %	20.9 %	52.4 %	43.7 %	28.0 %	32.9 %	65.7 %	43.3 %
Policy acquisition cost ratio	17.6 %	22.7 %	29.9 %	23.8 %	15.4 %	19.7 %	15.7 %	16.1 %
General and administrative expense ratio (b)				10.1 %				9.9 %
Expense ratio				33.9 %				26.0 %
Combined ratio				77.6 %				69.3 %

(a) Non-GAAP Financial Measures. In presenting the Company’s results, management has included and discussed underwriting income that is not calculated under standards or rules that comprise U.S. GAAP. Such measures are referred to as non-GAAP. Further discussion of these measures is presented in the section entitled “Non-GAAP Financial Measures.”

(b) The general and administrative expense ratio includes share compensation expenses.

Summarized Results of Operations - Fourth Quarter 2016 - Validus Re Segment

Highlights for the fourth quarter 2016 as compared to 2015 were as follows:

- Gross premiums written for the three months ended December 31, 2016 were $38.8 million compared to $14.3 million for the three months ended December 31, 2015, an increase of $24.5 million, or 170.6%. Gross premiums written for the three months ended December 31, 2016 included $10.5 million of property premiums, $(4.2) million of marine premiums and $32.5 million of specialty premiums, compared to $15.6 million of property premiums, $(0.7) million of marine premiums and $(0.5) million of specialty premiums for the three months ended December 31, 2015. The increase in the specialty lines of $33.0 million was primarily driven by new casualty business of $24.9 million and growth in the financial lines of $9.3 million. Partially offsetting this increase were decreases in the property and marine lines of $5.0 million and $3.5 million, respectively.
- The loss ratio for the three months ended December 31, 2016 was 43.7%, which included $28.9 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 12.9 percentage points compared to a loss ratio for the three months ended December 31, 2015 of 43.3%, which included $22.6 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 9.7 percentage points. The loss ratio for the three months ended December 31, 2016 included losses on fourth quarter 2016 notable loss events of $32.5 million, or 14.4 percentage points of the loss ratio. Partially offsetting these losses was a reduction on the second quarter 2016 notable loss event, the Canadian Wildfires, of $12.0 million, benefiting the loss ratio by 5.3 percentage points, for total notable losses of $20.5 million or 9.1 percentage points of the loss ratio. The favorable development of $28.9 million on prior accident years for the three months ended December 31, 2016 was primarily due to favorable development on attritional losses of $24.3 million and favorable development on events of $4.6 million.
- Policy acquisition costs for the three months ended December 31, 2016 were $53.4 million compared to $37.5 million for the three months ended December 31, 2015, an increase of $15.9 million or 42.4%. The increase was primarily driven by an increase in the specialty lines as a result of profit commissions on agriculture business.
- The combined ratio for the three months ended December 31, 2016 was 77.6% compared to 69.3% for the three months ended December 31, 2015, an increase of 8.3 percentage points.
- Underwriting income for the three months ended December 31, 2016 was $50.3 million compared to $71.3 million for the three months ended December 31, 2015, a decrease of $21.1 million, or 29.5%.

Results of Operations - Fourth Quarter 2016 - Talbot Segment

The following table presents underwriting income for the three months ended December 31, 2016 and 2015:

	Three Months Ended December 31,							
	2016				2015			
(Dollars in thousands)	Property	Marine	Specialty	Total	Property	Marine	Specialty	Total
Underwriting revenues								
Gross premiums written	$71,371	$39,635	$107,638	$218,644	$73,926	$60,648	$95,113	$229,687
Reinsurance premiums ceded	(20,022)	(3,049)	(15,162)	(38,233)	(21,957)	(1,921)	(10,874)	(34,752)
Net premiums written	51,349	36,586	92,476	180,411	51,969	58,727	84,239	194,935
Change in unearned premiums	3,381	15,605	(24,877)	(5,891)	2,834	14,192	(8,041)	8,985
Net premiums earned	54,730	52,191	67,599	174,520	54,803	72,919	76,198	203,920
Other insurance related income				66				287
Total underwriting revenues				174,586				204,207
Underwriting deductions								
Losses and loss expenses	46,028	33,053	26,594	105,675	21,911	25,941	30,958	78,810
Policy acquisition costs	9,132	14,816	18,735	42,683	8,474	18,504	19,219	46,197
Total underwriting deductions before G&A	55,160	47,869	45,329	148,358	30,385	44,445	50,177	125,007
Underwriting (loss) income before G&A	$(430)	$4,322	$22,270	$26,228	$24,418	$28,474	$26,021	$79,200
General and administrative expenses				24,550				39,965
Share compensation expenses				3,123				3,178
Total underwriting deductions				176,031				168,150
Underwriting (loss) income [(a)]				$(1,445)				$36,057
Supplemental information:								
Losses and loss expenses:								

Current period excluding items below	$44,917	$30,865	$33,431	$109,213	$27,028	$39,192	$36,076	$102,296
Current period—notable loss events	8,379	3,414	608	12,401	135	(509)	—	(374)
Current period—non-notable loss events	131	1	—	132	—	—	—	—
Change in prior accident years	(7,399)	(1,227)	(7,445)	(16,071)	(5,252)	(12,742)	(5,118)	(23,112)
Total losses and loss expenses	$46,028	$33,053	$26,594	$105,675	$21,911	$25,941	$30,958	$78,810
Selected ratios:								
Ratio of net to gross premiums written	71.9 %	92.3 %	85.9 %	82.5 %	70.3 %	96.8 %	88.6 %	84.9 %
Losses and loss expense ratio:								
Current period excluding items below	82.1 %	59.2 %	49.4 %	62.6 %	49.4 %	53.8 %	47.3 %	50.1 %
Current period—notable loss events	15.3 %	6.5 %	0.9 %	7.1 %	0.2 %	(0.7)%	— %	(0.2)%
Current period—non-notable loss events	0.2 %	— %	— %	0.1 %	— %	— %	— %	— %
Change in prior accident years	(13.5)%	(2.4)%	(11.0)%	(9.2)%	(9.6)%	(17.5)%	(6.7)%	(11.3)%
Losses and loss expense ratio	84.1 %	63.3 %	39.3 %	60.6 %	40.0 %	35.6 %	40.6 %	38.6 %
Policy acquisition cost ratio	16.7 %	28.4 %	27.7 %	24.5 %	15.5 %	25.4 %	25.2 %	22.7 %
General and administrative expense ratio (b)				15.8 %				21.2 %
Expense ratio				40.3 %				43.9 %
Combined ratio				100.9 %				82.5 %

(a) Non-GAAP Financial Measures. In presenting the Company’s results, management has included and discussed underwriting income that is not calculated under standards or rules that comprise U.S. GAAP. Such measures are referred to as non-GAAP. Further discussion of these measures is presented in the section entitled “Non-GAAP Financial Measures.”

(b) The general and administrative expense ratio includes share compensation expenses.

Summarized Results of Operations - Fourth Quarter 2016 - Talbot Segment

Highlights for the fourth quarter 2016 as compared to 2015 were as follows:

- Gross premiums written for the three months ended December 31, 2016 were $218.6 million compared to $229.7 million for the three months ended December 31, 2015, a decrease of $11.0 million, or 4.8%. Gross premiums written for the three months ended December 31, 2016 included $71.4 million of property premiums, $39.6 million of marine premiums and $107.6 million of specialty premiums compared to $73.9 million of property premiums, $60.6 million of marine premiums and $95.1 million of specialty premiums for the three months ended December 31, 2015. The decrease in the marine lines of $21.0 million was primarily driven by decreases in the upstream energy and cargo classes as a result of reductions in our participation and non-renewals on various programs due to the current rate environment and premium adjustments on prior year policies. This decrease was partially offset by an increase in gross premiums written in the specialty lines of $12.5 million, primarily due to increases in the contingency, political lines and financial lines classes of $10.0 million, $7.6 million and $4.1 million, respectively.
- Net premiums earned for the three months ended December 31, 2016 were $174.5 million compared to $203.9 million for the three months ended December 31, 2015, a decrease of $29.4 million or 14.4%. The decrease was driven primarily by the decline in gross premiums written in the marine lines and slower earnings patterns on longer-term contracts in the specialty lines during the twelve months ended December 31, 2016. Also contributing to the decrease was the impact of reinstatement premiums payable during the three months ended December 31, 2016.
- The loss ratio for the three months ended December 31, 2016 was 60.6%, which included $16.1 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 9.2 percentage points compared to a loss ratio for the three months ended December 31, 2015 of 38.6%, which included $23.1 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 11.3 percentage points. The loss ratio for the three months ended December 31, 2016 included losses on fourth quarter 2016 notable loss events of $14.6 million, or 8.4 percentage points of the loss ratio. Partially offsetting these losses was a reduction on the second quarter 2016 notable loss event, the Canadian Wildfires, of $2.2 million, benefiting the loss ratio by 1.3 percentage points, for total notable losses of $12.4 million or 7.1 percentage points of the loss ratio. The favorable development of $16.1 million on prior accident years for the three months ended December 31, 2016 is primarily due to favorable development on attritional losses.
- General and administrative expenses for the three months ended December 31, 2016 were $24.6 million compared to $40.0 million for the three months ended December 31, 2015, a decrease of $15.4 million, or 38.6%. The decrease was primarily due to the impact of foreign exchange and a reduction in the performance bonus accrual.
- The combined ratio for the three months ended December 31, 2016 was 100.9% compared to 82.5% for the three months ended December 31, 2015, an increase of 18.4 percentage points.
- Underwriting loss for the three months ended December 31, 2016 was $1.4 million compared to income of $36.1 million for the three months ended December 31, 2015, a decrease of $37.5 million, or 104.0%.

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Results of Operations - Fourth Quarter 2016 - Western World Segment

The following table presents underwriting income for the three months ended December 31, 2016 and 2015:

	Three Months Ended December 31,					
	2016			2015		
(Dollars in thousands)	Property	Liability	Total	Property	Liability	Total
Underwriting revenues						
Gross premiums written	$29,039	$57,991	$87,030	$13,884	$57,248	$71,132
Reinsurance premiums ceded	(3,675)	(3,612)	(7,287)	(1,167)	(4,320)	(5,487)
Net premiums written	25,364	54,379	79,743	12,717	52,928	65,645
Change in unearned premiums	(5,280)	816	(4,464)	(1,139)	(2,786)	(3,925)
Net premiums earned	20,084	55,195	75,279	11,578	50,142	61,720
Other insurance related income			216			257
Total underwriting revenues			75,495			61,977
Underwriting deductions						
Losses and loss expenses	16,634	37,555	54,189	2,787	30,993	33,780
Policy acquisition costs	5,175	12,563	17,738	2,886	11,412	14,298
Total underwriting deductions before G&A	21,809	50,118	71,927	5,673	42,405	48,078
Underwriting (loss) income before G&A	$(1,725)	$5,077	$3,568	$5,905	$7,737	$13,899
General and administrative expenses			9,576			9,578
Share compensation expenses			718			558
Total underwriting deductions			82,221			58,214
Underwriting (loss) income [(a)]			$(6,726)			$3,763
Supplemental information:						
Losses and loss expenses:						
Current period excluding items below	$13,297	$38,078	$51,375	$4,184	$36,924	$41,108
Current period—notable loss events	3,400	—	3,400	—	—	—
Current period—non-notable loss events	62	—	62	—	—	—
Change in prior accident years	(125)	(523)	(648)	(1,397)	(5,931)	(7,328)
Total losses and loss expenses	$16,634	$37,555	$54,189	$2,787	$30,993	$33,780
Selected ratios:						
Ratio of net to gross premiums written	87.3%	93.8%	91.6%	91.6%	92.5%	92.3%
Losses and loss expense ratio:						
Current period excluding items below	66.2%	68.9%	68.3%	36.2%	73.6%	66.6%
Current period—notable loss events	16.9%	—%	4.5%	—%	—%	—%
Current period—non-notable loss events	0.3%	—%	0.1%	—%	—%	—%
Change in prior accident years	(0.6)%	(0.9)%	(0.9)%	(12.1)%	(11.8)%	(11.9)%
Losses and loss expense ratio	82.8%	68.0%	72.0%	24.1%	61.8%	54.7%
Policy acquisition cost ratio	25.8%	22.8%	23.5%	24.9%	22.8%	23.2%
General and administrative expense ratio [(b)]			13.7%			16.4%
Expense ratio			37.2%			39.6%
Combined ratio			109.2%			94.3%

(a) Non-GAAP Financial Measures. In presenting the Company’s results, management has included and discussed underwriting income that is not calculated under standards or rules that comprise U.S. GAAP. Such measures are referred to as non-GAAP. Further discussion of these measures is presented in the section entitled “Non-GAAP Financial Measures.”

(b) The general and administrative expense ratio includes share compensation expenses.

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Summarized Results of Operations - Fourth Quarter 2016 - Western World Segment

Highlights for the fourth quarter 2016 as compared to 2015 were as follows:

- Gross premiums written for the three months ended December 31, 2016 were $87.0 million compared to $71.1 million for the three months ended December 31, 2015, an increase of $15.9 million, or 22.3%. Gross premiums written for the three months ended December 31, 2016 included $29.0 million of property premiums and $58.0 million of liability premiums, compared to $13.9 million of property premiums and $57.2 million of liability premiums for the three months ended December 31, 2015. The increase in gross premiums written in the property lines of $15.2 million was primarily due to additional business written in the programs property, commercial package property, and brokerage property classes of $5.6 million, $3.9 million, and $3.1 million, respectively, as a result of the continued build out of the underwriting platform in short-tail lines.
- The loss ratio for the three months ended December 31, 2016 was 72.0%, which included $0.6 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 0.9 percentage points compared to a loss ratio for the three months ended December 31, 2015 of 54.7%, which included $7.3 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 11.9 percentage points. The loss ratio for the three months ended December 31, 2016 included losses on fourth quarter 2016 notable loss events of $3.4 million, or 4.5 percentage points of the loss ratio and other U.S.-based weather losses of $2.8 million, or 3.7 percentage points of the loss ratio. The favorable development of $7.3 million on prior accident years for the three months ended December 31, 2015 is primarily due to favorable development on attritional losses and the amortization of the risk premium adjustment accounted for at the time of the acquisition of Western World.
- The combined ratio for the three months ended December 31, 2016 was 109.2% compared to 94.3% for the three months ended December 31, 2015, an increase of 14.9 percentage points. The increase was driven by lower favorable development on prior accident years and higher losses and loss expenses on notable loss events and U.S.-based weather losses during the three months ended December 31, 2016.
- Underwriting loss for the three months ended December 31, 2016 was $6.7 million compared to income of $3.8 million for the three months ended December 31, 2015, a decrease of $10.5 million.

Results of Operations - Fourth Quarter 2016 - AlphaCat Segment

The following table presents Validus' share of the AlphaCat segment income on an asset manager basis for the three months ended December 31, 2016 and 2015:

	Three Months Ended December 31,	
(Dollars in thousands)	2016	2015
Revenues		
Third party	$3,928	$5,039
Related party	737	1,251
Total revenues	4,665	6,290
Expenses		
General and administrative expenses	2,676	3,232
Share compensation expenses	82	140
Finance expenses	33	53
Tax expenses	90	—
Foreign exchange losses (gains)	2	(7)
Total expenses	2,883	3,418
Income before investment income from AlphaCat Funds and Sidecars	$1,782	$2,872
Investment income (loss) from AlphaCat Funds and Sidecars (b)		
AlphaCat Sidecars	14	1,618
AlphaCat ILS Funds - Lower Risk (c)	1,998	2,037
AlphaCat ILS Funds - Higher Risk (c)	1,864	1,820
BetaCat ILS Funds	644	461
PaCRe	—	(1,708)
Total investment income from AlphaCat Funds and Sidecars	4,520	4,228
Validus' share of AlphaCat segment income	$6,302	$7,100
Supplemental information:		
Gross premiums written		
AlphaCat Sidecars	$(163)	$329
AlphaCat ILS Funds - Lower Risk (c)	(19)	1,275
AlphaCat ILS Funds - Higher Risk (c)	(105)	36
AlphaCat Direct (d)	23	(5)
Total	$(264)	$1,635

(a) In presenting the Company's results, management has included and discussed the results of AlphaCat, which are presented on an asset manager basis. Validus' share of AlphaCat income is a non-GAAP measure and is not calculated under standards or rules that comprise U.S. GAAP. Further discussion of these measures is presented in the section entitled "Non-GAAP Financial Measures."

(b) The investment income from the AlphaCat funds and sidecars is based on equity accounting.

(c) Lower risk AlphaCat ILS funds have a maximum permitted portfolio expected loss of less than 7%, whereas higher risk AlphaCat ILS funds have a maximum permitted portfolio expected loss of greater than 7%. Expected loss represents the average annual loss over the set of simulation scenarios divided by the total limit.

(d) AlphaCat Direct includes direct investments from third party investors in AlphaCat Re.

Summarized Results of Operations - Fourth Quarter 2016 - AlphaCat Segment

Highlights for the fourth quarter 2016 as compared to 2015 were as follows:

- AlphaCat's assets under management increased during the fourth quarter 2016 to $2,741.3 million as at January 1, 2017, compared to $2,615.1 million as at October 1, 2016. Third party assets under management were $2,498.6 million as at January 1, 2017, compared to $2,292.6 million as at October 1, 2016.
- Revenues earned for the three months ended December 31, 2016 were $4.7 million, of which $3.9 million were earned from third parties, compared to $6.3 million for the three months ended December 31, 2015, of which $5.0 million were earned from third parties. The decrease in revenues earned from third parties of $1.1 million was driven by a decrease in performance fees earned as a result of the notable loss events incurred during the three months ended December 31, 2016.
- Total expenses for the three months ended December 31, 2016 were $2.9 million, compared to $3.4 million for the three months ended December 31, 2015, a decrease of $0.5 million, or 15.7%.
- Income before investment income from AlphaCat Funds and Sidecars for the three months ended December 31, 2016 was $1.8 million, compared to $2.9 million for the three months ended December 31, 2015, a decrease of $1.1 million, or 38.0%.
- Investment income from AlphaCat Funds and Sidecars, excluding PaCRe which was off-risk effective January 1, 2016, for the three months ended December 31, 2016 was $4.5 million, compared to $5.9 million for the three months ended December 31, 2015, a decrease of $1.4 million or 23.9%. The decrease was driven by the notable loss events incurred during the three months ended December 31, 2016.
- Validus' share of AlphaCat income, excluding PaCRe, for the three months ended December 31, 2016 was $6.3 million, compared to $8.8 million for the three months ended December 31, 2015, a decrease of $2.5 million, or 28.5%.

Consolidated Results - Fourth Quarter 2016 - Corporate and Investments

The following table presents the corporate and investment function's income and expense items on a consolidated basis for the three months ended December 31, 2016 and 2015:

	Three Months Ended December 31,	
(Dollars in thousands)	2016	2015
Investment income		
Managed net investment income [(a)]	$35,875	$29,885
Operating expenses		
General and administrative expenses	19,973	24,222
Share compensation expenses	3,856	3,501
Finance expenses [(a)]	14,546	15,448
Dividends on preferred shares	2,203	—
Tax benefit [(a)]	(21,237)	(756)
Total operating expenses	19,341	42,415
Other items		
Net realized gains (losses) on managed investments [(a)]	9,166	(3,353)
Change in net unrealized losses on managed investments [(a)]	(67,676)	(34,515)
Income (loss) from investment affiliates	2,166	(1,261)
Foreign exchange (losses) gains [(a)]	(850)	852
Other income	7	1,576
Total other items	(57,187)	(36,701)
Total Corporate and Investments	$(40,653)	$(49,231)

(a) These items exclude the components which are included in the Company's share of AlphaCat and amounts which are consolidated from VIEs.

Highlights for the fourth quarter 2016 as compared to 2015 were as follows:

- Net investment income from managed investments for the three months ended December 31, 2016 was $35.9 million compared to $29.9 million for the three months ended December 31, 2015, an increase of $6.0 million, or 20.0%. The increase was primarily driven by returns on the Company's portfolio of structured securities, of which $4.0 million was generated from a single fixed income fund. Annualized effective yield for the three months ended December 31, 2016 was 2.25%, compared to 1.90% for the three months ended December 31, 2015, an increase of 35 basis points.
- Net realized gains on managed investments for the three months ended December 31, 2016 were $9.2 million compared to losses of $3.4 million for the three months ended December 31, 2015, a favorable movement of $12.5 million. The favorable movement primarily resulted from realized gains on the termination of two interest rate swap contracts which were entered into in the third quarter of 2016 to partially offset the impact of interest rate increases on the Company's fixed maturity portfolio.
- The change in net unrealized losses on managed investments for the three months ended December 31, 2016 was $67.7 million compared to $34.5 million for the three months ended December 31, 2015, an unfavorable movement of $33.2 million, or 96.1%. The unfavorable movement was primarily driven by an increase in interest rates during the three months ended December 31, 2016.
- General and administrative expenses for the three months ended December 31, 2016 were $20.0 million compared to $24.2 million for the three months ended December 31, 2015, a decrease of $4.2 million or 17.5% primarily due to a reduction in the performance bonus accrual during the three months ended December 31, 2016.
- Share compensation expenses for the three months ended December 31, 2016 were $3.9 million compared to $3.5 million for the three months ended December 31, 2015, an increase of $0.4 million or 10.1%.
- Finance expenses, excluding the Company's share of AlphaCat finance expenses from consolidated variable interest entities, for the three months ended December 31, 2016 were $14.5 million compared to $15.4 million for the three months ended December 31, 2015, a decrease of $0.9 million or 5.8%.

- The Company issued $150.0 million of preferred shares in June 2016. Dividends paid on preferred shares were $2.2 million for the three months ended December 31, 2016.
- Tax benefit for the three months ended December 31, 2016 was $21.2 million compared to $0.8 million for the three months ended December 31, 2015, a favorable movement of $20.5 million. The favorable movement was primarily due to a partial release of a valuation allowance which had been applied against a deferred tax asset related to net operating losses acquired as part of the Flagstone acquisition. The Company believes it is now more-likely-than-not that it will have sufficient future taxable income to realize a portion of that deferred tax asset over the next three years and in accordance with U.S. GAAP, the Company was required to record a tax benefit of $18.4 million in the quarter.

Full Year 2016, 2015 and 2014 Summarized Results of Operations - Consolidated

The Company acquired Western World on October 2, 2014, therefore the results of Western World have been included in the Company's consolidated results from the date of acquisition. The following table presents the results of operations for the years ended December 31, 2016, 2015 and 2014:

	Years Ended December 31,		
(Dollars in thousands)	2016	2015	2014
Underwriting revenues			
Gross premiums written	$2,648,705	$2,557,506	$2,358,865
Reinsurance premiums ceded	(289,705)	(328,681)	(313,208)
Net premiums written	2,359,000	2,228,825	2,045,657
Change in unearned premiums	(109,835)	18,064	(52,602)
Net premiums earned	2,249,165	2,246,889	1,993,055
Other insurance related income	2,961	6,113	3,472
Total underwriting revenues	2,252,126	2,253,002	1,996,527
Underwriting deductions			
Losses and loss expenses	1,065,097	977,833	765,015
Policy acquisition costs	449,482	410,058	339,467
General and administrative expenses	336,294	363,709	329,362
Share compensation expenses	42,907	38,341	33,073
Total underwriting deductions	1,893,780	1,789,941	1,466,917
Underwriting income [(a)]	$358,346	$463,061	$529,610
Net investment income	150,385	127,824	100,086
Finance expenses	(58,520)	(74,742)	(68,324)
Dividends on preferred shares	(4,455)	—	—
Tax benefit (expense)	19,729	(6,376)	(155)
Loss from operating affiliate	(23)	(3,949)	(4,340)
(Income) attributable to AlphaCat investors	(23,358)	(2,412)	—
Net (income) attributable to noncontrolling interests	(122,906)	(93,657)	(76,115)
Net operating income available to Validus common shareholders [(a)]	$319,198	$409,749	$480,762
Supplemental information:			
Losses and loss expenses:			
Current period excluding items below	$1,120,841	$1,164,775	$954,644
Current period—notable loss events	90,211	96,964	34,944
Current period—non-notable loss events	70,237	22,231	34,668
Change in prior accident years	(216,192)	(306,137)	(259,241)
Total losses and loss expenses	$1,065,097	$977,833	$765,015
Selected ratios:			
Ratio of net to gross premiums written	89.1%	87.1%	86.7%
Losses and loss expense ratio:			
Current period excluding items below	49.9%	51.8%	47.9%
Current period—notable loss events	4.0%	4.3%	1.8%
Current period—non-notable loss events	3.1%	1.0%	1.7%
Change in prior accident years	(9.6)%	(13.6)%	(13.0)%
Losses and loss expense ratio	47.4%	43.5%	38.4%
Policy acquisition cost ratio	20.0%	18.3%	17.0%
General and administrative expense ratio [(b)]	16.8%	17.9%	18.2%
Expense ratio	36.8%	36.2%	35.2%

Combined ratio	84.2 %	79.7 %	73.6 %

(a) Non-GAAP Financial Measures. In presenting the Company's results, management has included and discussed underwriting income and operating income that are not calculated under standards or rules that comprise U.S. GAAP. Such measures are referred to as non-GAAP. Further discussion of these measures is presented in the section entitled "Non-GAAP Financial Measures."

(b) The general and administrative expense ratio includes share compensation expenses.

Full Year 2016, 2015 and 2014 Results

Highlights for the year ended December 31, 2016, 2015 and 2014 were as follows:

- Gross premiums written for the year ended December 31, 2016 were $2,648.7 million compared to $2,557.5 million for the year ended December 31, 2015, an increase of $91.2 million, or 3.6%. The increase in gross premiums written was primarily driven by an increase in the AlphaCat and Western World segments and was partially offset by a decrease in the Validus Re and Talbot segments.
- Gross premiums written for the year ended December 31, 2015 were $2,557.5 million compared to $2,358.9 million for the year ended December 31, 2014, an increase of $198.6 million, or 8.4%. The increase in gross premiums written was primarily driven by an increase in the Western World, AlphaCat and Validus Re segments and was partially offset by a decrease in the Talbot segment.
- Underwriting revenues for the years ended December 31, 2016, 2015 and 2014 were $2,252.1 million, $2,253.0 million, and $1,996.5 million, respectively.
- Losses and loss expenses for the years ended December 31, 2016, 2015 and 2014 were $1,065.1 million, $977.8 million and $765.0 million, respectively.

Notable and Non-notable Loss Events

Losses and loss expenses arising from notable and non-notable loss events occurring during the years ended December 31, 2016, 2015 and 2014 are set out in the tables below:

	Year Ended December 31, 2016							
	Notable Loss Events			Non-notable Loss Events				
(Dollars in thousands)	Canadian Wildfires	Hurricane Matthew	2016 New Zealand Earthquake	Texas Hailstorms	Kumamoto Earthquake	Jubilee Oil	SpaceX	Total
Net Losses and Loss Expenses	$19,650	$39,140	$31,421	$19,305	$15,480	$15,213	$20,239	$160,448
Less: Net Losses and Loss Expenses Attributable to AlphaCat Third Party Investors and Noncontrolling Interests	(3,696)	(8,943)	(9,068)	(5,638)	—	—	—	(27,345)
Validus' Share of Net Losses and Loss Expenses	15,954	30,197	22,353	13,667	15,480	15,213	20,239	133,103
Less: Reinstatement Premiums, net	(1,496)	(2,781)	(65)	(2,108)	—	(8,942)	(1,510)	(16,902)
Net Loss Attributable to Validus	$14,458	$27,416	$22,288	$11,559	$15,480	$6,271	$18,729	$116,201

- For the year ended December 31, 2016, losses and loss expenses from the three notable loss events were $90.2 million, or 4.0 percentage points of the loss ratio. Net of losses attributable to AlphaCat investors and noncontrolling interests of $21.7 million and reinstatement premiums of $4.3 million, the net loss attributable to the Company from these notable loss events was $64.2 million. Losses and loss expenses from the four non-notable loss events were $70.2 million, or 3.1 percentage points of the loss ratio. Net of losses attributable to AlphaCat investors and noncontrolling interests of $5.6 million and reinstatement premiums of $12.6 million, the net loss attributable to the Company from these non-notable loss events was $52.0 million.

	Year Ended December 31, 2015			
	Notable Loss Events		Non-notable Loss Event	
(Dollars in thousands)	Tianjin	Pemex	2015 Chilean Earthquake	Total
Net Losses and Loss Expenses	$47,427	$49,537	$22,231	$119,195
Less: Reinstatement Premiums, net	(3,896)	2,130	(2,200)	(3,966)

Net Loss Attributable to Validus	$43,531	$51,667	$ 20,031	$115,229

- For the year ended December 31, 2015, losses and loss expenses from the two notable loss events were $97.0 million, or 4.3 percentage points of the loss ratio. Net of reinstatement premiums of $1.8 million, the net loss attributable to the Company

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from these notable loss events was $95.2 million. Losses and loss expenses from a single non-notable loss event were $22.2 million, or 1.0 percentage point of the loss ratio. Net of reinstatement premiums of $2.2 million, the net loss attributable to the Company from this non-notable loss event was $20.0 million.

	Year Ended December 31, 2014			
	Notable Loss Event	Non-notable Loss Events		Total
(Dollars in thousands)	Tripoli Airport	Japanese Snowstorm	2014 Chilean Earthquake	
Net Losses and Loss Expenses	$34,944	$16,256	$ 18,412	$69,612
Less: Reinstatement Premiums, net	(3,816)	(2,239)	(496)	(6,551)
Net Loss Attributable to Validus	$31,128	$14,017	$ 17,916	$63,061

- For the year ended December 31, 2014, losses and loss expenses from a single notable loss event were $34.9 million, or 1.8 percentage points of the loss ratio. Net of reinstatement premiums of $3.8 million, the net loss attributable to the Company from this notable loss event was $31.1 million. Losses and loss expenses from the two non-notable loss events were $34.7 million, or 1.7 percentage points of the loss ratio. Net of reinstatement premiums of $2.7 million, the net loss attributable to the Company from these non-notable loss events was $32.0 million.

Change in prior accident years

- Loss reserve development on prior years was as follows:

	Years Ended December 31,		
(Dollars in thousands)	2016	2015	2014
(Favorable) development on events	$(14,394)	$(52,196)	$(50,884)
(Favorable) development on attritional losses	(201,797)	(253,941)	(208,357)
Change in prior accident years	$(216,191)	$(306,137)	$(259,241)

The favorable development on events in 2016 primarily related to favorable development on the 2015 Chilean Earthquake non-notable loss event and the 2015 Tianjin port explosion notable loss event and was partially offset by adverse development established following the receipt of a loss advice on an individual marine policy that incepted during the second half of 2015. The favorable development on events in 2015 primarily related to favorable development on Superstorm Sandy. The favorable development on events in 2014 primarily related to favorable development on the Superstorm Sandy and European Floods notable loss events and was partially offset by adverse development on the 2010 New Zealand Earthquake notable loss event.

Loss Ratio

- Loss ratios by line of business were as follows:

	Years Ended December 31,		
	2016	2015	2014
Property	35.3%	23.0%	16.3%
Marine	51.9%	47.5%	40.5%
Specialty	55.0%	57.9%	64.0%
Liability	65.9%	69.3%	68.3%
All lines	47.4%	43.5%	38.4%

- Policy acquisition costs for the years ended December 31, 2016, 2015 and 2014 were $449.5 million, $410.1 million and $339.5 million, respectively.
- General and administrative expenses for the years ended December 31, 2016, 2015 and 2014 were $336.3 million, $363.7 million and $329.4 million, respectively.
- Underwriting income for the years ended December 31, 2016, 2015 and 2014 was $358.3 million, $463.1 million and $529.6 million, respectively.
- Net operating income available to Validus common shareholders for the years ended December 31, 2016, 2015 and 2014 was $319.2 million, $409.7 million and $480.8 million, respectively.

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Full Year 2016 Results of Operations - Validus Re Segment

The following table presents underwriting income by line of business for the years ended December 31, 2016 and 2015:

	Years Ended December 31,							
	2016				2015			
(Dollars in thousands)	Property	Marine	Specialty	Total	Property	Marine	Specialty	Total
Underwriting revenues								
Gross premiums written	$472,965	$105,698	$532,391	$1,111,054	$547,409	$152,670	$426,680	$1,126,7
Reinsurance premiums ceded	(86,646)	(12,546)	(12,372)	(111,564)	(121,518)	(17,127)	(10,443)	(149,088
Net premiums written	386,319	93,152	520,019	999,490	425,891	135,543	416,237	977,671
Change in unearned premiums	12,499	18,020	(86,064)	(55,545)	5,235	12,022	(4,715)	12,542
Net premiums earned	398,818	111,172	433,955	943,945	431,126	147,565	411,522	990,213
Other insurance related (loss) income				(55)				3,575
Total underwriting revenues				943,890				993,788
Underwriting deductions								
Losses and loss expenses	97,859	45,595	268,034	411,488	86,232	91,306	280,438	457,976
Policy acquisition costs	72,558	19,396	89,086	181,040	74,655	30,024	61,708	166,387
Total underwriting deductions before G&A	170,417	64,991	357,120	592,528	160,887	121,330	342,146	624,363
Underwriting income before G&A	$228,401	$46,181	$76,835	$351,362	$270,239	$26,235	$69,376	$369,42
General and administrative expenses				72,770				78,428
Share compensation expenses				11,034				10,350
Total underwriting deductions				676,332				713,141
Underwriting income [(a)]				$267,558				$280,64

Supplemental information:

Losses and loss expenses:								
Current period excluding items below	$96,671	$58,353	$293,778	$448,802	$115,825	$83,271	$297,470	$496,56
Current period—notable loss events	36,992	1,420	—	38,412	23,310	47,495	1,665	72,470
Current period—non-notable loss events	22,084	10,257	10,466	42,807	17,440	—	116	17,556
Change in prior accident years	(57,888)	(24,435)	(36,210)	(118,533)	(70,343)	(39,460)	(18,813)	(128,616
Total losses and loss expenses	$97,859	$45,595	$268,034	$411,488	$86,232	$91,306	$280,438	$457,97
Selected ratios:								
Ratio of net to gross premiums written	81.7 %	88.1 %	97.7 %	90.0 %	77.8 %	88.8 %	97.6 %	86.8
Losses and loss expense ratio:								
Current period excluding items below	24.2 %	52.5 %	67.7 %	47.6 %	26.9 %	56.4 %	72.3 %	50.1
Current period—notable loss events	9.3 %	1.3 %	— %	4.1 %	5.4 %	32.2 %	0.4 %	7.3
Current period—non-notable loss events	5.5 %	9.2 %	2.4 %	4.5 %	4.0 %	— %	— %	1.8
Change in prior accident years	(14.5)%	(22.0)%	(8.3)%	(12.6)%	(16.3)%	(26.7)%	(4.6)%	(13.0
Losses and loss expense ratio	24.5 %	41.0 %	61.8 %	43.6 %	20.0 %	61.9 %	68.1 %	46.2
Policy acquisition cost ratio	18.2 %	17.4 %	20.5 %	19.2 %	17.3 %	20.3 %	15.0 %	16.8
General and administrative expense ratio (b)				8.8 %				9.0
Expense ratio				28.0 %				25.8
Combined ratio				71.6 %				72.0

(a) Non-GAAP Financial Measures. In presenting the Company's results, management has included and discussed underwriting income that is not calculated under standards or rules that comprise U.S. GAAP. Such measures are referred to as non-GAAP. Further discussion of these measures is presented in the section entitled "Non-GAAP Financial Measures."

(b) The general and administrative expense ratio includes share compensation expenses.

Highlights for the for the year ended December 31, 2016 as compared to the year ended December 31, 2015 were as follows:

- Gross premiums written for the year ended December 31, 2016 were $1,111.1 million compared to $1,126.8 million for the year ended December 31, 2015, a decrease of $15.7 million, or 1.4%. The decrease in gross premiums written was primarily driven by:

A decrease in gross premiums written in the property lines of $74.4 million, primarily due to a reduction in business written in the catastrophe excess of loss lines driven by reductions in participation on various programs due to market conditions; and

A decrease in gross premiums written in the marine lines of $47.0 million, primarily due to reductions in participation on various programs as a result of challenging market conditions and business historically written in marine lines being renewed in specialty lines; partially offset by

An increase in gross premiums written in the specialty lines of $105.7 million, primarily due to new casualty lines written during the period of $79.0 million and business historically written in marine lines being renewed in specialty lines.

- Reinsurance premiums ceded for the year ended December 31, 2016 were $111.6 million compared to $149.1 million for the year ended December 31, 2015, a decrease of $37.5 million, or 25.2%. The decrease was primarily due to a reduction in the costs associated with the Company’s main proportional retrocession program during the year ended December 31, 2016.

- Net premiums earned for the year ended December 31, 2016 were $943.9 million compared to $990.2 million for the year ended December 31, 2015, a decrease of $46.3 million, or 4.7%. The decrease was driven by decreases in the property and marine lines of $32.3 million and $36.4 million, respectively, as a result of lower gross premiums written during the year ended December 31, 2016, offset by the earned impact of the reduction in reinsurance premiums ceded and was partially offset by an increase in net premiums earned in the specialty lines of $22.4 million, primarily due to the increase in gross premiums written as noted above, the impact of reinstatement premiums and adjustments to existing business.

- Losses and loss expenses for the year ended December 31, 2016 were $411.5 million compared to $458.0 million for the year ended December 31, 2015, a decrease of $46.5 million or 10.2%. The decrease was primarily as a result of lower losses and loss expenses from attritional losses and notable loss events during the year ended December 31, 2016 and was partially offset by higher losses and loss expenses from non-notable loss events.

The loss ratio for the year ended December 31, 2016 was 43.6%, which included $118.5 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 12.6 percentage points compared to a loss ratio for the year ended December 31, 2015 of 46.2% which included $128.6 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 13.0 percentage points.

Notable and Non-notable Loss Events

During the year ended December 31, 2016, there were three notable loss events and four non-notable loss events that impacted Validus Re as set out in the table below:

	Year Ended December 31, 2016							
	Notable Loss Events			Non-notable Loss Events				
(Dollars in thousands)	Canadian Wildfires	Hurricane Matthew	2016 New Zealand Earthquake	Texas Hailstorms	Kumamoto Earthquake	Jubilee Oil	SpaceX	Total
Validus Re’s Share of Net Losses and Loss Expenses	$5,930	$13,580	$ 18,902	$6,891	$ 15,195	$10,376	$10,345	$81,219
Less: Reinstatement Premiums, net	(1,085)	(2,781)	(68)	(2,077)	—	(7,981)	(2,393)	(16,385)
Net Loss Attributable to Validus Re	$4,845	$10,799	$ 18,834	$4,814	$ 15,195	$2,395	$7,952	$64,834

During the year ended December 31, 2015, there were two notable loss events and one non-notable loss event that impacted Validus Re as set out in the table below:

	Year Ended December 31, 2015			
	Notable Loss Events		Non-notable Loss Event	
(Dollars in thousands)	Tianjin	Pemex	2015 Chilean Earthquake	Total
Validus Re's Share of Net Losses and Loss Expenses	$35,818	$36,652	$ 17,556	$90,026
Less: Reinstatement Premiums, net	(3,136)	(8,940)	(2,200)	(14,276)
Net Loss Attributable to Validus Re	$32,682	$27,712	$ 15,356	$75,750

Notable Loss Events

For the year ended December 31, 2016, losses and loss expenses from three notable loss events, the Canadian Wildfires, Hurricane Matthew and the 2016 New Zealand Earthquake were $38.4 million, or 4.1 percentage points of the loss ratio. Net of reinstatement premiums of $3.9 million, these events resulted in an aggregate reduction of underwriting income of $34.5 million. The losses and loss expenses of the 2016 notable loss events by line of business were as follows:

Canadian Wildfires and 2016 New Zealand Earthquake - property lines of $24.8 million; and

Hurricane Matthew - property and marine lines of $12.2 million and $1.4 million, respectively.

For the year ended December 31, 2015, losses and loss expenses from two notable loss events, Tianjin and Pemex, were $72.5 million, or 7.3 percentage points of the loss ratio. Net of reinstatement premiums of $12.1 million, these events resulted in an aggregate reduction of underwriting income of $60.4 million. The losses and loss expenses of the 2015 notable loss events by line of business were as follows:

Tianjin - property and marine lines of $23.3 million and $12.5 million, respectively; and

Pemex - marine and specialty lines of $35.0 million and $1.7 million, respectively.

Non-notable Loss Events

For the year ended December 31, 2016, losses and loss expenses incurred from the 2016 non-notable loss events, the Texas Hailstorms, Kumamoto Earthquake, Jubilee Oil and SpaceX, were $42.8 million, or 4.5 percentage points of the loss ratio. Net of reinstatement premiums of $12.4 million, these events resulted in an aggregate reduction of underwriting income of $30.4 million. The losses and loss expenses of the 2016 non-notable loss events by line of business were as follows:

Texas Hailstorms and Kumamoto Earthquake - property lines of $22.1 million; and

Jubilee Oil - marine and specialty lines of $0.7 million and $9.7 million, respectively; and

SpaceX - marine and specialty lines of $9.5 million and $0.8 million, respectively.

For the year ended December 31, 2015, losses and loss expenses from the 2015 Chilean Earthquake non-notable loss event were $17.6 million, or 1.8 percentage points of the loss ratio, and related primarily to Validus Re's property lines. Net of reinstatement premiums of $2.2 million, this event resulted in an aggregate reduction of underwriting income of $15.4 million.

Change in prior accident years

Loss reserve development by line of business for the years ended December 31, 2016 and 2015 was as follows:

	Year Ended December 31, 2016			
(Dollars in thousands)	Property	Marine	Specialty	Total
(Favorable) adverse development on events	$(32,553)	$9,677	$1,849	$(21,027)
(Favorable) development on attritional losses	(25,335)	(34,112)	(38,059)	(97,506)
Change in prior accident years	$(57,888)	$(24,435)	$(36,210)	$(118,533)

The favorable development on events in 2016 in the property lines was primarily related to the 2015 Chilean Earthquake non-notable loss event and the Tianjin notable loss event. The adverse development in 2016 in the marine lines primarily related to reserves established following the receipt of a loss advice on an individual marine policy that incepted during the second half of 2015.

	Year Ended December 31, 2015			
	Property	Marine	Specialty	Total
(Favorable) adverse development on events	$(32,408)	$23	$240	$(32,145)
(Favorable) development on attritional losses	(37,935)	(39,483)	(19,053)	(96,471)
Change in prior accident years	$(70,343)	$(39,460)	$(18,813)	$(128,616)

The favorable development on events in 2015 in the property lines was primarily related to Superstorm Sandy.

- Policy acquisition costs for the year ended December 31, 2016 were $181.0 million compared to $166.4 million for the year ended December 31, 2015, an increase of $14.7 million, or 2.4 percentage points of the policy acquisition costs ratio. The increase was driven by an increase in the specialty lines due to profit commissions on agriculture business, as well as an increase in financial, trade credit and mortgage lines, along with new casualty business which carries higher costs and was partially offset by a decrease in the marine lines as a result of a reduction in proportional business along with adjustments to existing business.
- General and administration expenses for the year ended December 31, 2016 were $72.8 million compared to $78.4 million for the year ended December 31, 2015, a decrease of $5.7 million, or 7.2%. The decrease was primarily due to reductions in office related expenses, staff costs and the performance bonus accrual.

The following table presents underwriting income by line of business for the years ended December 31, 2015 and 2014:

	Years Ended December 31,							
	2015				2014			
(Dollars in thousands)	Property	Marine	Specialty	Total	Property	Marine	Specialty	Total
Underwriting revenues								
Gross premiums written	$547,409	$152,670	$426,680	$1,126,759	$616,554	$190,959	$311,019	$1,118,53
Reinsurance premiums ceded	(121,518)	(17,127)	(10,443)	(149,088)	(139,656)	(16,524)	(7,498)	(163,678
Net premiums written	425,891	135,543	416,237	977,671	476,898	174,435	303,521	954,854
Change in unearned premiums	5,235	12,022	(4,715)	12,542	(6,603)	(7,179)	(23,788)	(37,570
Net premiums earned	431,126	147,565	411,522	990,213	470,295	167,256	279,733	917,284
Other insurance related income				3,575				3,159
Total underwriting revenues				993,788				920,443
Underwriting deductions								
Losses and loss expenses	86,232	91,306	280,438	457,976	41,689	58,960	206,641	307,290
Policy acquisition costs	74,655	30,024	61,708	166,387	76,955	26,724	37,991	141,670
Total underwriting deductions before G&A	160,887	121,330	342,146	624,363	118,644	85,684	244,632	448,960
Underwriting income before G&A	$270,239	$26,235	$69,376	$369,425	$351,651	$81,572	$35,101	$471,483
General and administrative expenses				78,428				74,739
Share compensation expenses				10,350				9,739
Total underwriting deductions				713,141				533,438
Underwriting income [(a)]				$280,647				$387,005
Supplemental information:								
Losses and loss expenses:								

Current period excluding items below	$115,825	$83,271	$297,470	$496,566	$87,870	$65,749	$188,919	$342,538
Current period—notable loss events	23,310	47,495	1,665	72,470	—	41	22,428	22,469
Current period—non-notable loss events	17,440	—	116	17,556	29,883	—	—	29,883
Change in prior accident years	(70,343)	(39,460)	(18,813)	(128,616)	(76,064)	(6,830)	(4,706)	(87,600
Total losses and loss expenses	$86,232	$91,306	$280,438	$457,976	$41,689	$58,960	$206,641	$307,290
Selected ratios:								
Ratio of net to gross premiums written	77.8 %	88.8 %	97.6 %	86.8 %	77.3 %	91.3 %	97.6 %	85.4
Losses and loss expense ratio:								
Current period excluding items below	26.9 %	56.4 %	72.3 %	50.1 %	18.7 %	39.3 %	67.6 %	37.3
Current period—notable loss events	5.4 %	32.2 %	0.4 %	7.3 %	— %	— %	8.0 %	2.4
Current period—non-notable loss events	4.0 %	— %	— %	1.8 %	6.4 %	— %	— %	3.3
Change in prior accident years	(16.3)%	(26.7)%	(4.6)%	(13.0)%	(16.2)%	(4.1)%	(1.7)%	(9.5
Losses and loss expense ratio	20.0 %	61.9 %	68.1 %	46.2 %	8.9 %	35.2 %	73.9 %	33.5
Policy acquisition cost ratio	17.3 %	20.3 %	15.0 %	16.8 %	16.4 %	16.0 %	13.6 %	15.5
General and administrative expense ratio (b)				9.0 %				9.2
Expense ratio				25.8 %				24.7
Combined ratio				72.0 %				58.2

(a) Non-GAAP Financial Measures. In presenting the Company's results, management has included and discussed underwriting income that is not calculated under standards or rules that comprise U.S. GAAP. Such measures are referred to as non-GAAP. Further discussion of these measures is presented in the section entitled "Non-GAAP Financial Measures."

(b) The general and administrative expense ratio includes share compensation expenses.

Highlights for the for the year ended December 31, 2015 as compared to the year ended December 31, 2014 were as follows:

- Gross premiums written for the year ended December 31, 2015 were $1,126.8 million compared to $1,118.5 million for the year ended December 31, 2014, an increase of $8.2 million, or 0.7%. The increase in gross premiums written was primarily driven by:

An increase in gross premiums written in the specialty lines of $115.7 million, primarily due to a significant new agriculture deal and new casualty business of $7.1 million which was written during the three months ended December 31, 2015, partially offset by various non-renewals; and

A decrease in gross premiums written in the property lines of $69.1 million, primarily due to a reduction in business written in the catastrophe excess of loss lines of $76.8 million, driven by reductions in participation on various programs due to market conditions; and

A decrease in gross premiums written in the marine lines of $38.3 million, primarily due to non-renewals as a result of difficult market conditions and business historically written in marine lines being renewed in specialty lines. Further contributing to the decrease was a gain on the commutation of a Flagstone contract with a Lloyd's counterparty which occurred in the three months ended December 31, 2014.

- Reinsurance premiums ceded for the year ended December 31, 2015 were $149.1 million compared to $163.7 million for the year ended December 31, 2014, a decrease of $14.6 million, or 8.9%. The decrease was due to a reduction in the property lines of $18.1 million primarily due to a reduction in the costs associated with the Company's main proportional retrocession program during the year ended December 31, 2015 and was partially offset by an increase in the specialty lines of $2.9 million.

- Net premiums earned for the year ended December 31, 2015 were $990.2 million compared to $917.3 million for the year ended December 31, 2014, an increase of $72.9 million, or 8.0%. The increase was primarily due to an increase in the specialty lines of $131.8 million as a result of the increase in gross premiums written as described above and was partially offset by decreases in the property and marine lines of $39.2 million and $19.7 million, respectively, as a result of lower gross premiums written during the year ended December 31, 2015 compared to the year ended December 31, 2014.

- Losses and loss expenses for the year ended December 31, 2015 were $458.0 million compared to $307.3 million for the year ended December 31, 2014, an increase of $150.7 million or 49.0%, primarily as a result of an increase in attritional losses and losses from notable loss events during the year ended December 31, 2015.

The loss ratio for the year ended December 31, 2015 was 46.2%, which included $128.6 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 13.0 percentage points compared to a loss ratio for the year ended December 31, 2014 of 33.5% which included $87.6 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 9.5 percentage points.

Notable and Non-notable Loss Events

During the year ended December 31, 2014, there was one notable loss event and two non-notable loss events that impacted Validus Re as set out in the table below:

	Year Ended December 31, 2014			
	Notable Loss Event	Non-notable Loss Events		Total
(Dollars in thousands)	Tripoli Airport	Japanese Snowstorm	2014 Chilean Earthquake	
Validus Re's Share of Net Losses and Loss Expenses	$22,469	$16,256	$ 13,627	$52,352
Less: Reinstatement Premiums, net	(3,007)	(2,239)	(221)	(5,467)
Net Loss Attributable to Validus Re	$19,462	$14,017	$ 13,406	$46,885

Notable Loss Events

For the year ended December 31, 2014, losses and loss expenses from a single notable loss event, Tripoli Airport, were $22.5 million, or 2.4 percentage points of the loss ratio and primarily related to the specialty lines. Net of reinstatement premiums of $3.0 million, this event resulted in an aggregate reduction of underwriting income of $19.5

million.

Non-notable Loss Events

For the year ended December 31, 2014, losses and loss expenses incurred from two non-notable loss events, the Japanese Snowstorm and the 2014 Chilean Earthquake, were $29.9 million, or 3.3 percentage points of the loss ratio and related solely to the property lines. Net of reinstatement premiums of $2.5 million, these events resulted in an aggregate reduction of underwriting income of $27.4 million.

Change in prior accident years

- Loss reserve development by line of business for the year ended December 31, 2014 was as follows:

	Year Ended December 31, 2014			
(Dollars in thousands)	Property	Marine	Specialty	Total
(Favorable) adverse development on events	$(28,831)	$12,104	$1,258	$(15,469)
(Favorable) development on attritional losses	(47,233)	(18,934)	(5,964)	(72,131)
Change in prior accident years	$(76,064)	$(6,830)	$(4,706)	$(87,600)

The favorable development on events in the property lines was primarily related to the European Floods and Superstorm Sandy notable loss events. The adverse development on events in the marine lines was primarily related to the Costa Concordia notable loss event, and was partially offset by favorable development on the Gryphon Alpha mooring failure notable loss event.

- Policy acquisition costs for the year ended December 31, 2015 were $166.4 million compared to $141.7 million for the year ended December 31, 2014, an increase of $24.7 million, or 1.3 percentage points of the policy acquisition costs ratio. The increase was primarily due to an increase in the policy acquisition costs ratio in the marine and specialty lines of 4.3 and 1.4 percentage points, respectively, as a result of the impact of premium adjustments and profit commissions, respectively.

- General and administration expenses for the year ended December 31, 2015 were $78.4 million compared to $74.7 million for the year ended December 31, 2014, an increase of $3.7 million, or 4.9%. The increase was primarily due to a greater retention of costs within the segment and an increase in staff costs related to overseas underwriting operations during the year ended December 31, 2015. This increase was partially offset by a reduction in office and infrastructure costs in the current year related to entities that are no longer in use as a result of efficiencies achieved through rationalization of historical Flagstone entities.

Full Year 2016 Results of Operations - Talbot Segment

The following table presents underwriting income by line of business for the years ended December 31, 2016 and 2015:

	Years Ended December 31,							
	2016				2015			
(Dollars in thousands)	Property	Marine	Specialty	Total	Property	Marine	Specialty	Total
Underwriting revenues								
Gross premiums written	$317,085	$261,940	$391,677	$970,702	$327,122	$327,539	$364,174	$1,018,83
Reinsurance premiums ceded	(86,308)	(29,502)	(59,919)	(175,729)	(103,677)	(34,087)	(61,132)	(198,896
Net premiums written	230,777	232,438	331,758	794,973	223,445	293,452	303,042	819,939
Change in unearned premiums	(2,923)	27,782	(37,916)	(13,057)	(2,142)	25,506	(5,212)	18,152
Net premiums earned	227,854	260,220	293,842	781,916	221,303	318,958	297,830	838,091
Other insurance related income				455				851
Total underwriting revenues				782,371				838,942
Underwriting deductions								
Losses and loss expenses	142,669	147,158	135,119	424,946	86,807	130,521	129,994	347,322
Policy acquisition costs	37,082	68,593	71,452	177,127	32,768	82,705	72,062	187,535
Total underwriting deductions before G&A	179,751	215,751	206,571	602,073	119,575	213,226	202,056	534,857
Underwriting income before G&A	$48,103	$44,469	$87,271	$180,298	$101,728	$105,732	$95,774	$304,085
General and administrative expenses				134,479				155,306
Share compensation expenses				13,078				12,373
Total underwriting deductions				749,630				702,536
Underwriting income [(a)]				$32,741				$136,406

Supplemental information:

Losses and loss expenses:								
Current period excluding items below	$155,175	$140,750	$170,215	$466,140	$131,298	$173,174	$160,038	$464,510
Current period—notable loss events	20,082	3,414	608	24,104	3,727	20,767	—	24,494
Current period—non-notable loss events	5,780	14,732	—	20,512	4,175	500	—	4,675
Change in prior accident years	(38,368)	(11,738)	(35,704)	(85,810)	(52,393)	(63,920)	(30,044)	(146,357
Total losses and loss expenses	$142,669	$147,158	$135,119	$424,946	$86,807	$130,521	$129,994	$347,322
Selected ratios:								
Ratio of net to gross premiums written	72.8 %	88.7 %	84.7 %	81.9 %	68.3 %	89.6 %	83.2 %	80.5
Losses and loss expense ratio:								
Current period excluding items below	68.1 %	54.1 %	58.0 %	59.6 %	59.3 %	54.2 %	53.7 %	55.4
Current period—notable loss events	8.8 %	1.3 %	0.2 %	3.1 %	1.7 %	6.5 %	— %	2.9
Current period—non-notable loss events	2.5 %	5.7 %	— %	2.6 %	1.9 %	0.2 %	— %	0.6
Change in prior accident years	(16.8)%	(4.5)%	(12.2)%	(11.0)%	(23.7)%	(20.0)%	(10.1)%	(17.5
Losses and loss expense ratio	62.6 %	56.6 %	46.0 %	54.3 %	39.2 %	40.9 %	43.6 %	41.4
Policy acquisition cost ratio	16.3 %	26.4 %	24.3 %	22.7 %	14.8 %	25.9 %	24.2 %	22.4
General and administrative expense ratio (b)				18.9 %				20.0
Expense ratio				41.6 %				42.4
Combined ratio				95.9 %				83.8

(a) Non-GAAP Financial Measures. In presenting the Company’s results, management has included and discussed underwriting income that is not calculated under standards or rules that comprise U.S. GAAP. Such measures are referred to as non-GAAP. Further discussion of these measures is presented in the section entitled “Non-GAAP Financial Measures.”

(b) The general and administrative expense ratio includes share compensation expenses.

Highlights for the for the year ended December 31, 2016 as compared to the year ended December 31, 2015 were as follows:

- Gross premiums written for the year ended December 31, 2016 were $970.7 million compared to $1,018.8 million for the year ended December 31, 2015, a decrease of $48.1 million, or 4.7%. The decrease in gross premiums written was primarily driven by:

A decrease in gross premiums written in the property lines of $10.0 million. The decrease includes an increase in premium estimates of $5.2 million, which had no impact on earned premium. After the impact of these changes in estimates, the decrease was primarily driven by decreases in the downstream energy and power and property treaty classes as a result of the timing of renewals, the non-renewal of various programs due to the current rate environment and reduced premium adjustments in the current year; and

A decrease in gross premiums written in the marine lines of $65.6 million, which includes an increase in premium estimates of $4.2 million, which had no impact on earned premium. After the impact of these changes in estimates, the decrease was primarily driven by decreases in the upstream energy and cargo classes as a result of reductions in our participation and non-renewals on various programs due to continued pressure on rates from the lack of activity and lower prices in the oil and gas sector; partially offset by,

An increase in gross premiums written in the specialty lines of $27.5 million. The increase includes an increase in premium estimates of $17.0 million, which had no impact on earned premium. After the impact of these changes in estimates, the increase was primarily driven by increases in the contingency and political violence classes as a result of premium adjustments on prior period policies and an increase in the financial lines as a result of new business written during the year. The increases were partially offset by a decrease in the aviation direct class as a result of non-renewals on various programs due to continued pressure on rates.

- Reinsurance premiums ceded for the year ended December 31, 2016 were $175.7 million compared to $198.9 million for the year ended December 31, 2015, a decrease of $23.2 million, or 11.6%. The decrease was primarily due to a decrease in the property lines of $17.4 million as a result of lower quota share ceded premiums during the year ended December 31, 2016 compared to the year ended December 31, 2015 and a decrease in the marine lines of $4.6 million as a result of higher reinstatement premiums during the year ended December 31, 2015, which was primarily attributable to $11.1 million of reinstatement premiums from Pemex, a 2015 notable loss event.

- Net premiums earned for the year ended December 31, 2016 were $781.9 million compared to $838.1 million for the year ended December 31, 2015, a decrease of $56.2 million, or 6.7%. Excluding the impact of the changes in estimates noted above on gross premiums written, which had no impact on earned premium, the decrease was primarily driven by the overall reduction in net premiums written in the marine lines and slower earnings patterns on longer-term contracts in the specialty lines during the year ended December 31, 2016 compared to the year ended December 31, 2015.

- Losses and loss expenses for the year ended December 31, 2016 were $424.9 million compared to $347.3 million for the year ended December 31, 2015, an increase of $77.6 million or 22.3%, primarily as a result of lower favorable development on prior accident years and higher losses from non-notable loss events during the year ended December 31, 2016.

The loss ratio for the year ended December 31, 2016 was 54.3%, which included $85.8 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 11.0 percentage points compared to a loss ratio for the year ended December 31, 2015 of 41.4%, which included $146.4 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 17.5 percentage points.

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Notable and Non-notable Loss Events

During the year ended December 31, 2016, there were three notable loss events and four non-notable loss events that impacted Talbot as set out in the table below:

	Year Ended December 31, 2016							
	Notable Loss Events			Non-notable Loss Events				
(Dollars in thousands)	Canadian Wildfires	Hurricane Matthew	2016 New Zealand Earthquake	Texas Hailstorms	Kumamoto Earthquake	Jubilee Oil	SpaceX	Total
Talbot's Share of Net Losses and Loss Expenses	$9,517	$12,337	$2,250	$5,496	$285	$4,837	$9,894	$44,616
Less: Reinstatement Premiums, net	(411)	—	3	(31)	—	(961)	883	(517)
Net Loss Attributable to Talbot	$9,106	$12,337	$2,253	$5,465	$285	$3,876	$10,777	$44,099

During the year ended December 31, 2015, there were two notable loss events and one non-notable loss event that impacted Talbot as set out in the table below:

	Year Ended December 31, 2015			
	Notable Loss Events		Non-notable Loss Event	
(Dollars in thousands)	Tianjin	Pemex	2015 Chilean Earthquake	Total
Talbot's Share of Net Losses and Loss Expenses	$11,609	$12,885	$4,675	$29,169
Less: Reinstatement Premiums, net	(760)	11,070	—	10,310
Net Loss Attributable to Talbot	$10,849	$23,955	$4,675	$39,479

Notable Loss Events

For the year ended December 31, 2016, losses and loss expenses from three notable loss events, the Canadian Wildfires, Hurricane Matthew and the 2016 New Zealand Earthquake were $24.1 million, or 3.1 percentage points of the loss ratio. Net of reinstatement premiums of $0.4 million, these events resulted in an aggregate reduction of underwriting income of $23.7 million. The losses and loss expenses of the 2016 notable loss events by line of business were as follows:

- Canadian Wildfires - property and specialty lines of $9.3 million and $0.2 million, respectively;
- Hurricane Matthew - property, marine and specialty lines of $8.5 million, $3.4 million and $0.4 million, respectively; and
- 2016 New Zealand Earthquake - property lines of $2.3 million.

For the year ended December 31, 2015, losses and loss expenses from two notable loss events, Tianjin and Pemex, were $24.5 million, or 2.9 percentage points of the loss ratio. Including reinstatement premiums of $10.3 million, these events resulted in an aggregate reduction of underwriting income of $34.8 million. The losses and loss expenses of the 2015 notable loss events by line of business were as follows:

- Tianjin - property and marine lines of $3.3 million and $8.3 million, respectively; and
- Pemex - property and marine lines of $0.4 million and $12.5 million, respectively.

Non-notable Loss Events

For the year ended December 31, 2016, losses and loss expenses incurred from the 2016 non-notable loss events, the Texas Hailstorms, Kumamoto Earthquake, Jubilee Oil and SpaceX, were $20.5 million, or 2.6 percentage points of the loss ratio. Net of reinstatement premiums of $0.1 million, these events resulted in an aggregate reduction of underwriting income of $20.4 million. The losses and loss expenses of the 2016 non-notable loss events by line of business were as follows:

- Texas Hailstorms and Kumamoto Earthquake - property lines of $5.8 million; and
- Jubilee Oil and SpaceX - marine lines of $14.7 million.

For the year ended December 31, 2015, losses and loss expenses from the 2015 Chilean earthquake non-notable loss event were $4.7 million, or 0.6 percentage points of the loss ratio, and related primarily to Talbot's property lines.

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Change in prior accident years

- Loss reserve development by line of business was as follows:

	Year Ended December 31, 2016			
(Dollars in thousands)	Property	Marine	Specialty	Total
(Favorable) adverse development on events	$(9,206)	$18,169	$(2,129)	$6,834
(Favorable) development on attritional losses	(29,162)	(29,907)	(33,575)	(92,644)
Change in prior accident years	$(38,368)	$(11,738)	$(35,704)	$(85,810)

The adverse development on events in the marine lines primarily related to adverse development established following the receipt of a loss advice on an individual marine policy that incepted during the second half of 2015.

	Year Ended December 31, 2015			
	Property	Marine	Specialty	Total
(Favorable) adverse development on events	$(7,947)	$286	$(8,217)	$(15,878)
(Favorable) development on attritional losses	(44,446)	(64,206)	(21,827)	(130,479)
Change in prior accident years	$(52,393)	$(63,920)	$(30,044)	$(146,357)

The favorable development on events in the property lines was primarily related to the 2011 Thailand Floods notable loss event.

- Policy acquisition costs for the year ended December 31, 2016 were $177.1 million compared to $187.5 million for the year ended December 31, 2015, a decrease of $10.4 million, or 0.3 percentage points of the policy acquisition costs ratio.
- General and administration expenses for the year ended December 31, 2016 were $134.5 million compared to $155.3 million for the year ended December 31, 2015, a decrease of $20.8 million, or 13.4%. The decrease was primarily due to the impact of foreign exchange and a reduction in the performance bonus accrual.

The following table presents underwriting income by line of business for the years ended December 31, 2015 and 2014:

	Years Ended December 31,							
	2015				2014			
(Dollars in thousands)	Property	Marine	Specialty	Total	Property	Marine	Specialty	Total
Underwriting revenues								
Gross premiums written	$327,122	$327,539	$364,174	$1,018,835	$337,210	$392,701	$371,859	$1,101,7
Reinsurance premiums ceded	(103,677)	(34,087)	(61,132)	(198,896)	(111,948)	(24,928)	(55,335)	(192,21
Net premiums written	223,445	293,452	303,042	819,939	225,262	367,773	316,524	909,559
Change in unearned premiums	(2,142)	25,506	(5,212)	18,152	(16,486)	(1,435)	(11,864)	(29,785
Net premiums earned	221,303	318,958	297,830	838,091	208,776	366,338	304,660	879,774
Other insurance related income				851				1,095
Total underwriting revenues				838,942				880,869
Underwriting deductions								
Losses and loss expenses	86,807	130,521	129,994	347,322	98,678	157,177	167,539	423,394
Policy acquisition costs	32,768	82,705	72,062	187,535	27,549	88,079	71,534	187,162
Total underwriting deductions before G&A	119,575	213,226	202,056	534,857	126,227	245,256	239,073	610,556
Underwriting income before G&A	$101,728	$105,732	$95,774	$304,085	$82,549	$121,082	$65,587	$270,31
General and administrative expenses				155,306				150,828
Share compensation expenses				12,373				11,346
Total underwriting deductions				702,536				772,730
Underwriting income [(a)]				$136,406				$108,13
Supplemental information:								
Losses and loss expenses:								

Current period excluding items below	$131,298	$173,174	$160,038	$464,510	$147,672	$188,383	$211,245	$547,30
Current period—notable loss events	3,727	20,767	—	24,494	—	191	12,284	12,475
Current period—non-notable loss events	4,175	500	—	4,675	4,785	—	—	4,785
Change in prior accident years	(52,393)	(63,920)	(30,044)	(146,357)	(53,779)	(31,397)	(55,990)	(141,16
Total losses and loss expenses	$86,807	$130,521	$129,994	$347,322	$98,678	$157,177	$167,539	$423,39
Selected ratios:								
Ratio of net to gross premiums written	68.3 %	89.6 %	83.2 %	80.5 %	66.8 %	93.7 %	85.1 %	82.6
Losses and loss expense ratio:								
Current period excluding items below	59.3 %	54.2 %	53.7 %	55.4 %	70.8 %	51.4 %	69.4 %	62.3
Current period—notable loss events	1.7 %	6.5 %	— %	2.9 %	— %	0.1 %	4.0 %	1.4
Current period—non-notable loss events	1.9 %	0.2 %	— %	0.6 %	2.3 %	— %	— %	0.5
Change in prior accident years	(23.7)%	(20.0)%	(10.1)%	(17.5)%	(25.8)%	(8.6)%	(18.4)%	(16.1
Losses and loss expense ratio	39.2 %	40.9 %	43.6 %	41.4 %	47.3 %	42.9 %	55.0 %	48.1
Policy acquisition cost ratio	14.8 %	25.9 %	24.2 %	22.4 %	13.2 %	24.0 %	23.5 %	21.3
General and administrative expense ratio (b)				20.0 %				18.4
Expense ratio				42.4 %				39.7
Combined ratio				83.8 %				87.8

(a) Non-GAAP Financial Measures. In presenting the Company's results, management has included and discussed underwriting income that is not calculated under standards or rules that comprise U.S. GAAP. Such measures are referred to as non-GAAP. Further discussion of these measures is presented in the section entitled "Non-GAAP Financial Measures."

(b) The general and administrative expense ratio includes share compensation expenses.

Highlights for the for the year ended December 31, 2015 as compared to the year ended December 31, 2014 were as follows:

- Gross premiums written for the year ended December 31, 2015 were $1,018.8 million compared to $1,101.8 million for the year ended December 31, 2014, a decrease of $82.9 million or 7.5%. The decrease in gross premiums written was primarily driven by:

A decrease in gross premiums written in the property lines of $10.1 million, primarily due to a decrease in the property treaty lines of $9.3 million which related primarily to Latin American business being written directly by Validus Re Swiss. In addition, renewed business in the downstream energy and power international lines has decreased due to unfavorable market conditions. These decreases were partially offset by an increase in the construction lines as a result of new projects and amendments to existing contracts; and

A decrease in gross premiums written in the marine lines of $65.2 million, primarily driven by a decrease in the upstream energy and cargo lines due to ongoing market conditions and economic factors, including the worldwide reduction in oil prices, which have reduced new business and renewals. Also contributing to the decrease was a decrease in the marine hull lines primarily as a result of 18-month policies written during the year ended December 31, 2014 which were not yet due for renewal; and

A decrease in gross premiums written in the specialty lines of $7.7 million, primarily driven by a decrease in the aviation treaty lines as a result of a higher level of reinstatement premiums and adjustments to prior year policies during the year ended December 31, 2014.

- Reinsurance premiums ceded for the year ended December 31, 2015 were $198.9 million compared to $192.2 million for the year ended December 31, 2014, an increase of $6.7 million, or 3.5%. The increase was primarily due to an increase in the marine and specialty lines of $9.2 million and $5.8 million, respectively, primarily due to increased reinstatement premiums across a number of classes and was partially offset by a decrease in the property lines of $8.3 million due to lower quota share premiums as a result of the Latin American business being written directly by Validus Re Swiss and due to a decrease in reinstatement premiums in the year ended December 31, 2015.

- Net premiums earned for the year ended December 31, 2015 were $838.1 million compared to $879.8 million for the year ended December 31, 2014, a decrease of $41.7 million, or 4.7%. The decrease was consistent with the pattern of gross premiums written and reinsurance premiums ceded as discussed above.

- Losses and loss expenses for the year ended December 31, 2015 were $347.3 million compared to $423.4 million for the year ended December 31, 2014, a decrease of $76.1 million or 18.0%, primarily as a result of lower attritional losses during the year ended December 31, 2015.

The loss ratio for the year ended December 31, 2015 was 41.4%, which included $146.4 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 17.5 percentage points compared to a loss ratio for the year ended December 31, 2014 of 48.1% which included $141.2 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 16.1 percentage points.

Notable and Non-notable Loss Events

During the year ended December 31, 2014, there was one notable loss event and one non-notable loss event that impacted Talbot as set out in the table below:

	Year Ended December 31, 2014		
	Notable Loss Event	Non-Notable Loss Event	Total
(Dollars in thousands)	Tripoli Airport	2014 Chilean Earthquake	
Talbot's Share of Net Losses and Loss Expenses	$12,475	$ 4,785	$17,260
Less: Reinstatement Premiums, net	(808)	(275)	(1,083)
Net Loss Attributable to Talbot	$11,667	$ 4,510	$16,177

Notable Loss Events

For the year ended December 31, 2014, losses and loss expenses from a single notable loss event, Tripoli Airport, were $12.5 million, or 1.4 percentage points of the loss ratio and primarily related to the specialty lines. Net of reinstatement premiums of $0.8 million, this event resulted in an aggregate reduction of underwriting income of $11.7 million.

Non-notable Loss Events

For the year ended December 31, 2014, losses and loss expenses incurred from a single non-notable loss event, the 2014 Chilean Earthquake, were $4.8 million, or 0.5 percentage points of the loss ratio and related solely to the property lines. Net of reinstatement premiums of $0.3 million, this event resulted in an aggregate reduction of underwriting income of $4.5 million.

Change in prior accident years

- Loss reserve development by line of business for the year ended December 31, 2014 was as follows:

	Year Ended December 31, 2014			
(Dollars in thousands)	Property	Marine	Specialty	Total
(Favorable) development on events	$(18,266)	$(5,733)	$(4,051)	$(28,050)
(Favorable) development on attritional losses	(35,513)	(25,664)	(51,939)	(113,116)
Change in prior accident years	$(53,779)	$(31,397)	$(55,990)	$(141,166)

The favorable development on events in the property lines was primarily related to the 2011 Tohoku earthquake notable loss event.

- Policy acquisition costs for the year ended December 31, 2015 were $187.5 million compared to $187.2 million for the year ended December 31, 2014, an increase of $0.4 million, or 1.1 percentage points of the policy acquisition costs ratio.
- General and administration expenses for the year ended December 31, 2015 were $155.3 million compared to $150.8 million for the year ended December 31, 2014, an increase of $4.5 million, or 3.0%. The increase was primarily due to a greater retention of costs within the segment and an increase in the performance bonus accrual.

Full Year 2016 Results of Operations - Western World Segment

The following table presents underwriting income by line of business for the years ended December 31, 2016 and 2015:

	Years Ended December 31,					
	2016			2015		
(Dollars in thousands)	Property	Liability	Total	Property	Liability	Total
Underwriting revenues						
Gross premiums written	$94,440	$228,780	$323,220	$53,018	$225,486	$278,504
Reinsurance premiums ceded	(10,070)	(12,564)	(22,634)	(4,347)	(14,530)	(18,877)
Net premiums written	84,370	216,216	300,586	48,671	210,956	259,627
Change in unearned premiums	(21,216)	(6,138)	(27,354)	(4,588)	3,611	(977)
Net premiums earned	63,154	210,078	273,232	44,083	214,567	258,650
Other insurance related income			912			1,044
Total underwriting revenues			274,144			259,694
Underwriting deductions						
Losses and loss expenses	45,469	138,343	183,812	23,104	148,774	171,878
Policy acquisition costs	15,840	48,602	64,442	6,948	34,460	41,408
Total underwriting deductions before G&A	61,309	186,945	248,254	30,052	183,234	213,286
Underwriting income before G&A	$1,845	$23,133	$25,890	$14,031	$31,333	$46,408
General and administrative expenses			43,280			38,715
Share compensation expenses			2,543			2,083
Total underwriting deductions			294,077			254,084
Underwriting (loss) income [(a)]			$(19,933)			$5,610
Supplemental information:						
Losses and loss expenses:						
Current period excluding items below	$44,065	$144,754	$188,819	$29,149	$165,696	$194,845
Current period—notable loss events	3,400	—	3,400	—	—	—
Current period—non-notable loss events	705	—	705	—	—	—
Change in prior accident years	(2,701)	(6,411)	(9,112)	(6,045)	(16,922)	(22,967)
Total losses and loss expenses	$45,469	$138,343	$183,812	$23,104	$148,774	$171,878
Selected ratios:						
Ratio of net to gross premiums written	89.3%	94.5%	93.0%	91.8%	93.6%	93.2%
Losses and loss expense ratio:						
Current period excluding items below	69.8%	69.0%	69.1%	66.1%	77.2%	75.3%
Current period—notable loss events	5.4%	—%	1.2%	—%	—%	—%
Current period—non-notable loss events	1.1%	—%	0.3%	—%	—%	—%
Change in prior accident years	(4.3)%	(3.1)%	(3.3)%	(13.7)%	(7.9)%	(8.9)%
Losses and loss expense ratio	72.0%	65.9%	67.3%	52.4%	69.3%	66.4%
Policy acquisition cost ratio	25.1%	23.1%	23.5%	15.8%	16.1%	16.0%
General and administrative expense ratio [(b)]			16.8%			15.8%
Expense ratio			40.3%			31.8%
Combined ratio			107.6%			98.2%

(a) Non-GAAP Financial Measures. In presenting the Company's results, management has included and discussed underwriting income that is not calculated under standards or rules that comprise U.S. GAAP. Such measures are referred to as non-GAAP. Further discussion of these measures is presented in the section entitled "Non-GAAP

Financial Measures."

(b) The general and administrative expense ratio includes share compensation expenses.

Highlights for the for the year ended December 31, 2016 as compared to the year ended December 31, 2015 were as follows:

- Gross premiums written for the year ended December 31, 2016 were $323.2 million compared to $278.5 million for the year ended December 31, 2015, an increase of $44.7 million, or 16.1%. The increase in gross premiums written was primarily driven by:
An increase in gross premiums written in the property lines of $41.4 million primarily due to increases in the brokerage property, contract commercial package property, monoline property and program flood classes of $12.5 million, $12.2 million, $6.9 million and $6.4 million, respectively, as a result of the continued build out of the underwriting platform in short tail lines.
An increase in gross premiums written in the liability lines of $3.3 million. The increase was driven by increases in the contract liability and brokerage professional lines of $12.2 million and $6.3 million, respectively, and was partially offset by decreases arising from the discontinuation of underperforming programs and brokerage general liability lines.
- Reinsurance premiums ceded for the year ended December 31, 2016 were $22.6 million compared to $18.9 million for the year ended December 31, 2015, an increase of $3.8 million, or 19.9% and were driven by the factors highlighted above in respect of gross premiums written.
- Net premiums earned for the year ended December 31, 2016 were $273.2 million compared to $258.7 million for the year ended December 31, 2015, an increase of $14.6 million, or 5.6%. The increase was primarily driven by the increase in gross premiums written in the property lines and was partially offset by the discontinuation of various liability lines as discussed above.
- Losses and loss expenses for the year ended December 31, 2016 were $183.8 million compared to $171.9 million for the year ended December 31, 2015, an increase of $11.9 million or 6.9%, primarily as a result of losses incurred from notable loss events during the year ended December 31, 2016 and lower favorable development on prior accident years as discussed below. Included as part of current year losses and loss expenses for the year ended December 31, 2016 are $14.3 million, or 5.2 percentage points of the loss ratio, of losses from other U.S.-based weather losses.
The loss ratio for the year ended December 31, 2016 was 67.3%, which included $9.1 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 3.3 percentage points compared to a loss ratio for the year ended December 31, 2015 of 66.4% which included $23.0 million of favorable loss reserve development on prior accident years, benefiting the loss ratio by 8.9 percentage points. The favorable development of $23.0 million on prior accident years for the year ended December 31, 2015 primarily relates to favorable development on attritional losses and also includes the amortization of the risk premium adjustment accounted for at the time of the acquisition of Western World. This adjustment was fully amortized to income through a reduction in losses and loss expenses of $11.0 million during the year ended December 31, 2015, benefiting the loss ratio by 4.2 percentage points.

Notable and Non-notable Loss Events

During the year ended December 31, 2016, there was one notable and one non-notable loss event that impacted Western World as set out in the table below:

	Year Ended December 31, 2016		
	Notable Loss Event	Non-notable Loss Event	Total
(Dollars in thousands)	Hurricane Matthew	Texas Hailstorms	
Western World's Share of Net Losses and Loss Expenses	$3,400	$ 705	$4,105
Less: Reinstatement Premiums, net	—	—	—
Net Loss Attributable to Western World	$3,400	$ 705	$4,105

Notable Loss Events

For the year ended December 31, 2016, losses and loss expenses from a single notable loss event, Hurricane Matthew, were $3.4 million, or 1.2 percentage points of the loss ratio and solely impacted Western World's property lines.

Non-notable Loss Events

For the year ended December 31, 2016, losses and loss expenses incurred from a single non-notable loss event, the Texas Hailstorms, were $0.7 million, or 0.3 percentage points of the loss ratio and solely impacted Western World's property lines.

- Policy acquisition costs for the year ended December 31, 2016 were $64.4 million compared to $41.4 million for the year ended December 31, 2015, an increase of $23.0 million, or 7.5 percentage points of the policy acquisition costs ratio. The increase was primarily a result of an adjustment made upon the acquisition of Western World to reduce deferred acquisition costs to reflect fair value. These deferred acquisition costs would otherwise have been expensed in the amount of $21.8 million during the year ended December 31, 2015, benefiting the policy acquisition costs ratio by 8.4 percentage points.
- General and administration expenses for the year ended December 31, 2016 were $43.3 million compared to $38.7 million for the year ended December 31, 2015, an increase of $4.6 million, or 11.8%. The increase was primarily due to increases in staff costs associated with the opening of new offices in Scottsdale, Atlanta, and New York.

The following table presents underwriting income by line of business for the years ended December 31, 2015 and 2014. As the Company acquired Western World on October 2, 2014 and the results of Western World have been included in the Company's consolidated results from the date of acquisition, no meaningful comparison is available for the years ended December 31, 2015 versus 2014.

	Year Ended December 31, 2015			Year Ended December 31, 2014 (a)		
(Dollars in thousands)	Property	Liability	Total	Property	Liability	Total
Underwriting revenues						
Gross premiums written	$53,018	$225,486	$278,504	$9,983	$55,252	$65,235
Reinsurance premiums ceded	(4,347)	(14,530)	(18,877)	(1,535)	(4,893)	(6,428)
Net premiums written	48,671	210,956	259,627	8,448	50,359	58,807
Change in unearned premiums	(4,588)	3,611	(977)	2,806	11,383	14,189
Net premiums earned	44,083	214,567	258,650	11,254	61,742	72,996
Other insurance related income			1,044			264
Total underwriting revenues			259,694			73,260
Underwriting deductions						
Losses and loss expenses	23,104	148,774	171,878	8,883	42,152	51,035
Policy acquisition costs	6,948	34,460	41,408	609	2,560	3,169
Total underwriting deductions before G&A	30,052	183,234	213,286	9,492	44,712	54,204
Underwriting income before G&A	$14,031	$31,333	$46,408	$1,762	$17,030	$19,056
General and administrative expenses			38,715			11,121
Share compensation expenses			2,083			135
Total underwriting deductions			254,084			65,460
Underwriting income (b)			$5,610			$7,800
Supplemental information:						
Losses and loss expenses:						
Current period excluding items below	$29,149	$165,696	$194,845	$7,860	$54,415	$62,275
Current period—notable loss events	—	—	—	—	—	—
Current period—non-notable loss events	—	—	—	—	—	—
Change in prior accident years	(6,045)	(16,922)	(22,967)	1,023	(12,263)	(11,240)
Total losses and loss expenses	$23,104	$148,774	$171,878	$8,883	$42,152	$51,035
Selected ratios:						
Ratio of net to gross premiums written	91.8 %	93.6 %	93.2 %	84.6 %	91.1 %	90.1 %
Losses and loss expense ratio:						
Current period excluding items below	66.1 %	77.2 %	75.3 %	69.8 %	88.2 %	85.3 %
Current period—notable loss events	— %	— %	— %	— %	— %	— %
Current period—non-notable loss events	— %	— %	— %	— %	— %	— %
Change in prior accident years	(13.7)%	(7.9)%	(8.9)%	9.1 %	(19.9)%	(15.4)%
Losses and loss expense ratio	52.4 %	69.3 %	66.4 %	78.9 %	68.3 %	69.9 %
Policy acquisition cost ratio	15.8 %	16.1 %	16.0 %	5.4 %	4.1 %	4.4 %
General and administrative expense ratio (c)			15.8 %			15.4 %
Expense ratio			31.8 %			19.8 %
Combined ratio			98.2 %			89.7 %

(a) The results of Western World have been included in the Company's consolidated results from the October 2, 2014 date of acquisition.

(b) Non-GAAP Financial Measures. In presenting the Company's results, management has included and discussed underwriting income that is not calculated under standards or rules that comprise U.S. GAAP. Such measures are referred to as non-GAAP. Further discussion of these measures is presented in the section entitled “Non-GAAP Financial Measures.”

(c) The general and administrative expense ratio includes share compensation expenses.

Full Year 2016, 2015 and 2014 Results of Operations - AlphaCat Segment

The following table presents Validus' share of the AlphaCat segment income on an asset manager basis for the years ended December 31, 2016, 2015 and 2014:

	Years Ended December 31,		
(Dollars in thousands)	2016	2015	2014
Revenues			
Third party	$18,771	$19,661	$18,667
Related party	3,329	5,309	7,467
Total revenues	22,100	24,970	26,134
Expenses			
General and administrative expenses	10,233	12,115	10,134
Share compensation expenses	249	580	501
Finance expenses	947	9,312	3,417
Tax expenses	90	—	—
Foreign exchange losses (gains)	19	(16)	(20)
Total expenses	11,538	21,991	14,032
Income before investment income from AlphaCat Funds and Sidecars	10,562	2,979	12,102
Investment income (loss) from AlphaCat Funds and Sidecars [(b)]			
AlphaCat Re & Master Fund	—	—	(1,377)
AlphaCat Sidecars	607	5,504	10,525
AlphaCat ILS Funds - Lower Risk [(c)]	8,901	7,491	7,974
AlphaCat ILS Funds - Higher Risk [(c)]	7,471	8,428	8,754
BetaCat ILS Funds	3,623	1,702	(51)
PaCRe	(23)	(3,949)	(4,340)
Total investment income from AlphaCat Funds and Sidecars	20,579	19,176	21,485
Validus' share of AlphaCat income	$31,141	$22,155	$33,587
Supplemental information:			
Gross premiums written			
AlphaCat Sidecars	$(341)	$45,755	$50,023
AlphaCat ILS Funds - Lower Risk [(c)]	112,222	91,363	52,264
AlphaCat ILS Funds - Higher Risk [(c)]	140,022	34,228	24,498
AlphaCat Direct [(d)]	18,499	4,780	—
Total	$270,402	$176,126	$126,785

(a) In presenting the Company's results, management has included and discussed the results of AlphaCat, which are presented on an asset manager basis. Validus' share of AlphaCat income is a non-GAAP measure and is not calculated under standards or rules that comprise U.S. GAAP. Further discussion of these measures is presented in the section entitled "Non-GAAP Financial Measures."

(b) The investment income from the AlphaCat funds and sidecars is based on equity accounting.

(c) Lower risk AlphaCat ILS funds have a maximum permitted portfolio expected loss of less than 7%, whereas higher risk AlphaCat ILS funds have a maximum permitted portfolio expected loss of greater than 7%. Expected loss represents the average annual loss over the set of simulation scenarios divided by the total limit.

(d) AlphaCat Direct includes direct investments from third party investors in AlphaCat Re.

Revenues

Revenues earned for the years ended December 31, 2016, 2015 and 2014 were $22.1 million, $25.0 million and $26.1 million, inclusive of third party revenues of $18.8 million, $19.7 million and $18.7 million, respectively. The decrease in third party revenues earned of $0.9 million during the year ended December 31, 2016 as compared to 2015 was primarily attributable to a decrease in performance fees earned as a result of the 2016 notable and non-notable loss events. The increase in revenues earned from third parties of $1.0 million during the year ended December 31, 2015 as compared to 2014 was driven by an increase in third party assets under management.

Expenses

Total expenses for the years ended December 31, 2016, 2015 and 2014 were $11.5 million, $22.0 million and $14.0 million, respectively. The decrease of $10.5 million during the year ended December 31, 2016 as compared to 2015 and increase of $8.0 million during the year ended December 31, 2015 as compared to 2014 was primarily attributable to higher placement fees incurred in relation to raising new capital during 2015.

Investment income from AlphaCat Funds and Sidecars

Investment income from the AlphaCat Funds and Sidecars, excluding PaCRe which was off-risk effective January 1, 2016, for the years ended December 31, 2016, 2015 and 2014 was $20.6 million, $23.1 million and $25.8 million, respectively. The decrease of $2.5 million during the year ended December 31, 2016 as compared to 2015 was primarily driven by Validus' share of the net losses and loss expenses arising from notable and non-notable loss events during 2016. The decrease of $2.7 million during the year ended December 31, 2015 as compared to 2014 was primarily due to a reduction in related party assets under management and the change in the ratio of higher to lower risk investments during 2015.

Assets Under Management

	Assets Under Management [a]	
	January 1,	
(Dollars in thousands)	2017	2016
Assets Under Management - Related Party		
AlphaCat Sidecars	$7,729	$35,416
AlphaCat ILS Funds - Lower Risk	124,297	164,014
AlphaCat ILS Funds - Higher Risk	83,881	65,464
AlphaCat Direct [c]	—	—
BetaCat ILS Funds	26,808	61,749
Total	$242,715	$326,643
Assets Under Management - Third Party		
AlphaCat Sidecars	$28,829	$154,386
AlphaCat ILS Funds - Lower Risk	1,257,287	1,102,462
AlphaCat ILS Funds - Higher Risk	738,813	434,851
AlphaCat Direct [b]	444,668	367,820
BetaCat ILS Funds	29,000	—
Total	2,498,597	2,059,519
Total Assets Under Management	$2,741,312	$2,386,162

(a) The Company's assets under management are based on NAV and are represented by investments made by related parties and third parties in the feeder funds and on a direct basis.

(b) AlphaCat Direct includes direct investments from third party investors in AlphaCat Re.

AlphaCat's assets under management were $2.7 billion as at January 1, 2017, compared to $2.4 billion as at January 1, 2016. Third party assets under management were $2.5 billion as at January 1, 2017, compared to $2.1 billion as at January 1, 2016. During the year ended December 31, 2016, a total of $672.9 million of capital was raised, of which $638.4 million was raised from third parties. During the year ended December 31, 2016, $505.5 million was returned to investors, of which $365.5 million was returned to third party investors.

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Full Year 2016 Consolidated Results - Corporate and Investments

The following table presents the corporate and investment function's income and expense items on a consolidated basis for the years ended December 31, 2016, 2015 and 2014:

	Years Ended December 31,		
(Dollars in thousands)	2016	2015	2014
Investment income			
Managed net investment income [(a)]	$141,718	$121,166	$95,800
Operating expenses			
General and administrative expenses	72,249	75,724	80,210
Share compensation expenses	16,003	12,955	11,352
Finance expenses [(a)]	57,183	61,071	60,309
Dividends on preferred shares	4,455	—	—
Tax (benefit) expense	(19,819)	6,376	155
Total operating expenses	130,071	156,126	152,026
Other items			
Net realized gains on managed investments [(a)]	14,680	1,698	12,160
Change in net unrealized gains (losses) on managed investments [(a)]	14,106	(32,007)	(1,030)
(Loss) income from investment affiliates	(2,083)	4,281	8,411
Foreign exchange gains (losses) [(a)]	10,778	(8,172)	(10,700)
Other loss	(766)	(1,002)	(2,243)
Transaction expenses [(b)]	—	—	(8,096)
Total other items	36,715	(35,202)	(1,498)
Total Corporate and Investments	$48,362	$(70,162)	$(57,724)

(a) These items exclude the components which are included in the Company's share of AlphaCat and amounts which are consolidated from VIEs.

(b) The transaction expenses relate to costs incurred in connection with the acquisition of Western World and are primarily comprised of legal, financial advisory, and audit related services.

Managed Net Investment Income

	Managed Net Investment Income Years Ended December 31,		
(Dollars in thousands)	2016	2015	2014
Managed net investment income			
Fixed maturities and short-term investments	$119,085	$113,627	$93,044
Other investments	27,860	13,307	5,111
Cash and cash equivalents and restricted cash	2,939	1,911	5,106
Securities lending income	55	16	11
Total gross managed net investment income	149,939	128,861	103,272
Investment expenses	(8,221)	(7,695)	(7,472)
Total managed net investment income	$141,718	$121,166	$95,800

Managed net investment income for the years ended December 31, 2016, 2015 and 2014 was $141.7 million, $121.2 million and $95.8 million, respectively. The increase of $20.6 million during the year ended December 31, 2016 as compared to 2015 was primarily driven by returns on the Company's portfolio of structured securities, of which $16.7 million was generated from a single fixed income fund. The increase of $25.4 million during the year ended December 31, 2015 as compared to 2014 was driven by a change in asset allocation intended to improve yield.

Managed net investment income from other investments includes distributed and undistributed net income from certain investment funds.

The Company’s managed yield-bearing portfolio had an effective yield of 2.24%, 1.91% and 1.51% for the years ended December 31, 2016, 2015 and 2014, respectively. Investment yield is calculated by dividing total managed net investment income by the average balance of the yield bearing assets managed by the Company’s portfolio managers. Average assets for the period ended is the average of the beginning, ending and intervening quarter end asset balances.

General and Administrative and Share Compensation Expenses

General and administrative expenses for the years ended December 31, 2016, 2015 and 2014 were $72.2 million, $75.7 million and $80.2 million, respectively. The decrease of $4.5 million during the year ended December 31, 2015 as compared to 2014 was primarily due to the retention of certain costs within the operating segments. Corporate general and administrative expenses are comprised of executive and board expenses, internal and external audit expenses and other costs relating to the Company as a whole.

Share compensation expenses for the years ended December 31, 2016, 2015 and 2014 were $16.0 million, $13.0 million and $11.4 million, respectively. The increase of $3.0 million during the year ended December 31, 2016 as compared to 2015 was primarily due to increased performance share award grants.

Finance Expenses

Finance expenses for the years ended December 31, 2016, 2015 and 2014 were $57.2 million, $61.1 million and $60.3 million, respectively. The decrease of $3.9 million during the year ended December 31, 2016 as compared to 2015 was primarily due to reduced credit facility expenses.

Dividends on preferred shares

The Company issued $150.0 million of preferred shares in June 2016. Dividends paid on preferred shares were $4.5 million for the year ended December 31, 2016.

Tax (Benefit) Expense

Tax benefit for the year ended December 31, 2016 was $19.8 million compared to tax expense of $6.4 million and $0.2 million for the years ended December 31, 2015 and 2014, respectively. The favorable movement of $26.2 million during the year ended December 31, 2016 as compared to 2015 was primarily due to a partial release of a valuation allowance which had been applied against a deferred tax asset related to net operating losses acquired as part of the Flagstone acquisition. The Company believes it is now more-likely-than-not that it will have sufficient future taxable income to realize a portion of that deferred tax asset over the next three years and in accordance with U.S. GAAP, the Company was required to record a tax benefit of $18.4 million in the fourth quarter.

Net Realized and Change in Net Unrealized Gains (Losses) on Investments

Net realized gains on managed investments for the years ended December 31, 2016, 2015 and 2014 were $14.7 million, $1.7 million and $12.2 million, respectively. The increase of $13.0 million during the year ended December 31, 2016 as compared to 2015 primarily resulted from the sale of managed fixed maturities and gains realized on the termination of two interest rate swap contracts which were entered into in the third quarter of 2016 to partially offset the impact of interest rate increases on the Company’s fixed maturity portfolio.

The change in net unrealized gains on managed investments for the year ended December 31, 2016 was $14.1 million compared to losses of $32.0 million and $1.0 million for the years ended December 31, 2015 and 2014, respectively. The favorable movement of $46.1 million during the year ended December 31, 2016 as compared to 2015 was primarily due to the impact of declining interest rates on our fixed maturity investments early in the year ended December 31, 2016 compared to the year ended December 31, 2015, partially offset by rising rates later in the year. The unfavorable movement of $31.0 million during the year ended December 31, 2015 as compared to 2014 was primarily due to a rising interest rate environment during 2015 as compared to 2014.

(Loss) income from investment affiliates

The (loss) income from investment affiliate relates to the income earned from the Company’s investments in Aquiline Financial Services Fund II L.P. and Fund III L.P. For further details, refer to Note 7 to the Consolidated Financial Statements, “Investments,” in Part II, Item 8.

Foreign Exchange Gains (Losses)

The Company's reporting currency is the U.S. dollar. As a significant portion of the Company's operations are transacted in currencies other than the U.S. dollar, fluctuations in foreign exchange rates may affect year-to-year comparisons. The Company's largest foreign currency fluctuation exposure is to the following currencies, with the movement in each currency against the U.S. dollar for the year ended December 31, 2016, 2015 and 2014 shown in the table below:

	Years Ended December 31,		
U.S. dollar (weakened) strengthened against:	2016	2015	2014
British Pound sterling	19.8 %	5.4 %	6.3 %
Euro	3.2 %	11.4%	13.5%
Canadian dollar	(3.0)%	19.2%	9.4 %
Swiss franc	1.8 %	0.7 %	11.3%
Australian dollar	1.4 %	11.8%	9.1 %
New Zealand dollar	(1.4)%	14.2%	5.5 %
Singapore dollar	2.5 %	6.5 %	5.0 %
Japanese yen	(3.1)%	0.8 %	13.7%
South African rand	(11.5)%	34.3%	10.4%

Foreign exchange gains for the year ended December 31, 2016 were $10.8 million compared to losses of $8.2 million and $10.7 million for the years ended December 31, 2015 and 2014, respectively. The foreign exchange gains for the year ended December 31, 2016 were primarily attributable to the U.S. dollar strengthening against the British Pound sterling.

The Company currently hedges foreign currency exposure by substantively balancing assets (primarily cash and premium receivables) with liabilities (primarily case reserves and event IBNR) for certain major non-U.S. dollar currencies, or by entering into forward foreign currency contracts. Consequently, the Company aims to have a limited exposure to foreign exchange fluctuations.

Non-GAAP Financial Measures

The operating results of an insurance or reinsurance company are also often measured by reference to its underwriting income and net operating income, which are non-GAAP financial measures. Underwriting income and net operating income available to Validus common shareholders are calculated by the addition or subtraction of certain Consolidated Statement of Income and Comprehensive Income line items from net income available to Validus common shareholders, the most directly comparable GAAP financial measure, as illustrated below.

	Three Months Ended December 31,		Years Ended December 31,		
(Dollars in thousands)	2016	2015	2016	2015	2014
Net income available to Validus common shareholders	$7,767	$69,042	$359,384	$374,893	$479,963
Adjustments for:					
Net realized (gains) losses on investments	(9,220)	2,928	(15,757)	(2,298)	(14,917)
Change in net unrealized losses (gains) on investments	67,460	34,862	(16,871)	32,395	2,842
(Income) loss from investment affiliates	(2,166)	1,261	2,083	(4,281)	(8,411)
Foreign exchange losses (gains)	901	(797)	(10,864)	8,731	12,181
Other (income) loss	(7)	(1,576)	766	1,002	2,243
Transaction expenses	—	—	—	—	8,096
Net (loss) income attributable to noncontrolling interests	(412)	(325)	457	(693)	(1,235)
Net operating income available to Validus common shareholders	$64,323	$105,395	$319,198	$409,749	$480,762
Net investment income	(38,153)	(31,612)	(150,385)	(127,824)	(100,086)
Finance expenses	14,630	16,581	58,520	74,742	68,324
Dividends on preferred shares	2,203	—	4,455	—	—
Tax (benefit) expense	(21,147)	(756)	(19,729)	6,376	155
Loss from operating affiliate	—	1,708	23	3,949	4,340
Income attributable to AlphaCat investors	7,080	974	23,358	2,412	—
Net operating income attributable to noncontrolling interests	27,612	26,321	122,906	93,657	76,115
Underwriting income	$56,548	$118,611	$358,346	$463,061	$529,610

Net operating income available to Validus common shareholders indicates the performance of the Company’s core underwriting function and includes net investment income, finance expenses, tax (expense) benefit, income (loss) from operating affiliates and (income) attributable to AlphaCat investors and excludes net operating (income) attributable to noncontrolling interests and certain other revenues and expenses such as the reconciling items in the table above. The Company believes the reporting of net operating income available to Validus common shareholders enhances the understanding of results by highlighting the underlying profitability of the Company’s core insurance and reinsurance business. This profitability is influenced significantly by earned premium growth, adequacy of the Company’s pricing and loss frequency and severity. Over time it is also influenced by the Company’s underwriting discipline, which seeks to manage exposure to loss through favorable risk selection and diversification, its management of claims, its use of reinsurance and its ability to manage its expense ratio, which it accomplishes through its management of acquisition costs and other underwriting expenses.

The Company uses underwriting income as a primary measure of underwriting results in its analysis of historical financial information and when performing its budgeting and forecasting processes. Analysts, investors and rating agencies who follow the Company request this non-GAAP financial information on a regular basis. In addition, underwriting income is one of the factors considered by the compensation committee of our Board of Directors in determining the total annual incentive compensation.

Underwriting income is the primary financial measure for the Company’s insurance and reinsurance operating segments: Validus Re, Talbot and Western World. The results of the AlphaCat operating segment are presented on an asset manager basis, which is also non-GAAP. Refer to Note 26 to the Consolidated Financial Statements, “Segment information,” in Part II, Item 8 for a reconciliation of the Company’s share of AlphaCat segment income to segmental income.

The Company excludes the U.S. GAAP measures noted above, in particular net realized and change in net unrealized gains and losses on investments, from its calculation of net operating income available to Validus common shareholders because the amount of these gains and losses is heavily influenced by, and fluctuates in part, according to availability of investment market opportunities. The Company believes these amounts are largely independent of its core underwriting activities and including them distorts the analysis of trends in its operations. In addition to presenting net income available to Validus common shareholders determined in accordance with U.S. GAAP, the Company believes that showing underwriting income and net operating income available to Validus common shareholders provides investors with a valuable measure of profitability and enables investors, analysts, rating agencies and other users of its financial information to more easily analyze the Company's results in a manner similar to how management analyzes the Company's underlying business performance.

Underwriting income and net operating income available to Validus common shareholders should not be viewed as a substitute for U.S. GAAP net income available to Validus common shareholders as there are inherent material limitations associated with the use of underwriting income and net operating income available to Validus common shareholders as compared to using net income available to Validus common shareholders, which is the most directly comparable U.S. GAAP financial measure. The most significant limitation is the ability of users of the financial information to make comparable assessments of underwriting income and operating income with other companies, particularly as these measures may be defined or calculated differently by other companies. Therefore, the Company provides prominence in this filing to the use of the most comparable U.S. GAAP financial measure, net income available to Validus common shareholders, which includes the reconciling items in the table above. The Company compensates for these limitations by providing both clear and transparent disclosure of net income available to Validus common shareholders and reconciliation of underwriting income and net operating income available to Validus common shareholders to net income available to Validus common shareholders.

In presenting the Company's results, management has also included and discussed certain schedules containing book value and tangible book value per diluted common share and book value per diluted common share plus accumulated dividends that are not calculated in accordance with U.S. GAAP.

Such measures described above which are referred to as non-GAAP, may be defined or calculated differently by other companies. These measures should not be viewed as a substitute for those determined in accordance with U.S. GAAP.

The following tables present reconciliations of book value per diluted common share to book value per common share, the most comparable U.S. GAAP financial measure, as at December 31, 2016 and December 31, 2015:

	December 31, 2016			
(Dollars in thousands, except share and per share amounts)	Equity Amount	Shares	Exercise Price[(a)]	Book Value Per Share
Book value per common share				
Total shareholders' equity available to Validus common shareholders[(b)]	$3,688,291	79,132,252		$46.61
Tangible book value per common share				$42.66
Book value per diluted common share				
Total shareholders' equity available to Validus common shareholders[(b)]	3,688,291	79,132,252		
Assumed exercise of outstanding stock options [(c)]	614	26,136	$ 23.48	
Unvested restricted shares	—	2,868,610		
Book value per diluted common share	$3,688,905	82,026,998		$44.97
Adjustment for accumulated dividends				11.56
Book value per diluted common share plus accumulated dividends				$56.53
Tangible book value per diluted common share				$41.16

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	December 31, 2015			
(Dollars in thousands, except share and per share amounts)	Equity Amount	Shares	Exercise Price[a]	Book Value Per Share
Book value per common share				
Total shareholders' equity available to Validus common shareholders[b]	$3,638,975	82,900,617		$43.90
Tangible book value per common share				$40.06
Book value per diluted common share				
Total shareholders' equity available to Validus common shareholders[b]	3,638,975	82,900,617		
Assumed exercise of outstanding stock options [c]	1,319	65,401	$ 20.17	
Unvested restricted shares	—	3,026,376		
Book value per diluted common share	$3,640,294	85,992,394		$42.33
Adjustment for accumulated dividends				10.16
Book value per diluted common share plus accumulated dividends				$52.49
Tangible book value per diluted common share				$38.63

(a) Weighted average exercise price for those stock options that have an exercise price lower than book value per share.

(b) Total shareholders' equity available to Validus common shareholders excludes the liquidation value of the preferred shares of $150,000.

(c) Using the "as-if-converted" method, assuming all proceeds received upon exercise of stock options will be retained by the Company and the resulting common shares from exercise remain outstanding.

Liquidity and Capital Resources

Investments

Managed investments represent assets governed by the Company's Investment Policy Statement ("IPS") whereas, non-managed investments represent assets held in support of consolidated AlphaCat VIEs which are not governed by the Company's IPS. Refer to Note 9 to the Consolidated Financial Statements, "Variable interest entities," in Part II, Item 8 for further details.

The fair value of the Company's investments, cash and cash equivalents and restricted cash as at December 31, 2016 and December 31, 2015 was as follows:

	Fair Value	
	December 31, 2016	December 31, 2015
Managed investments, cash and cash equivalents and restricted cash		
Fixed maturities		
U.S. government and government agency	$804,126	$937,202
Non-U.S. government and government agency	240,791	237,968
U.S. states, municipalities and political subdivisions	271,830	301,289
Agency residential mortgage-backed securities	679,595	610,582
Non-agency residential mortgage-backed securities	15,477	26,920
U.S. corporate	1,534,508	1,489,951
Non-U.S. corporate	410,227	446,570
Bank loans	570,399	576,211
Asset-backed securities	526,814	437,124
Commercial mortgage-backed securities	330,932	260,135
Total fixed maturities	5,384,699	5,323,952
Short-term investments	228,386	237,369
Other investments		
Fund of hedge funds	955	1,417
Hedge funds	17,381	20,980
Private equity investments	89,809	63,771
Fixed income investment funds	242,093	188,721
Overseas deposits	50,106	54,484
Mutual funds	5,368	7,483
Total other investments	405,712	336,856
Investment in investment affiliate	100,431	87,673
Cash and cash equivalents	415,419	537,636
Restricted cash	15,000	—
Total managed investments, cash and cash equivalents and restricted cash	$6,549,647	$6,523,486
Non-managed investments, cash and cash equivalents and restricted cash		
Catastrophe bonds	$158,331	$186,379
Short-term investments	2,567,784	1,704,266
Cash and cash equivalents	4,557	185,473
Restricted cash	55,956	73,270
Total non-managed investments, cash and cash equivalents and restricted cash	2,786,628	2,149,388
Total investments and cash	$9,336,275	$8,672,874

As at December 31, 2016, the Company's managed cash and investment portfolio totaled $6.5 billion (December 31, 2015: $6.5 billion). Refer to Note 7 to the Consolidated Financial Statements, "Investments," in Part II, Item 8 for further details related to the Company's managed investments.

A significant portion of (re)insurance contracts written by the Company provide short-tail reinsurance coverage for losses resulting mainly from natural and man-made catastrophes, which could result in payment of a substantial amount of losses at short notice. Accordingly, the Company’s investment portfolio is primarily structured to provide liquidity, which means the investment portfolio contains a significant amount of relatively short-term fixed maturity investments. The Company’s IPS specifically requires certain minimum thresholds of cash, short-term investments, and highly-rated fixed maturity securities relative to our consolidated net reserves and estimates of probable maximum loss exposures at the 1 in 100 year threshold to provide necessary liquidity in a wide range of reasonable scenarios. As such, the Company structures its managed cash and investment portfolio to support policyholder reserves and contingent risk exposures with a liquid portfolio of high quality fixed-income investments with a comparable duration profile.

The Company’s IPS requires managed investments to have an average duration in the range of 0.75 years to 3.00 years. At December 31, 2016, the average duration of the Company’s managed investment portfolio was 2.26 years (December 31, 2015: 2.15 years). This duration is reviewed regularly based on changes in the duration of the Company’s liabilities and general market conditions.

The Company’s IPS also requires certain minimum credit quality standards for its managed fixed maturity portfolio, including a minimum weighted average portfolio rating of A+ for securities assigned ratings. Further limits on asset classes and security types are also mandated. In addition, the Company stress-tests the downside risks within its asset portfolio using internal and external inputs and stochastic modeling processes to help define and limit asset risks to acceptable levels that are consistent with our overall ERM framework. At December 31, 2016, the Company’s rated managed fixed maturity portfolio had an average credit quality rating of AA- (December 31, 2015: AA-). Refer to Note 7(a) to the Consolidated Financial Statements, “Investments,” in Part II, Item 8 for further details related to the investment ratings of the Company’s fixed maturity portfolio.

The value of the Company’s managed fixed maturity portfolio will fluctuate with, among other factors, changes in the interest rate environment and in overall economic conditions. Additionally, the structure of the Company’s overall managed investment portfolio exposes the Company to other risks, including insolvency or reduced credit quality of corporate debt securities, prepayment, default and structural risks on asset-backed securities, mortgage-backed securities and bank loans and liquidity risks on certain other investments, including hedge funds, investment funds and private equity investments. For further details on market risks, refer to Part I, Item 7A “Quantitative And Qualitative Disclosures About Market Risk.”

As part of the ongoing risk management process, the Company monitors the aggregation of country or jurisdiction risk exposure. Jurisdiction risk exposure is the risk that events within a jurisdiction, such as currency crises, regulatory changes and other political events, will adversely affect the ability of obligors within the jurisdiction to honor their obligations. The following table provides a breakdown of the fair value of jurisdiction risk exposures outside the United States within the Company’s managed fixed maturity portfolio:

	December 31, 2016		
(Dollars in thousands)	Fair Value	% of Total	
Germany	$66,886	10.3	%
Supranational	41,502	6.4	%
United Kingdom	36,178	5.6	%
Canada	15,836	2.4	%
Province of Ontario	12,387	1.9	%
Norway	12,085	1.9	%
France	10,360	1.6	%
Jordan	10,080	1.5	%
Other (individual jurisdictions below $10,000)	35,477	5.4	%
Total Managed Non-U.S. Government Securities	240,791	37.0	%
European Corporate Securities	173,326	26.6	%
United Kingdom Corporate Securities	96,425	14.8	%
Other Non-U.S. Corporate Securities	140,476	21.6	%
Total Managed Non-U.S. Fixed Maturity Portfolio	$651,018	100.0	%

	December 31, 2015	
(Dollars in thousands)	Fair Value	% of Total
Germany	$53,259	7.8 %
United Kingdom	48,254	7.1 %
Supranational	33,019	4.8 %
France	21,075	3.1 %
Province of Ontario	15,896	2.3 %
Norway	15,861	2.3 %
Province of Manitoba	12,981	1.9 %
Jordan	10,073	1.5 %
Other (individual jurisdictions below $10,000)	27,550	4.0 %
Total Managed Non-U.S. Government Securities	237,968	34.8 %
European Corporate Securities	183,501	26.8 %
United Kingdom Corporate Securities	131,656	19.2 %
Other Non-U.S. Corporate Securities	131,413	19.2 %
Total Managed Non-U.S. Fixed Maturity Portfolio	$684,538	100.0 %

At December 31, 2016, the Company did not have an aggregate exposure to any single issuer of more than 1.0% (December 31, 2015: 0.9%) of managed cash and investments, other than with respect to government and agency securities. The top ten exposures to fixed income corporate issuers at December 31, 2016 and 2015 were as follows:

	December 31, 2016		
Issuer [a]	Fair Value [c]	S&P Rating [b]	% of Managed Investments and Cash
JPMorgan Chase & Co	$66,827	BBB+	1.0 %
Citigroup Inc	52,737	BBB	0.8 %
Bank of America Corp	50,280	BBB+	0.8 %
Morgan Stanley	48,273	BBB+	0.7 %
Goldman Sachs Group	46,261	BBB+	0.7 %
Wells Fargo & Company	44,596	A	0.7 %
Anheuser-Busch Inbev NV	39,674	A-	0.6 %
Bank of New York Mellon Corp	34,619	A	0.5 %
HSBC Holdings plc	29,411	A	0.4 %
US Bancorp	28,175	AA-	0.4 %
Total	$440,853		6.6 %

	December 31, 2015		
Issuer [a]	Fair Value [c]	S&P Rating [b]	% of Managed Investments and Cash
JPMorgan Chase & Co	$56,421	A-	0.9 %
HSBC Holdings plc	54,172	A	0.8 %
Morgan Stanley	47,242	BBB+	0.7 %
Bank of America Corp	43,274	BBB	0.7 %
Goldman Sachs Group	43,173	BBB+	0.7 %
Citigroup Inc	41,984	BBB	0.6 %
Wells Fargo & Company	39,604	BBB+	0.6 %
US Bancorp	34,294	AA-	0.5 %
Bank of New York Mellon Corp	33,492	A	0.5 %
UBS Group AG	31,495	A-	0.5 %
Total	$425,151		6.5 %

(a) Issuers exclude government-backed government-sponsored enterprises and cash and cash equivalents.

(b) Investment ratings are the median of Moody's, Standard & Poor's and Fitch. For investments where three ratings are unavailable, the lower of the ratings shall apply. All investment ratings are presented as the Standard & Poor's equivalent rating.

(c) Credit exposures represent only direct exposure to fixed maturities and short-term investments of the parent issuer and its major subsidiaries. These exposures exclude asset and mortgage backed securities that were issued, sponsored or serviced by the parent.

Reserve for Losses and Loss Expenses

At December 31, 2016, gross and net reserves for losses and loss expenses were estimated using the methodology as outlined in the Critical Accounting Policies and Estimates section below. The following tables indicate the breakdown of gross and net reserves for losses and loss expenses between lines of business and between case reserves and IBNR.

	December 31, 2016		
(Dollars in thousands)	Gross Case Reserves	Gross IBNR	Total Gross Reserve for Losses and Loss Expenses
Property	$390,141	$440,531	$830,672
Marine	389,614	471,845	861,459
Specialty	259,251	473,656	732,907
Liability	198,766	371,391	570,157
Total	$1,237,772	$1,757,423	$2,995,195

	December 31, 2016		
(Dollars in thousands)	Net Case Reserves	Net IBNR	Total Net Reserve for Losses and Loss Expenses
Property	$330,213	$392,886	$723,099
Marine	337,550	369,908	707,458
Specialty	222,496	428,864	651,360
Liability	182,185	300,672	482,857

Total	$1,072,444	$1,492,330	$2,564,774

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The following table sets forth a reconciliation of gross and net reserves for losses and loss expenses by operating segment for the year ended December 31, 2016.

	Year Ended December 31, 2016					
(Dollars in thousands)	Validus Re	Talbot	Western World	AlphaCat	Eliminations	Total
Reserve for losses and loss expenses, beginning of year	$1,146,869	$1,302,635	$600,331	$11,013	$(64,281)	$2,996,567
Loss reserves recoverable	(36,055)	(293,662)	(85,150)	—	64,281	(350,586)
Net reserves for losses and loss expenses, beginning of year	1,110,814	1,008,973	515,181	11,013	—	2,645,981
Increase (decrease) in net reserves for losses and loss expenses in respect of losses occurring in:						
Current year	530,021	510,756	192,924	47,588	—	1,281,289
Prior years	(118,533)	(85,810)	(9,112)	(2,737)	—	(216,192)
Total net incurred losses and loss expenses	411,488	424,946	183,812	44,851	—	1,065,097
Less net losses and loss expenses paid in respect of losses occurring in:						
Current year	(192,527)	(146,742)	(43,316)	(6,649)	—	(389,234)
Prior years	(312,546)	(258,713)	(153,664)	(245)	—	(725,168)
Total net paid losses	(505,073)	(405,455)	(196,980)	(6,894)	—	(1,114,402)
Foreign exchange loss (gain)	1,519	(32,985)	—	(436)	—	(31,902)
Net reserves for losses and loss expenses, end of year	1,018,748	995,479	502,013	48,534	—	2,564,774
Loss reserves recoverable	98,005	306,038	87,487	—	(61,109)	430,421
Reserve for losses and loss expenses, end of year	$1,116,753	$1,301,517	$589,500	$48,534	$(61,109)	$2,995,195

For further information regarding the Company's reserves for losses and loss expenses refer to Note 14 to the Consolidated Financial Statements, "Reserve for losses and loss expenses," in Part II, Item 8. The amount of recorded reserves represents management's best estimate of expected losses and loss expenses on premiums earned. For the year ended December 31, 2016, favorable loss reserve development on prior accident years was $216.2 million, of which $118.5 million related to the Validus Re segment, $85.8 million related to the Talbot segment, $9.1 million related to the Western World segment and $2.7 million related to the AlphaCat segment.

The management of insurance and reinsurance companies use significant judgment in the estimation of reserves for losses and loss expenses. Given the magnitude of some notable loss events and other uncertainties inherent in loss estimation, meaningful uncertainty remains regarding the estimation for these events. The Company's actual ultimate net loss may vary materially from these estimates. Ultimate losses for notable loss events are estimated through detailed review of contracts which are identified by the Company as potentially exposed to the specific notable loss event. However, there can be no assurance that the ultimate loss amount estimated for a specific contract will be accurate, or that all contracts with exposure to a specific notable loss event will be identified in a timely manner. Potential losses in excess of the estimated ultimate loss assigned to a contract on the basis of a specific review, or loss amounts from contracts not specifically included in the detailed review may be reserved for in the reserve for potential development on notable loss events ("RDE") and would be included as part of the Company's overall reserves. As at December 31, 2016, the Company had no RDE.

For disclosure purposes, only those notable loss events which have an ultimate loss estimate above $30.0 million are disclosed separately and included in the reserves for notable loss event roll forward table below. To the extent that there are increased complexity and volatility factors relating to notable loss events in the aggregate, RDE may be established for a specific accident year.

The reserves for notable loss events table below does not disclose notable loss events prior to 2014. The following pre-2014 notable loss events had closing reserves associated with them as at December 31, 2016 as follows: Deepwater Horizon, a 2010 event, had $9.5 million; the New Zealand earthquakes of 2010 and 2011 had $61.0 million; Superstorm Sandy, a 2012 event had $56.7 million; and Costa Concordia, also a 2012 event had $24.2 million.

Reserves for Notable Loss Events (Dollars in thousands)

2014 Notable Loss Event		Year Ended December 31, 2014		Year Ended December 31, 2015		Year Ended December 31, 2016	
Notable Loss Event	Initial Estimate (a)	Development (Favorable) / Unfavorable	Closing Estimate (b) December 31, 2014	Development (Favorable) / Unfavorable	Closing Estimate (b) December 31, 2015	Development (Favorable) / Unfavorable	Closing Estimate (b) December 31, 2016
Tripoli Airport [d]	$28,134	$6,810	$ 34,944	$(1,196)	$ 33,748	$1,213	$ 34,961

	Year Ended December 31, 2014		Year Ended December 31, 2015		Year Ended December 31, 2016	
Notable Loss Event	Paid Loss (Recovery)	Closing Reserve (c) December 31, 2014	Paid Loss (Recovery)	Closing Reserve (c) December 31, 2015	Paid Loss (Recovery)	Closing Reserve (c) December 31, 2016
Tripoli Airport [d]	$—	$ 34,944	$22,938	$ 10,810	$63	$ 11,960

2015 Notable Loss Events		Year Ended December 31, 2015		Year Ended December 31, 2016	
Notable Loss Events	Initial Estimate (a)	Development (Favorable) / Unfavorable	Closing Estimate (b) December 31, 2015	Development (Favorable) / Unfavorable	Closing Estimate (b) December 31, 2016
Pemex	$48,073	$1,464	$ 49,537	$(426)	$ 49,111
Tianjin	47,789	(362)	$ 47,427	(11,645)	35,782
Total 2015 Notable Loss Events	$95,862	$1,102	$ 96,964	$(12,071)	$ 84,893

	Year Ended December 31, 2015		Year Ended December 31, 2016	
Notable Loss Events	Paid Loss (Recovery)	Closing Reserve (c) December 31, 2015	Paid Loss (Recovery)	Closing Reserve (c) December 31, 2016
Pemex	$44	$ 49,493	$166	$ 48,901
Tianjin	—	47,427	12,754	23,028
Total 2015 Notable Loss Events	$44	$ 96,920	$12,920	$ 71,929

2016 Notable Loss Events

Notable Loss Event	Initial Estimate (a)	Year Ended December 31, 2016 Development (Favorable) / Unfavorable	Closing Estimate (b) December 31, 2016
Canadian Wildfires	$36,915	$(17,265)	$ 19,650
Hurricane Matthew	39,140	—	39,140
2016 New Zealand Earthquake	31,421	—	31,421
Total 2016 Notable Loss Events	$107,476	$(17,265)	$ 90,211

Notable Loss Events	Year Ended December 31, 2016 Paid Loss (Recovery)	Closing Reserve (c) December 31, 2016
Canadian Wildfires	$5,676	$ 13,974
Hurricane Matthew	6,712	32,428
2016 New Zealand Earthquake	—	31,421
Total 2016 Notable Loss Events	$12,388	$ 77,823

(a) Includes paid losses, case reserves and IBNR reserves.
(b) Excludes impact of movements in foreign exchange rates.
(c) Closing Reserve for the period equals Closing Estimate for the period less cumulative paid losses (recovery).
(d) As at September 30, 2014, the initial estimate for Tripoli Airport was below the $30.0 million notable loss event threshold; however, during the fourth quarter of 2014 adverse development caused this event to exceed the notable loss event threshold.

Sources of Liquidity
Holding Company Liquidity
Validus Holdings, Ltd. is a holding company and conducts no operations of its own. The Company relies primarily on cash dividends and other permitted payments from operating subsidiaries within the Validus Re, Talbot, Western World and AlphaCat segments to pay dividends, finance expenses and other holding company expenses. There are restrictions on the payment of dividends from most operating subsidiaries, primarily due to regulatory requirements in the jurisdictions in which the operating subsidiaries are domiciled. Refer to Part I, Item 1 “Regulation,” and Note 27 to the Consolidated Financial Statements,“Statutory and regulatory requirements,” in Part II, Item 8 for further discussion on the regulatory requirements in the jurisdictions in which the Company operates. Also refer to Part II, Item 5, “Market for Registrant’s Common Equity, Related Shareholder Matters and Issuer Purchases of Equity Securities,” for further discussion of the Company’s dividend policy. The Company believes the dividend/distribution capacity of the Company’s subsidiaries will provide the Company with sufficient liquidity for the foreseeable future. The Company continues to generate substantial cash from operating activities and remains in a strong financial position, with resources available for reinvestment in existing businesses, strategic acquisitions and managing capital structure to meet its short and long-term objectives.
The following table details the capital resources of certain subsidiaries of the Company on an unconsolidated basis:

(Dollars in thousands)	December 31, 2016	December 31, 2015
Validus Reinsurance, Ltd. (excluding capital supporting FAL) [a] [b]	$3,720,595	$3,562,458
Talbot Holdings, Ltd. (including capital supporting FAL) [b]	914,442	887,249
Other, net	(14,158)	(27,903)
Redeemable noncontrolling interests in AlphaCat	1,528,001	1,111,714
Noncontrolling interests in AlphaCat	165,977	154,662
Total consolidated capitalization	6,314,857	5,688,180
Senior notes payable	(245,362)	(245,161)
Debentures payable	(537,226)	(537,668)
Redeemable noncontrolling interests in AlphaCat	(1,528,001)	(1,111,714)
Total shareholders’ equity	4,004,268	3,793,637
Preferred shares [c]	(150,000)	—
Noncontrolling interests in AlphaCat	(165,977)	(154,662)
Total shareholders’ equity available to Validus common shareholders[c]	$3,688,291	$3,638,975

(a) Validus Reinsurance, Ltd. (excluding capital supporting FAL) includes capital of $639,113 (2015: $640,684) relating to Western World Insurance Group, Inc.
(b) Validus Reinsurance, Ltd. (excluding capital supporting FAL) excludes capital of $723,888 (2015: $586,393) which supports Talbot’s FAL. This capital was included in Talbot Holdings, Ltd. (including capital supporting FAL).
(c) Total shareholders’ equity available to Validus common shareholders excludes the liquidation value of the preferred shares of $150,000.

Sources and Uses of Cash
The Company has written certain (re)insurance business that has loss experience generally characterized as having low frequency and high severity. This results in volatility in both results and operational cash flows. The potential for large claims or a series of claims under one or more reinsurance contracts means that substantial and unpredictable payments may be required within relatively short periods of time. As a result, cash flows from operating activities may fluctuate, perhaps significantly, between individual quarters and years. Management believes the Company’s unused credit facility amounts and highly liquid investment portfolio are sufficient to support any potential operating cash flow deficiencies.
In addition to relying on premiums received and investment income from the investment portfolio, the Company intends to meet these cash flow demands by carrying a substantial amount of short and medium term investments that would mature, or possibly be sold, prior to the settlement of expected liabilities. The Company cannot provide assurance, however, that it will successfully match the structure of its investments with its liabilities due to uncertainty

related to the timing and severity of loss events.

There are three main sources (uses) of cash flows for the Company: operating activities, investing activities and financing activities. The movement in net cash provided by or used in operating, investing and financing activities and the effect of foreign currency rate changes on cash and cash equivalents for the years ended December 31, 2016, 2015 and 2014 are provided in the following table:

	Years Ended December 31,		
(Dollars in thousands)	2016	2015	2014
Net cash provided by operating activities	$410,203	$334,506	$340,161
Net cash used in investing activities	(991,793)	(370,834)	(162,681)
Net cash provided by (used in) financing activities	301,089	226,641	(331,102)
Effect of foreign currency rate changes on cash and cash equivalents	(22,632)	(17,605)	(25,310)
Net (decrease) increase in cash and cash equivalents	$(303,133)	$172,708	$(178,932)

Operating Activities

Cash flow from operating activities is derived primarily from the receipt of premiums less the payment of losses and loss expenses related to underwriting activities.

Net cash provided by operating activities during the years ended December 31, 2016, 2015 and 2014 was $410.2 million, $334.5 million and $340.2 million, respectively. The favorable movement of $75.7 million during the year ended December 31, 2016 compared to 2015 was primarily due to the timing of loss payments. The unfavorable movement of $5.7 million during the year ended December 31, 2015 compared to 2014 was due to the timing of cash receipts and payments, notably with regard to premiums receivable and losses payable, respectively.

We anticipate that cash flows from operations will continue to be sufficient to cover cash outflows under our contractual commitments as well as most loss scenarios through the foreseeable future. Refer to the “Capital Resources” section below for further information on our anticipated obligations.

Investing Activities

Cash flow used in investing activities is primarily from net purchases made in the Company’s investment portfolio. As at December 31, 2016, the Company’s portfolio was composed of fixed income, short-term and other investments and investments in investment affiliates amounting to $8.8 billion or 94.7% of total cash and investments. For further details related to investments pledged as collateral, refer to Note 7 to the Consolidated Financial Statements, “Investments,” in Part II, Item 8.

Net cash used in investing activities during the years ended December 31, 2016, 2015 and 2014 was $991.8 million, $370.8 million and $162.7 million, respectively. The increase in in net cash used of $621.0 million during the year ended December 31, 2016 compared to 2015 was primarily due to an increase in purchases of short-term investments in the Company’s non-managed portfolio on behalf of AlphaCat investors of $419.3 million, an increase in the purchase of other investments of $59.0 million and a decrease in restricted cash of $97.4 million. The increase in net cash used of $208.2 million during the year ended December 31, 2015 compared to 2014 was primarily due to a decrease in the sales and maturities of fixed maturity investments of $1,136.4 million; offset by, the non-recurrence of cash paid for the acquisition of Western World of $643.5 million which occurred during the year ended December 31, 2014, a decrease in the purchases of fixed maturity investments of $166.8 million and an increase in the sales of other investments of $137.6 million.

Financing Activities

Cash flow from financing activities is derived primarily from the issuance and purchase of shares in the Company and its subsidiaries, including third party investments in the AlphaCat ILS funds and sidecars, as well as the issuance of notes payable to AlphaCat investors, and is partially offset by repurchases of shares in the Company and the payment of dividends.

Net cash provided by (used in) financing activities during the years ended December 31, 2016, 2015 and 2014 was $301.1 million, $226.6 million and $(331.1) million, respectively. The favorable movement of $74.4 million during the year ended December 31, 2016 compared to 2015 was driven primarily by an increase in the issuance of notes payable to AlphaCat investors of $220.8 million, an increase of $144.9 million resulting from the issuance of preferred shares during the year, an increase of $167.6 million related to net third party investments in noncontrolling and redeemable noncontrolling interests; partially offset by an increase in capital deployed on the AlphaCat funds of $474.9 million. The favorable movement of $557.7 million during the year ended December 31, 2015 compared to

2014 was driven primarily by a decrease in the repurchase of common shares under the share repurchase program of $250.5 million, an increase in third party investments in redeemable noncontrolling interests of $199.0 million and an increase in the issuance of notes payable to AlphaCat investors of $75.5 million.

Capital Resources

The following table details the Company's capital position as at December 31, 2016 and 2015.

(Dollars in thousands)	December 31, 2016	December 31, 2015
Senior Notes [(a)]	$245,362	$245,161
Junior Subordinated Deferrable Debentures (JSDs) [(a)]	289,800	289,800
Flagstone Junior Subordinated Deferrable Debentures (JSDs) [(a)]	247,426	247,868
Total debt	$782,588	$782,829
Redeemable noncontrolling interests	$1,528,001	$1,111,714
Preferred shares, liquidation value [(b)]	$150,000	$—
Ordinary shares, capital and surplus available to Validus common shareholders	3,711,507	3,651,544
Accumulated other comprehensive loss	(23,216)	(12,569)
Noncontrolling interests	165,977	154,662
Total shareholders' equity	$4,004,268	$3,793,637
Total capitalization [(c)]	$6,314,857	$5,688,180
Total capitalization available to Validus [(d)]	$4,620,879	$4,421,804
Debt to total capitalization	12.4 %	13.8 %
Debt (excluding JSDs) to total capitalization	3.9 %	4.3 %
Debt and preferred shares to total capitalization	14.8 %	13.8 %
Debt to total capitalization available to Validus	16.9 %	17.7 %
Debt (excluding JSDs) to total capitalization available to Validus	5.3 %	5.5 %
Debt and preferred shares to total capitalization available to Validus	20.2 %	17.7 %

(a) Refer to Part II, Item 8, Note 20 to the Consolidated Financial Statements, "Debt and financing arrangements," for further details and discussion on the debt and financing arrangements of the Company.

(b) Refer to Part II, Item 8, Note 17 to the Consolidated Financial Statements, "Share capital," for further details and discussion on the Company's preferred shares.

(c) Total capitalization equals total shareholders' equity plus redeemable noncontrolling interests and total debt.

(d) Total capitalization available to Validus equals total capitalization (as per (c)) less redeemable noncontrolling interests and noncontrolling interests.

Shareholders' Equity

Shareholders' equity available to Validus common shareholders at December 31, 2016 was $3.7 billion, compared to $3.6 billion at December 31, 2015. Including $150.0 million of preferred shares, shareholders' equity available to Validus at December 31, 2016 was $3.8 billion, compared to $3.6 billion at December 31, 2015.

On February 9, 2017, the Company announced a quarterly cash dividend of $0.38 per common share, which is payable on March 31, 2017 to shareholders of record on March 15, 2017 and a cash dividend of $0.3671875 per depositary share on the outstanding Series A Preferred Shares, which is payable on March 15, 2017 to shareholders of record on March 1, 2017. The timing and amount of any future cash dividends, however, will be at the discretion of the Board and will depend upon results of operations and cash flows, the Company's financial position and capital requirements, general business conditions, legal, tax, regulatory, rating agency and contractual constraints or restrictions and any other factors that the Board deems relevant.

The Company may from time to time repurchase its securities, including common shares, Junior Subordinated Deferrable Debentures and Senior Notes. On February 3, 2015, the Board of Directors of the Company approved an increase in the Company's common share repurchase authorization to $750.0 million.

The Company has repurchased 80,508,849 common shares for an aggregate purchase price of $2.7 billion from the inception of the share repurchase program to February 22, 2017. The Company had $320.0 million remaining under its authorized share repurchase program as of February 22, 2017.

The Company expects the purchases under its share repurchase program to be made from time to time in the open market or in privately negotiated transactions. The timing, form and amount of the share repurchases under the program will depend on a variety of factors, including market conditions, the Company's capital position relative to internal and rating agency targets, legal requirements and other factors. The repurchase program may be modified, extended or terminated by the Board of Directors at any time.

Debt and financing arrangements

For additional information about our debt, including the terms of our financing arrangements, basis for interest rates and debt covenants, refer to Part II, Item 8, Note 20 to the Consolidated Financial Statements, "Debt and financing arrangements."

Noncontrolling interests

Investors in certain of the AlphaCat ILS funds have rights that enable them, subject to certain limitations, to redeem their shares. The third party equity is therefore recorded in the Company's Consolidated Balance Sheets as redeemable noncontrolling interests. When and if a redemption notice is received, the fair value of the redemption is reclassified to a liability. As at December 31, 2016 and 2015, the amount of the Company's total capitalization owed to third parties as redeemable noncontrolling interests was $1,528.0 million and $1,111.7 million, respectively.

The AlphaCat sidecars and one of the AlphaCat ILS funds have no shareholder redemption rights. Therefore, the third party equity is recorded in the Company's Consolidated Balance Sheets as noncontrolling interests. As at December 31, 2016 and 2015, the amount of the Company's total capitalization owed to third parties as noncontrolling interests was $166.0 million and $154.7 million, respectively. Refer to Part II, Item 8, Notes 9 and 10 to the Consolidated Financial Statements, "Variable Interest Entities," and "Noncontrolling interests," respectively, for further details.

Contractual Obligations and Commitments

The Company's contractual obligations and commitments as at December 31, 2016 are set out below:

	Payment Due by Period				
(Dollars in thousands)	Total	Less Than 1 Year	1 - 3 Years	3 - 5 Years	More Than 5 Years
Reserve for losses and loss expenses [(a)]	$2,995,195	$1,310,644	$1,081,899	$381,438	$221,214
Long term debt obligations [(b)]	1,925,578	53,548	107,096	107,096	1,657,838
Projected pension benefit obligation [(c)]	16,979	2,570	6,720	2,578	5,111
Operating lease obligations	103,843	11,878	24,172	21,375	46,418
Private equity and investment commitments [(d)]	248,704	248,704	—	—	—
Other commitments [(e)]	291,388	291,388	—	—	—
Total contractual obligations and commitments	$5,581,687	$1,918,732	$1,219,887	$512,487	$1,930,581

(a) The reserve for losses and loss expenses represents an estimate, including actuarial and statistical projections at a given point in time of an insurer's or reinsurer's expectations of the ultimate settlement and administration costs of claims incurred. As such, the actual payment of the reserve for losses and loss expenses will differ from estimated payouts. Refer to Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations-Critical Accounting Policies and Estimates" for further details and discussion on the Company's reserve for losses and loss expenses.

(b) The amounts in the table above reflect the Company's contractual obligations with respect to the principal and interest payments on the Company's Senior Notes and JSDs. The Company has entered into interest rate swaps which fix the rates of interest on the JSDs. The terms of the swaps are matched to the maturity date of the JSDs. Refer to Part II, Item 8, Note 20 to the Consolidated Financial Statements, "Debt and financing arrangements," for further details and discussion on the debt and financing arrangements of the Company.

(c) Refer to Part II, Item 8, Note 19 to the Consolidated Financial Statements, "Retirement and pension plans," for further details describing the projected pension benefit obligation.

(d) The private equity and investment commitments do not have a defined contractual commitment date and are therefore included in the less than one year category. Refer to Part II, Item 8, Note 23 to the Consolidated Financial Statements, "Commitments and contingencies," for further details describing these contractual obligations and commitments.

(e) Other commitments include commitments related the Company’s structured settlements, AlphaCat ILS funds and notes payable to AlphaCat investors. Refer to Part II, Item 8, Note 23 to the Consolidated Financial Statements, “Commitments and contingencies,” for further details describing these contractual obligations and commitments.

Goodwill and Other Intangible Assets
The Company has performed an impairment analysis of its carried goodwill and intangible assets as required by U.S. GAAP. Based on this analysis, management has concluded that an impairment adjustment is not required against the carried goodwill and carried intangible assets. For information about goodwill and intangible assets refer to Note 6 to the Consolidated Financial Statements, “Goodwill and other intangible assets,” in Part II, Item 8.
Off-Balance Sheet Arrangements
The Company is not party to any off-balance sheet transaction, agreement or other contractual arrangement as defined by Item 303(a) (4) of Regulation S-K to which an entity unconsolidated with the Company is a party that management believes is reasonably likely to have a current or future effect on its financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that the Company believes is material to investors. For further details related to the Company’s variable interest entities, refer to Notes 9 and 11 to the Consolidated Financial Statements, “Variable interest entities,” and “Investments in affiliates,” respectively, in Part II, Item 8.
Ratings
The following table summarizes the financial strength ratings of the Company and its principal reinsurance and insurance subsidiaries from internationally recognized rating agencies as of February 23, 2017:

	A.M. Best	S&P	Moody’s	Fitch
Validus Holdings, Ltd.				
Issuer credit rating	bbb	BBB+	Baa1	A-
Senior debt	bbb	BBB+	Baa1	BBB+
Subordinated debt	bbb-	—	Baa2	BBB
Preferred stock	bb+	BBB-	Baa3	BBB
Outlook on ratings	Positive	Stable	Stable	Stable
Validus Reinsurance, Ltd.				
Financial strength rating	A	A	A2	A
Outlook on ratings	Stable	Stable	Stable	Stable
Lloyd’s of London				
Financial strength rating applicable to all Lloyd’s syndicates	A	A+	—	AA-
Outlook on ratings	Stable	Stable	—	Stable
Validus Reinsurance (Switzerland), Ltd.				
Financial strength rating	A	A	—	—
Outlook on ratings	Stable	Stable	—	—
Western World Insurance Company				
Financial strength rating	A	—	—	—
Outlook on ratings	Stable	—	—	—

Critical Accounting Policies and Estimates

The Company's Consolidated Financial Statements have been prepared in accordance with U.S. GAAP. The preparation of financial statements in accordance with U.S. GAAP requires management to make estimates and assumptions that affect reported and disclosed amounts of assets and liabilities, as well as disclosure of contingent assets and liabilities as at the balance sheet date and the reported amounts of revenues and expenses during the reporting period. Management believes the following accounting policies are critical to the Company's financial reporting as the application of these policies requires management to make significant judgments. Management believes the estimates that require the most subjective and complex judgments are (1) reserve for losses and loss expenses, (2) premiums, (3) reinsurance premiums ceded and reinsurance recoverables (4) investment valuation and (5) the valuation of goodwill and intangible assets.

Reserve for Losses and Loss Expenses

Description: The Company believes that the most significant accounting judgment made by management is our estimate of reserve for losses and loss expenses. The Company establishes its reserve for losses and loss expenses to cover the estimated remaining liability for both reported claims ("case reserves") and unreported amounts ("incurred but not reported" or "IBNR" reserves). For insurance and reinsurance business, the IBNR reserves include provision for loss incidents that have occurred but have not yet been reported to the Company as well as for future variation in case reserves (where the claim has been reported but the ultimate cost is not yet known). The provision for future variation in current case reserves is generally calculated using actuarial estimates of total IBNR at the aggregated line of business level. Additional individual claim IBNR amounts are sometimes calculated for larger claims within our insurance and reinsurance businesses. Within the reinsurance business, the portion of total IBNR related to future variation on known claims is calculated at the individual claim level in some instances (either as an additional case reserve or individual claim IBNR). Within the insurance business, the provision for future variation in current case reserves is generally calculated using actuarial estimates of total IBNR, while individual claim IBNR amounts are sometimes calculated for larger claims. IBNR is established by the Company separately for certain large or catastrophe losses and smaller "attritional" losses. The Company has procedures in place to aggregate large or catastrophe losses on a consolidated basis for financial reporting and disclosure purposes. Loss events which have an ultimate loss estimate at or above $30.0 million on a consolidated basis are disclosed separately and included in the reserves for notable loss event roll forward table. In addition, non-notable loss events which aggregate to $15.0 million or more but less than $30.0 million on a consolidated basis are disclosed separately and included in the Company's analysis of losses and loss expenses. Notable and non-notable loss events are first determined at the respective operating segments based on segment thresholds and are then aggregated and only disclosed if it is determined that they reach the respective consolidated threshold for notable and non-notable loss event disclosure.

For all lines of business, the Company's reserve for losses and loss expenses and loss reserves recoverable consist of three categories: (1) case reserves, (2) in certain circumstances, additional case reserves ("ACR"), and (3) IBNR reserves. The reserves and recoverables for attritional and large or catastrophe losses are established on an annual and interim basis as follows:

1.Case reserves: Case reserves generally are analyzed and established by each segment's claims department on all lines, making use of third party input where appropriate (including, for the reinsurance business, reports of losses from ceding companies). For insurance business where Talbot is not the lead underwriter on the business, the case reserves are established by the lead underwriter and validated by the central Lloyd's market claims bureau, with a sample reviewed by Talbot.

2.ACR: ACR are established for Validus Re and AlphaCat business by our claims department in cases where we believe the case reserves reported by the cedant requires adjustment. ACR supplement case reserves based on information obtained through ceding company audits or other sources. ACR are not generally used at Talbot or Western World as claim volumes are generally greater and thus the potential for future variation in case reserve estimates on known claims often can be analyzed at an aggregate level using historical data.

3.IBNR reserves:

a.Large or catastrophe events—IBNR reserves are established for all lines based on each segment's estimates for known loss events for which not all claims have been reported to the Company. In establishing such IBNR reserves, the Company accumulates loss information from modeling agencies, where possible, publicly available sources and information contained in client reports and estimates. The loss information is applied to the Company's book of in-force contracts to establish an estimate of the Company's ultimate exposure to the loss event. For the largest loss events, the Company estimates an ultimate loss expectation for the individual event. Paid losses, case reserves and any additional case reserves are then deducted from the ultimate loss to ascertain the IBNR estimate for these individual large claims or catastrophe events. The size of event for which the Company establishes a separate ultimate loss estimate may vary based on an assessment of the materiality of the event, as well as on other factors such as complexity and volatility.

b.Attritional losses—IBNR reserves are established using some combination of the actuarial methods described above, including the Chain Ladder method, the Generalized Cape Cod method and the Bornhuetter-Ferguson method. In situations where limited historic development data is available and/or the year being analyzed is more recent (less mature), the expected loss method and the Bornhuetter-Ferguson method are more commonly used. Under all methods used, an ultimate loss amount is established. Paid losses, case reserves and any additional case reserves are then deducted from the ultimate loss to ascertain the attritional IBNR reserves.

For all case reserves, ACR and IBNR, net reserves are estimated by first estimating gross reserves, then estimating reinsurance recoverables.

Judgments and Uncertainties: Loss reserve estimates for insurance and reinsurance business are not precise in that they deal with the inherent uncertainty in the outcome of insurance and reinsurance claims made on the Company, many of which have not yet been reported to the Company. Estimating loss reserves requires management to make assumptions, both explicit and implicit, regarding future paid and reported loss development patterns, frequency and severity trends, claims settlement practices, potential changes in the legal environment and other factors. These estimates and judgments are based on numerous factors, and may be revised over time as additional experience or other data becomes available, as new or improved methodologies are developed or as current laws change.

As predominantly a broker market insurer and reinsurer, the Company must rely on loss information reported to us by brokers from clients, where such information is often incomplete or changing. The quality and type of information received varies by client and by the nature of the business, insurance or reinsurance.

For insurance business, the Company receives from brokers details of potential claims, on the basis of which the Company's loss adjusters make estimates of the likely ultimate outcome of the claims. In determining these reserves, the Company takes into account a number of factors including the facts and circumstances of the individual claim, the nature of the coverage and historical information about its experience on similar types of claims. For insurance business where Talbot is not the lead underwriter, the case reserves are established by the lead underwriter and validated centrally by the Lloyd's market claims bureau, with a sample reviewed by the Company. The sum of the individual claim estimates for lead and follow business constitutes the case reserves.

For reinsurance business, the Company typically receives from brokers details of paid losses and estimated case reserves recorded by the ceding company. In addition to this, the ceding company's estimated provision for IBNR losses is sometimes also available, although this in itself introduces additional uncertainty owing to the differing and typically unknown reserving practices of ceding companies.

There will also be a time lag between a loss occurring and it being reported, first by the original claimant to its insurer, via the insurance broker, and, for reinsurance business, subsequently from the insurer to the reinsurer via the reinsurance broker.

The Company writes a mix of predominantly short-tail business, both insurance and reinsurance. The combination of low claim frequency and high claim severity that is characteristic of much of this short-tail business makes the available data more volatile and less reliable for predicting ultimate losses. For example, in property lines, there can be additional uncertainty in loss estimation related to large catastrophe events, whether natural or man-made. With wind events, such as hurricanes, the damage assessment process may take more than a year. The cost of claims is also subject to volatility due to supply shortages for construction materials and labor. In the case of earthquakes, the damage assessment process may take longer as buildings are discovered to have structural weaknesses not initially detected.

The Company also writes longer tail insurance lines of business through Validus Re, Talbot and Western World. Validus Re's longer tail lines of business include casualty lines. Talbot's longer tail lines of business predominantly include financial lines, marine and energy liabilities, aviation products and airports (aviation direct), construction and political risk. Western World's longer tail lines predominantly include liability coverages for contractors, manufacturers and health care related classes. These longer tail lines represent 19.7% of the Company's gross premiums written for the year ended December 31, 2016. In contrast to our short-tail business, the claim tail for our longer tail lines of business is expected to be notably longer as claims are often reported and ultimately paid or settled years after the related loss event occurs. In the intervening period between occurrence, reporting and settlement, additional facts regarding individual claims and trends will often become known and current laws and case law may change, affecting the ultimate value of the claim.

Taken together, these issues add considerable uncertainty to the process of estimating ultimate losses, hence loss reserves, and this uncertainty is increased for reinsurance business compared with insurance business due to the additional parties in the chain of reporting from the original claimant to the reinsurer.

As a result of the uncertainties described above, the Company must estimate IBNR reserves, which consist of a provision for future development on known loss events, as well as a provision for claims which have occurred but which have not yet been reported to us by clients. Because of the degree of reliance that is necessarily placed on brokers and (re)insured companies for claims reporting, the associated time lag, the low frequency/high severity nature of much of the business underwritten, the rapidly emerging and changing nature of facts and circumstances surrounding large events and, for reinsurance business, the varying reserving practices among ceding companies as described above, reserve estimates are highly dependent on management's judgment and are subject to uncertainty. The Company strives to take account of these uncertainties in the judgments and assumptions made when establishing loss reserves, but it is not possible to eliminate the uncertainties. As a result, there is a risk that the Company's actual losses may be higher or lower than the reserves booked.

For the Company's insurance business written by Talbot and Western World, where a longer reserving history exists, the Company examines the development of its own historical paid and incurred losses to identify trends, which it then incorporates into the reserving process where it deems appropriate.

For the Company's reinsurance business, where the Company relies more heavily on information provided by clients in order to assist it in estimating reserves, the Company performs certain processes in order to help assess the completeness and accuracy of such information as follows:

1.In addition to information received from clients on reported claims, the Company also uses information on the patterns of client loss reporting and loss settlements from previous events in order to estimate the Company's ultimate liability related to these events;

2.The Company uses reinsurance industry information in order to perform consistency checks on the data provided by ceding companies and to identify trends in loss reporting and settlement activity. Where it deems appropriate, the Company incorporates such information in establishing reinsurance reserves; and

3.For both insurance and reinsurance business, the Company supplements the loss information received from clients with loss estimates developed by market share techniques and third party catastrophe models when such information is available.

Although there is normally a lag in receiving reinsurance data from cedants, the Company currently has adequate procedures in place regarding the timeliness related to the processing of assumed reinsurance information and there is no significant backlog. The Company actively manages its relationships with brokers and clients and considers existing disputes with counterparties to be in the normal course of business.

As described above, the reserve for losses and loss expenses includes both a component for outstanding case reserves for claims which have been reported and a component for IBNR reserves. IBNR reserves are the difference between ultimate losses and reported losses, where reported losses are the sum of paid losses and outstanding case reserves. Ultimate losses are estimated by management using various actuarial methods, including exposure-based and loss-based methods, as well as other qualitative assessments regarding claim trends.

The Company uses a reserving methodology that establishes a point estimate for ultimate losses. The point estimate represents management's best estimate of ultimate losses and loss expenses. The Company does not select a range as part of its loss reserving process. The extent of reliance on management judgment in the reserving process differs depending on the circumstances surrounding the estimations, including the volume and credibility of data, the perceived relevance of historical data to future conditions, the level of stability in the Company's operational processes for handling losses (including claims practices and systems) and other factors. The Company reviews its reserving assumptions and methodologies on a quarterly basis. Two of the most critical assumptions in establishing reserves are loss emergence patterns and expected loss ratios. Loss emergence patterns are critical to the reserving process as they can be one key indicator of the ultimate liability. A pattern of reported loss emergence which is different from expectations may indicate a change in the loss climate and may thus influence the estimate of future payments that should be reflected in reserves. Expected loss ratios are a primary component in the Company's calculation of estimated ultimate losses for business at an early stage in its development.

Loss emergence patterns for the business written by Talbot and Western World are generally derived from its own historic loss development triangulations and in some instances, the business written by Talbot is also supplemented by Lloyd's market data. For the business written by Validus Re and AlphaCat, where its own historic loss development triangulations are currently more limited, greater use is made of market data including reinsurance industry data available from organizations such as statistical bureaus and consulting firms, where appropriate. Expected loss ratios are estimated in a variety of ways, largely dependent upon the data available. Wherever it deems appropriate, management incorporates the Company's own loss experience in establishing initial expected loss ratios and reserves. This is particularly true for the business written by Talbot and Western World where a longer reserving history exists and expected losses and loss ratios consider, among other things, rate increases and changes in terms and conditions that have been observed in the market. For reinsurance business, expected losses and loss ratios are typically developed using vendor and proprietary computer models. The information used in these models is collected by underwriters and actuaries during the initial pricing of the business.

The Company has large catastrophe event ultimate loss reserve estimation procedures for the investigation, analysis, and estimation of ultimate losses resulting from large catastrophe events. The determination regarding which events follow these procedures is made by members of senior management from relevant departments within the Company. The procedures are designed to facilitate the communication of information between various relevant functions and provide an efficient approach to determining the estimated loss for the event.

In developing estimates for large catastrophe events, the Company considers various sources of information including: specific loss estimates reported by our cedants and policyholders, overall insurance industry loss estimates reported by our brokers and by claims reporting services, proprietary and third party vendor models and internal data regarding insured or reinsured exposures related to the geographical location of the event. Use of these various sources enables management to estimate the ultimate loss for known events with a higher degree of accuracy and timeliness than if the Company relied solely on one data source. Indicated ultimate loss estimates for catastrophe events are compiled by a committee of management, and these indicated ultimate losses are incorporated into the process of selecting management's best estimate of reserves.

As with large catastrophe events, the Company separately estimates ultimate losses for certain large claims using a number of methods, including estimation based on vendor models, analyses of specific industry occurrences and facts, as well as information from cedants and policyholders on individual contract involvements.

During 2010 and 2011, given the complexity and severity of notable loss events, explicit reserves for potential development ("RDE") on 2010 and 2011 notable loss events were included within the Company's IBNR reserving process. As uncertainties surrounding initial estimates on notable loss events developed, this reserve has been allocated to specific notable loss events. No RDE was established for notable loss events incurred between 2012 through 2016.

The requirement for a reserve for potential development on notable loss events in a quarter is a function of (a) the number of significant events occurring in that quarter and (b) the complexity and volatility of those events. Complexity and volatility factors considered are as follows:

- Contract complexity;
- Nature and number of perils arising from an event;
- Limits and sub limits exposed;
- Quality, timing and flow of information received from each loss;
- Timing of receipt of information to the Company;
- Information regarding retrocessional covers;
- Assumptions, both explicit and implicit, regarding future paid and reported loss development patterns;
- Frequency and severity trends;
- Claims settlement practices; and
- Potential changes in the legal environment.

Each of these factors may lead to associated volatility for each notable loss event as well as consideration of the total reserve for loss events in the aggregate. Consequently, all of these factors are considered in the aggregate for the events occurring in the quarter, recognizing that it is more likely that one or some of the events may deteriorate significantly, rather than all deteriorating proportionately. The establishment of each quarter's requirement for a reserve for potential development on notable loss events takes place as part of the quarterly evaluation of the Company's overall reserve requirements. It is not directly linked in isolation to any one significant/notable loss in the quarter. The reserve for potential development on notable loss events is evaluated by our in-house actuaries as part of their normal process in setting of indicated reserves for the quarter. In ensuing quarters, senior management and the in-house actuaries revisit and re-estimate certain events previously considered in the catastrophe loss event process as well as events that have subsequently emerged in the current quarter. To the extent that there has been adverse development on a notable loss event, if there is RDE remaining from that accident year, an allocation from the respective accident year RDE will be made to the notable loss event. If there is no remaining RDE relating to the accident year of the loss, then adverse development will be recorded for the notable loss event.

Changes to the reserve for potential development on notable loss events will be considered in light of changes to previous loss estimates from notable loss events in this re-estimation process. To the extent that there are continued complexity and volatility factors relating to notable loss events in the aggregate, additions to the RDE may be established for a specific accident year.

Management's loss estimates are subject to annual corroborative review by independent external actuaries using generally accepted actuarial techniques and other analytical and qualitative methods.

The Company's reserving methodology was not changed materially in the year ended December 31, 2016 from the methodology used in the year ended December 31, 2015. Management's best estimate of the gross reserve for losses and loss expenses and loss reserves recoverable at December 31, 2016 were $3.0 billion and $430.4 million, respectively. The following table sets forth a breakdown between gross case reserves and gross IBNR by segment at December 31, 2016.

	December 31, 2016		
(Dollars in thousands)	Gross Case Reserves	Gross IBNR	Total Gross Reserve for Losses and Loss Expenses
Validus Re	$447,982	$668,771	$1,116,753
Talbot	603,447	698,070	1,301,517
Western World	208,157	381,343	589,500
AlphaCat	9,106	39,428	48,534
Eliminations	(30,920)	(30,189)	(61,109)
Total	$1,237,772	$1,757,423	$2,995,195

Management's best estimate of the gross reserve for losses and loss expenses and loss reserves recoverable at December 31, 2015 were $3.0 billion and $350.6 million, respectively. The following table sets forth a breakdown between gross case reserves and gross IBNR by segment at December 31, 2015.

	December 31, 2015		
(Dollars in thousands)	Gross Case Reserves	Gross IBNR	Total Gross Reserve for Losses and Loss Expenses
Validus Re	$508,275	$638,594	$1,146,869
Talbot	616,459	686,176	1,302,635
Western World	188,477	411,854	600,331
AlphaCat	595	10,418	11,013
Eliminations	(35,109)	(29,172)	(64,281)
Total	$1,278,697	$1,717,870	$2,996,567

To the extent insurance and reinsurance industry data is relied upon to aid in establishing reserve estimates, there is a risk that the data may not match the Company's risk profile or that the industry's reserving practices overall differ from those of the Company and its clients. In addition, reserving can prove especially difficult should a significant loss event take place near the end of an accounting period, particularly if it involves a catastrophic event. These factors further contribute to the degree of uncertainty in the reserving process.

The uncertainties inherent in the reserving process, together with the potential for unforeseen developments, including changes in laws and the prevailing interpretation of policy terms, may result in losses and loss expenses materially different from the reserves initially established. Changes to prior year reserves will affect current period underwriting income by increasing income if the prior year ultimate losses are reduced or decreasing income if the prior year ultimate losses are increased. The Company expects volatility in results in periods when significant loss events occur because U.S. GAAP does not permit insurers or reinsurers to reserve for loss events until they have both occurred and are expected to give rise to a claim. As a result, the Company is not allowed to record contingency reserves to account for expected future losses. The Company anticipates that claims arising from future events will require the establishment of substantial reserves in future periods.

Effect if Actual Results Differ From Assumptions: Given the risks and uncertainties associated with the process for estimating reserves for losses and loss expenses, management has performed an evaluation of the potential variability in loss reserves and the impact this variability may have on reported results, financial condition and liquidity. Because of the inherent uncertainties discussed above, we have developed a reserving philosophy which attempts to incorporate prudent assumptions and estimates, and we have generally experienced favorable net development on prior year reserves in the last several years. However, there is no assurance that this will occur in future periods. Management's best estimate of the net reserve for losses and loss expenses at December 31, 2016 is $2.6 billion. The following tables show the effect on estimated net reserves for losses and loss expenses as of December 31, 2016 of a change in two of the most critical assumptions in establishing reserves: (1) loss emergence patterns, accelerated or decelerated by three and six months; and (2) expected loss ratios varied by plus or minus five and ten percent. Management believes that a reasonably likely scenario is represented by such a standard, as used by some professional actuaries as part of their review of an insurer's or reinsurer's reserves.

Utilizing this standard as a guide, management has selected these variances to determine reasonably likely scenarios of variability in the loss emergence and loss ratio assumptions. These scenarios consider normal levels of catastrophe events. Loss reserves may vary beyond these scenarios in periods of heightened or reduced claim activity. The reserves resulting from the changes in the assumptions are not additive and should be considered separately. The following tables vary the assumptions employed therein independently. In addition, the tables below do not adjust any parameters other than the ones described above. Specifically, reinsurance collectability was not explicitly stressed as part of the calculations below.

Net reserve for losses and loss expenses at December 31, 2016—Sensitivity to loss emergence patterns

(Dollars in thousands)	December 31, 2016 Reserve for losses and loss expenses
Change in assumption	
Six month acceleration	$2,261,310
Three month acceleration	$2,405,367
No change (selected)	$2,564,774
Three month deceleration	$2,735,327
Six month deceleration	$2,884,735

Net reserve for losses and loss expenses at December 31, 2016—Sensitivity to expected loss ratios

(Dollars in thousands)	December 31, 2016 Reserve for losses and loss expenses
Change in assumption	
10% favorable	$2,370,162
5% favorable	$2,467,654
No change (selected)	$2,564,774
5% unfavorable	$2,662,639
10% unfavorable	$2,760,131

The most significant variance in the above scenarios, a six month deceleration in loss emergence patterns, would have the effect of increasing losses and loss expenses by $320.0 million.

Management believes that the reserve for losses and loss expenses are sufficient to cover expected claims incurred before the reporting date on the basis of the methodologies and judgments used to support its estimates. However, there can be no assurance that actual payments will not vary significantly from total reserves. The reserve for losses and loss expenses and the methodology of estimating such reserve are regularly reviewed and updated as new information becomes known. Any resulting adjustments are reflected in income in the period in which they become known.

Premiums

Description: For insurance business, written premium estimates are determined from the business plan estimates of premiums by class, the aggregate of underwriters' estimates on a policy-by-policy basis, and projections of ultimate premiums using generally accepted actuarial methods. In particular, direct insurance premiums are recognized in accordance with the type of contract written. The majority of our insurance premium is accepted on a direct open market or facultative (proportional or non-proportional) basis. We receive a premium which is identified in the policy and this premium will typically adjust only if the underlying insured values adjust.

A limited portion of our insurance business is written on a line slip basis or binder, under which we assume a fixed percentage of the premiums and losses on a particular risk or group of risks along with numerous other unrelated insurers. Although premiums on this business are not contractually stated, we recognize gross premiums written based on an estimate provided by the client, via the broker.

For reinsurance business, where the assumed reinsurance premium is written on an excess of loss (non-proportional) or on a pro-rata (proportional) basis, reinsurance contracts are generally written prior to the time the underlying direct policies are written by cedants and accordingly cedants must estimate such premiums when purchasing reinsurance coverage. For excess of loss contracts, the deposit premium is defined in the contract. The deposit premium is based on the client's estimated premiums, and this estimate is the amount recorded as written premium in the period the risk incepts. In the majority of cases, these contracts are adjustable to reflect the changes in underlying risks during the contract period. For pro-rata contracts, an estimate of written premium is recorded in the period in which the risk incepts. The written premiums estimate is based on the pro rata cession percentage, on information provided by ceding companies and on management's judgment. Management critically evaluates the information provided by ceding companies based on experience with the cedant, broker and the underlying book of business and may modify the initial premium estimates provided by the cedant.

The table below identifies the extent of premiums that were written on a proportional and non-proportional basis:

	Years Ended December 31,					
	2016		2015		2014 [(a)]	
(Dollars in thousands)	Gross Premiums Written	% of Total	Gross Premiums Written	% of Total	Gross Premiums Written	% of Total
Proportional	$767,922	29.0 %	$725,135	28.4 %	$600,537	25.5 %
Non-proportional	1,880,783	71.0 %	1,832,371	71.6 %	1,758,328	74.5 %
Total	$2,648,705	100.0%	$2,557,506	100.0%	$2,358,865	100.0%

(a) The results of operations for Western World are consolidated from the October 2, 2014 date of acquisition.

Premium earning: For contracts written on a losses occurring basis or claims made basis, being the majority of our insurance and excess of loss reinsurance business, premium income is generally earned proportionately over the expected risk period, usually 12 months. For contracts written on a risks attaching basis, being primarily our pro-rata reinsurance business, premiums are generally earned over a 24 month period due to the fact that some of the underlying exposures may attach towards the end of the contract, and such underlying exposures generally have a 12 month coverage period. The portion of the premium related to the unexpired portion of the policy at the end of any reporting period is presented on the consolidated balance sheet as unearned premiums. Changes in circumstance subsequent to contract inception can impact the earning period. For example, when the exposure limit for a contract is reached, we fully earn any associated unearned premium.

Judgments and Uncertainties: On a quarterly basis, the Company evaluates the appropriateness of premium estimates based on the latest information available, which may include actual reported premium to date, the latest premium estimates as provided by cedants and brokers, historical experience, management's professional judgment, underlying values as necessary, information obtained during the underwriting renewal process, as well as an assessment of relevant economic conditions. Past experience may not be indicative of how future premium estimates develop.

For business written on a facultative basis, endorsements, based on reports by our clients of changes in the original contractual cover, are recorded in the period in which the client reports are received, which would normally be over the life of the cover or shortly afterwards. Typically, the adjustment to the original premium is an insignificant portion of the total premium written.

For business written on a facility basis, although a premium estimate is not contractually stated for the amount of business to be written under any particular facility, an initial estimate of the expected premium written is received from the coverholder via the broker. Our estimate of premium is derived by reference to one or more of the following: the historical premium volume experienced by any facility, historical premium volume of similar facilities, the estimates provided by the broker and industry information on the underlying business. We actively monitor the development of actual reported premium against the estimates made; where actual reported premiums deviate from the estimate, we carry out an analysis to determine the cause and may, if necessary, adjust the estimated premiums.

For business written on an excess of loss basis, premium adjustments, based on reports by the clients of actual premium, are recorded in the period in which the cedant reports are received, which would normally be within six months to one year subsequent to the expiration of the contract. Typically the adjustment to the deposit premium is an insignificant portion of the total premium written. Many of our excess of loss contracts also include provisions that require an automatic reinstatement of coverage in the event of a loss. Reinstatement premiums are recognized when a triggering loss event occurs and losses are recorded by us. While the reinstatement premium amount is defined by contract terms, our recognition of reinstatement premiums is dependent on our estimate of losses and loss expenses, which reflect management's best judgment as described above in "Reserve for Losses and Loss Expenses."

For business written on a proportional basis, we review premium estimates on a quarterly basis and evaluate their reasonability in light of actual reported premium to date, the latest premium estimates as provided by cedants and brokers, historical experience, management's professional judgment, information obtained during the underwriting renewal process, as well as an assessment of relevant economic conditions. Factors contributing to changes from the initial premium estimates may include changes in renewal rates, rates of new business or underlying exposures. As a result of this review process, any adjustments to estimates are recognized in gross premiums written during the period they are determined. Such changes in premium estimates may directly impact net premiums earned in the period they are determined because the adjustment may need to be substantially or fully earned.

The Company believes that reasonably likely changes in assumptions made in the estimation process would not have a significant impact on gross premiums written as recorded.

Credit risk: Management includes an assessment of the creditworthiness of cedants in the review process above, primarily based on market knowledge, reports from rating agencies, the timeliness of cedants' payments and the status of current balances owing. Based on this assessment, management believes that as at December 31, 2016 no provision for doubtful accounts is necessary for receivables from cedants.

Reinsurance Premiums Ceded and Reinsurance Recoverables

Description: As discussed in Item 1 "Business," the Company primarily uses ceded reinsurance for risk mitigation purposes. Validus Re purchases reinsurance on an excess of loss and a proportional basis together with ILW coverage. Talbot purchases reinsurance on an excess of loss and a proportional basis together with a relatively small amount of facultative reinsurance and ILWs. Western World purchases reinsurance on an excess of loss basis with a relatively small amount of facultative reinsurance.

Judgments and Uncertainties: For excess of loss business, the amount of reinsurance premium payable is usually contractually documented at inception and management judgment is only necessary in respect of any loss-related elements of the reinsurance premium, for example, reinstatement or adjustment premiums and loss-related commissions. The full reinsurance premium ceded is recorded at inception and if the contract is purchased on a "losses occurring" basis, the reinsurance premium ceded is expensed on a straight line basis over the life of the contract. If the policy is purchased on a "risks attaching" basis, the reinsurance premium ceded is expensed in line with how the inwards gross premium, to which the risk attaching policy relates, is earned. After the contract has expired, a No Claims Bonus may be received for certain policies, and this is recorded as a reinsurance premium adjustment in the period in which it can be reasonably determined.

Paid losses recoverable and loss reserves recoverable balances include amounts owed to us in respect of paid and unpaid ceded losses and loss expenses, respectively. The balances are presented net of a provision for non-recoverability. As at December 31, 2016, loss reserves recoverable balances were $430.4 million and paid losses recoverable balances were $35.2 million. In establishing our reinsurance recoverable balances, significant judgment is exercised by management in determining the amount of unpaid losses and loss expenses to be ceded as well as our ability to cede losses and loss expenses under our reinsurance contracts.

The Company's ceded unpaid losses and loss expenses consists of two elements, those for reported losses and those for IBNR. Ceded amounts for IBNR are developed as part of our loss reserving process. Consequently, the estimation of ceded unpaid losses and loss expenses is subject to similar risks and uncertainties in the estimation of gross IBNR (refer to "Reserve for Losses and Loss Expenses" above). As at December 31, 2016, ceded IBNR recoverable balances were $265.1 million.

Although our reinsurance recoverable balances are derived from our determination of contractual provisions, the recoverability of such amounts may ultimately differ due to the potential for a reinsurer to become financially impaired or insolvent or for a contractual dispute over contract language or coverage. Consequently, we review our reinsurance recoverable balances on a regular basis to determine if there is a need to establish a provision for non-recoverability. In performing this review, the Company uses judgment in assessing the credit worthiness of our reinsurers and the contractual provisions of our reinsurance agreements. As at December 31, 2016, the Company had a provision for non-recoverability of $5.2 million. In the event that the credit worthiness of our reinsurers were to deteriorate, actual uncollectible amounts could be significantly greater than our provision for non-recoverability.

The Company uses a variety of methods to estimate uncollectible reinsurance, with the primary method being a default analysis. The primary components of the default analysis are reinsurance recoverable balances by reinsurer and default factors used to determine the portion of a reinsurer's balance deemed to be uncollectible. Default factors require considerable judgment and are determined using the current rating, or rating equivalent, of each reinsurer as well as other key considerations and assumptions.

At December 31, 2016, the use of different assumptions within the model could have an effect on the provision for uncollectible reinsurance reflected in the Company's Consolidated Financial Statements. To the extent the creditworthiness of the Company's reinsurers was to deteriorate due to an adverse event affecting the reinsurance industry, such as a large number of major catastrophes, actual uncollectible amounts could be significantly greater than the Company's provision.

Investment Valuation

Description: Consistent with U.S. GAAP, the Company recognizes investments at their fair value in the Consolidated Balance Sheets. 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. U.S. GAAP also established a three level valuation hierarchy for disclosure of fair value measurements. The valuation hierarchy is based upon whether the inputs to the valuation of an asset or liability are observable or unobservable in the market at the measurement date, with quoted market prices being the highest level (“Level 1”) and unobservable inputs being the lowest level (“Level 3”). Generally, the degree of judgment used in measuring the fair value of financial instruments inversely correlates with the availability of observable inputs. The Company also holds investments which are measured at fair value using the net asset value practical expedient, and in accordance with U.S. GAAP does not classify these investments within the fair value hierarchy.

Judgments and Uncertainties: The Company’s external investment accounting service provider receives prices from independent pricing sources to measure the fair values of a majority of the Company’s investments. These independent pricing sources are prioritized with respect to reliability to ensure that only the highest priority pricing inputs are used. The independent pricing sources are received via automated feeds from indices, pricing and broker-dealers services. Pricing is also obtained from other external investment managers. This information is applied consistently across all portfolios. The Company’s external investment accounting service provider confirms and documents all prices received from broker-dealers on a daily basis for quality control and audit purposes.

In addition to internal controls, management relies on the effectiveness of the valuation controls in place at the Company’s external investment accounting service provider (supported by a Statement on Standards for Attestation Engagements No. 16 Report) in conjunction with regular discussion and analysis of the investment portfolio’s structure and performance. To date, management has not noted any issues or discrepancies related to investment valuation.

For further details on the valuation of the Company’s investment portfolio refer to Note 8 to the Consolidated Financial Statements, “Fair value measurements,” in Part II, Item 8.

Refer to Item 7A, “Quantitative and Qualitative Disclosures About Market Risk” for further discussion of interest rate risk and a sensitivity analysis of the impact of interest rate variances on the valuation of the Company’s fixed maturity and short-term investments.

Goodwill and Other Intangible Assets

Goodwill represents the excess of purchase price over the fair value of nets assets acquired from the acquisition of Talbot and Western World. Intangible assets with a finite life are amortized over the estimated useful life of the asset. Intangible assets with an indefinite useful life are not amortized.

Goodwill and other intangible assets are assessed for impairment on an annual basis or more frequently if events or changes in circumstances indicate that it is more likely than not that an impairment exists. Such events or circumstances may include an economic downturn in a geographic market or change in the assessment of future operations. In performing this assessment, the Company may first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform the quantitative goodwill impairment test. Similarly, the Company may first assess qualitative factors to determine whether it is more likely than not that an other intangible asset is impaired as a basis for determining whether it is necessary to perform the quantitative impairment test described in ASC Topic 350 “Intangibles-Goodwill and Other.” The factors assessed in making this determination included the overall insurance industry outlook, business strategy, premium rates, earnings sustainability, market capitalization and the regulatory and political environment.

If goodwill or other intangible assets are impaired, they are written down to their fair value with a corresponding expense reflected in the Consolidated Statements of Income and Comprehensive Income in the period in which the determination is made.

As at December 31, 2016, neither the Company’s initial valuation nor its subsequent valuations has indicated any impairment of the Company’s goodwill and other intangible assets of $196.8 million and $115.6 million, respectively. For further details refer to Note 6 to the Consolidated Financial Statements, “Goodwill and other intangible assets,” in Part II, Item 8.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

The PSLRA provides a “safe harbor” for forward-looking statements. Any prospectus, prospectus supplement, the Company’s Annual Report to shareholders, any proxy statement, any other Form 10-K, Form 10-Q or Form 8-K of the Company or any other written or oral statements made by or on behalf of the Company may include forward-looking statements that reflect the Company’s current views with respect to future events and financial performance. Such statements include forward-looking statements both with respect to the Company in general, and to the insurance and reinsurance sectors in particular. Statements that include the words “expect”, “intend”, “plan”, “believe”, “project”, “anticipate”, “will”, “may”, and similar statements of a future or forward-looking nature identify forward-looking statements for purposes of the PSLRA or otherwise. All forward-looking statements address matters that involve risks and uncertainties. Accordingly, there are or will be important factors that could cause actual results to differ materially from those indicated in such statements and, therefore, you should not place undue reliance on any such statement. We believe that these factors include, but are not limited to, the following:

- unpredictability and severity of catastrophic events;
- our ability to obtain and maintain ratings, which may affect by our ability to raise additional equity or debt financings, as well as other factors described herein;
- adequacy of the Company’s risk management and loss limitation methods;
- cyclicality of demand and pricing in the insurance and reinsurance markets;
- the Company’s ability to implement its business strategy during “soft” as well as “hard” markets;
- adequacy of the Company’s loss reserves;
- continued availability of capital and financing;
- the Company’s ability to identify, hire and retain, on a timely and unimpeded basis and on anticipated economic and other terms, experienced and capable senior management, as well as underwriters, claims professionals and support staff;
- acceptance of our business strategy, security and financial condition by rating agencies and regulators, as well as by brokers and (re)insureds;
- competition, including increased competition, on the basis of pricing, capacity, coverage terms or other factors;
- potential loss of business from one or more major insurance or reinsurance brokers;
- the Company’s ability to implement, successfully and on a timely basis, complex infrastructure, distribution capabilities, systems, procedures and internal controls, and to develop accurate actuarial data to support the business and regulatory and reporting requirements;
- general economic and market conditions (including inflation, volatility in the credit and capital markets, interest rates and foreign currency exchange rates) and conditions specific to the insurance and reinsurance markets in which we operate;
- the integration of businesses we may acquire or new business ventures, including overseas offices, we may start and the risk associated with implementing our business strategies and initiatives with respect to the new business ventures;
- accuracy of those estimates and judgments used in the preparation of our financial statements, including those related to revenue recognition, insurance and other reserves, reinsurance recoverables, investment valuations, intangible assets, bad debts, taxes, contingencies, litigation and any determination to use the deposit method of accounting, which, for a relatively new insurance and reinsurance company like our company, are even more difficult to make than those made in a mature company because of limited historical information;
- the effect on the Company’s investment portfolio of changing financial market conditions including inflation, interest rates, liquidity and other factors;
- acts of terrorism, political unrest, outbreak of war and other hostilities or other non-forecasted and unpredictable events;
- availability and cost of reinsurance and retrocession coverage;
- the failure of reinsurers, retrocessionaires, producers or others to meet their obligations to us;
- the timing of loss payments being faster or the receipt of reinsurance recoverables being slower than anticipated by us;

- changes in domestic or foreign laws or regulations, or their interpretations;
- changes in accounting principles or the application of such principles by regulators;
- statutory or regulatory or rating agency developments, including as to tax policy and reinsurance and other regulatory matters such as the adoption of proposed legislation that would affect Bermuda-headquartered companies and/or Bermuda based insurers or reinsurers; and
- the other factors set forth herein under Part I Item 1A “Risk Factors” and under Part II Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and the other sections of this Annual Report on Form 10-K for the year ended December 31, 2016, as well as the risk and other factors set forth in the Company’s other filings with the SEC, as well as management’s response to any of the aforementioned factors.

In addition, other general factors could affect our results, including: (a) developments in the world’s financial and capital markets and our access to such markets; (b) changes in regulations or tax laws applicable to us, and (c) the effects of business disruption or economic contraction due to terrorism or other hostilities.

The foregoing review of important factors should not be construed as exhaustive and should be read in conjunction with the other cautionary statements that are included herein or elsewhere. Any forward-looking statements made in this report are qualified by these cautionary statements, and there can be no assurance that the actual results or developments anticipated by us will be realized or, even if substantially realized, that they will have the expected consequences to, or effects on, us or our business or operations. We undertake no obligation to update publicly or revise any forward-looking statement, whether as a result of new information, future developments or otherwise.

Item 7A. Quantitative And Qualitative Disclosures About Market Risk

The Company is principally exposed to five types of market risk:

- interest rate risk;
- foreign currency risk;
- credit risk;
- liquidity risk; and
- inflation risk.

Interest Rate Risk

The Company's managed fixed maturity and short-term investments are exposed to interest rate risk. Fluctuations in interest rates have a direct impact on the market valuation of these investments. As interest rates rise and credit spreads widen, the market value of the Company's fixed maturity and short-term investments fall and the Company has the risk that cash outflows will have to be funded by selling assets, which will be trading at depreciated values. As interest rates decline and credit spreads tighten, the market value of the Company's fixed maturity and short-term investments increase and the Company has reinvestment risk, as funds reinvested may earn less than is necessary to match anticipated liabilities. The Company manages interest rate risk by selecting investments with characteristics such as duration, yield, currency and liquidity tailored to the anticipated cash outflow characteristics of the insurance and reinsurance liabilities it assumes.

The following table indicates the impact on the fair value of the Company's managed fixed maturity and short-term investment portfolios from an immediate 100 basis point increase and decrease in market interest rates (based on U.S. treasury yields):

(Dollars in thousands)	December 31, 2016 Increase (decrease) in fair value		December 31, 2015 Increase (decrease) in fair value	
Immediate 100 basis point increase in market interest rates	$(136,758)	(2.4)%	$(126,908)	(2.4)%
Immediate 100 basis point decrease in market interest rates	$137,213	2.4 %	$127,976	2.4 %

As at December 31, 2016, the Company held $1.6 billion (December 31, 2015: $1.3 billion), or 28.8% (December 31, 2015: 25.1%) of the Company's managed fixed maturity investments in asset-backed and mortgage-backed securities. Some of these assets are exposed to prepayment risk, which occurs when the frequency with which holders of the underlying loans prepay the outstanding principal before the maturity date changes. The adverse impact of prepayment is more evident in a declining interest rate environment. As a result, the Company will be exposed to reinvestment risk, as cash flows received by the Company will be accelerated and will be reinvested at the prevailing interest rates.

Foreign Currency Risk

We conduct our insurance and reinsurance operations in a variety of non-U.S. currencies and certain of the Company's reinsurance contracts provide that ultimate losses may be payable in foreign currencies depending on the country of original loss. As the functional currency for the majority of our subsidiaries is the U.S. dollar, foreign currency exchange rate risk exists to the extent that there is an increase in the exchange rate of the foreign currency in which losses are ultimately owed. Therefore, our foreign currency policy is to broadly manage, where possible, our foreign currency risk by seeking to match our liabilities under insurance and reinsurance policies that are payable in foreign currencies with assets that are denominated in such currencies.

The following table presents the Company's monetary assets and liabilities held in foreign currencies and the Company's non-monetary assets and liabilities that do not require revaluation:

	December 31, 2016		December 31, 2015	
(Dollars in thousands)	Balance	% of Total	Balance	% of Total
Total monetary assets held in foreign currencies	$592,010	5.2 %	$568,153	5.4 %
Total monetary liabilities held in foreign currencies	681,281	11.7%	732,730	13.1%
Total non-monetary assets that do not require revaluation	16,584	0.1 %	15,937	0.2 %

Total non-monetary liabilities that do not require revaluation	87,291	1.5	%	81,718	1.5	%

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When necessary, the Company may also use derivatives to economically hedge unmatched foreign currency exposures, specifically forward contracts. To the extent foreign currency exposure is not hedged or otherwise matched, the Company may experience foreign exchange gains or losses, which in turn would affect the Company's results of operations and financial condition.

For further information on the accounting treatment of our foreign currency derivatives, refer to Note 12 to the Consolidated Financial Statements, "Derivative instruments," in Part II, Item 8.

Credit Risk

Credit risk relates to the uncertainty of a counterparty's ability to make timely payments in accordance with contractual terms of the instrument or contract. We are exposed to direct credit risk primarily within our portfolios of fixed maturity and short-term investments, and through customers, brokers and reinsurers in the form of premiums receivable and reinsurance recoverables, respectively, as discussed below.

The Company is exposed to credit risk from the possibility that counterparties may default on their obligations. The Company's primary credit risks reside in investments in U.S. and non-U.S. corporate bonds and loans and amounts recoverable from reinsurers.

Investments: The Company attempts to limit its credit exposure by purchasing high quality fixed maturity investments to maintain a minimum weighted average portfolio credit rating of A+ on its rated managed fixed maturity investments. As at December 31, 2016, the Company's rated managed fixed maturity investments had an average credit quality rating of AA- (December 31, 2015: AA-).

In addition, the Company's IPS limits the amount of "risk assets" held as part of its managed cash and investments portfolio to a maximum of 35% of shareholders' equity available to Validus. Risk assets include non-investment grade debt securities, private equity investments, private placements that are not subject to rule 144A, hedge funds and other alternative assets. The Company's managed cash and investment portfolio had risk assets of $853.0 million or 22.2% of shareholders' equity available to Validus as at December 31, 2016 (December 31, 2015: $837.9 million or 23.0%).

The Company also limits its aggregate exposure to any single issuer to 3.75% or less of its total managed cash and investment portfolio, excluding government and agency securities, depending on the credit rating of the issuer. The Company did not have an aggregate exposure to any single issuer of more than 1.0% of total managed cash and investments, other than with respect to government and agency securities as at December 31, 2016 (December 31, 2015: 0.9%).

Furthermore, fixed maturity investments in below investment grade securities are limited to no more than 15% of the Company's managed cash and investment portfolio. As at December 31, 2016, 9.4% (December 31, 2015: 10.2%) of the managed cash and investment portfolio was rated below Baa3/BBB-.

Reinsurance: The amount of the maximum exposure to credit risk is indicated by the carrying value of the Company's financial assets. The Company evaluates the financial condition of its reinsurers and monitors concentration of credit risk arising from its exposure to individual reinsurers. The reinsurance program is generally placed with reinsurers whose rating, at the time of placement, was A- or better rated by S&P or the equivalent with other rating agencies. Exposure to a single reinsurer is also controlled with restrictions dependent on rating. As at December 31, 2016, $461.4 million or 99.1% (December 31, 2015: $368.6 million or 98.7%) of the Company's reinsurance balances recoverable were either fully collateralized or recoverable from reinsurers rated A- or better.

Liquidity risk

Certain of the Company's investments may become illiquid. Disruption in the credit markets may materially affect the liquidity of the Company's investments, including non-agency residential mortgage-backed securities and bank loans which represent 8.9% at December 31, 2016 (December 31, 2015: 9.2%) of managed cash and investments. If the Company requires significant amounts of cash on short notice in excess of normal cash requirements (which could include claims on a major catastrophic event) in a period of market illiquidity, the investments may be difficult to sell in a timely manner and may have to be disposed of for less than what may otherwise have been possible under other conditions. At December 31, 2016, the Company had $726.0 million (December 31, 2015: $855.9 million) of unrestricted, liquid assets, defined as managed unpledged cash and cash equivalents, short term investments, government and government agency securities.

For details on the Company's debt and financing arrangements, refer to Part II, Item 8, Note 13 to the Consolidated Financial Statements, "Debt and financing arrangements."

Inflation Risk

The Company does not believe that inflation has had or will have a material effect on its combined results of operations, except insofar as (a) inflation may affect interest rates, and (b) losses and loss expenses may be affected by inflation.

Item 8. Financial Statements and Supplementary Data

Reference is made to Item 15 (a) of this Report for the Consolidated Financial Statements of Validus Holdings, Ltd. and the Notes thereto, as well as the Schedules to the Consolidated Financial Statements.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Conclusion Regarding the Effectiveness of Disclosure Controls and Procedures

The Company carried out an evaluation, under the supervision and with the participation of the Company's management, including the Chief Executive Officer and Chief Financial Officer, of the effectiveness of disclosure controls and procedures pursuant to Rules 13a-15 and 15d-15 promulgated under the Securities Exchange Act of 1934, as amended, as of the end of the period covered by this report. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that the disclosure controls and procedures are effective to provide reasonable assurance that all material information relating to the Company required to be filed in this report has been made known to them in a timely fashion.

Management's Report on Internal Control Over Financial Reporting

The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) of the Securities Exchange Act of 1934, as amended.

The Company's internal control over financial reporting was designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles.

The Company's management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2016. In making this assessment, it used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control—Integrated Framework (2013) (the "Framework"). Based on its assessment, management concluded that, as of December 31, 2016, the Company's internal control over financial reporting was effective based on the Framework criteria.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2016 has been audited by PricewaterhouseCoopers Ltd., an independent registered public accounting firm, as stated in their report included in this filing.

Changes in Internal Control Over Financial Reporting

There have been no changes in internal control over financial reporting identified in connection with the Company's evaluation required pursuant to Rules 13a-15 and 15d-15 promulgated under the Securities Exchange Act of 1934, as amended, that occurred during the most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B. Other Information

Disclosure of Certain Activities Under Section 13(r) of the Securities Exchange Act of 1934

Section 13(r) of the Securities Exchange Act of 1934, as amended, requires an issuer to disclose in its annual or quarterly reports whether it or an affiliate knowingly engaged in certain activities described in that section, including certain activities related to Iran during the period covered by the report.

Effective January 16, 2016, the Office of Foreign Assets Control of the U.S. Department of the Treasury adopted General License H which authorizes non-U.S. entities that are owned or controlled by a U.S. person to engage in certain activities with Iran so long as they comply with certain specific requirements set forth therein.

Certain of the Company’s non-U.S. subsidiaries provide global marine hull & war policies that provide coverage for vessels navigating into and out of ports worldwide. In light of EU and U.S. modifications to Iran sanctions this year, including the issuance of General License H, and consistent with General License H, the Company has been notified that certain of its policyholders have begun to ship cargo to and from Iran, including transporting crude oil from Iran to another country and transporting refined petroleum products to Iran. Since these policies insure multiple voyages and fleets containing multiple ships, the Company is unable to attribute gross revenues and net profits from such marine policies to these activities involving Iran. The Company intends for its non-U.S. subsidiaries to continue to provide such coverage to the extent permitted by applicable law.

Certain of the Company’s other non-U.S. subsidiaries have policies that provide excess of loss reinsurance coverage for various risks worldwide. In light of EU and U.S. modifications to Iran sanctions this year, including the issuance of General License H, and consistent with General License H, the Company has been notified that one of its cedants provides hull and marine, war and related coverage to a drilling contractor that operates drilling rigs located in offshore Iranian oilfields. As the reinsurance coverage provided to this cedant covers multiple global risks and multiple insureds, the Company is unable to attribute gross revenues and net profits from such policy to these activities involving Iran. The Company intends for its non-U.S. subsidiaries to continue to provide such coverage to the extent permitted by applicable law.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Certain of the information required by this item relating to the executive officers of the Company may be found in Part I, Item 1, “Business.” The balance of the information required by this item is omitted because a definitive proxy statement that involves the election of directors will be filed with the Securities and Exchange Commission not later than 120 days after the close of the fiscal year pursuant to Regulation 14A, which proxy statement is incorporated herein by reference.

Item 11. Executive Compensation

This item is omitted because a definitive proxy statement that involves the election of directors will be filed with the Securities and Exchange Commission not later than 120 days after the close of the fiscal year pursuant to Regulation 14A, which proxy statement is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Shareholder Matters

Equity Compensation Plan Information

The following table displays certain information regarding our equity compensation plans at December 31, 2016:

(Dollars in thousands)	Number of Securities to be Issued Upon Exercise of Outstanding Options and Restricted Stock	Weighted-Average Exercise Price of Outstanding Options	Number of Securities Remaining Available for Future Issuance Under Equity compensation plans
2005 Amended and Restated Long-Term Incentive Plan	2,894,746	$ 23.48	1,251,411
Director Stock Compensation Plan	—		52,104

The balance of the information required by this item is omitted because a definitive proxy statement that involves the election of directors will be filed with the Securities and Exchange Commission not later than 120 days after the close of the fiscal year pursuant to Regulation 14A, which proxy statement is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

This item is omitted because a definitive proxy statement that involves the election of directors will be filed with the Securities and Exchange Commission not later than 120 days after the close of the fiscal year pursuant to Regulation 14A, which proxy statement is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services

This item is omitted because a definitive proxy statement that involves the election of directors will be filed with the Securities and Exchange Commission not later than 120 days after the close of the fiscal year pursuant to Regulation 14A, which proxy statement is incorporated herein by reference.

PART IV

Item 15. Exhibits and Financial Statement Schedules

Financial Statements, Financial Statement Schedules and Exhibits.

(a) Financial Statements and Financial Statement Schedules: See pages F-1 to F-99.

(b) The exhibits numbers followed by an asterisk (*) indicate exhibits physically filed with this Annual Report on Form 10-K. All other exhibit numbers indicate exhibits filed by incorporation by reference.

Exhibit Number	Description of Document
2.1	Stock Purchase Agreement, dated as of June 23, 2014, by and among Western World Insurance Group, Inc., the shareholders of Western World Insurance Group, Inc., Validus Specialty, Inc., Validus Holdings, Ltd. (solely for purposes of Article I, Section 5.08, Section 6.08, Section 9.03 and Article XI), and Andrew S. Frazier (in his capacity as the Sellers' Representative) (Incorporated by reference from the Company's Current Report on Form 8-K filed with the SEC on June 27, 2014)
3.1	Memorandum of Association dated October 10, 2005 (Incorporated by reference from S-1 SEC File No. 333-139989)
3.2	Amended and Restated Bye-laws (Incorporated by reference from S-1 SEC File No. 333-139989)
4.1	Specimen Common Share Certificate (Incorporated by reference from S-1 SEC File No. 333-139989)
4.2	Certificate of Deposit of Memorandum of Increase of Share Capital dated October 28, 2005 (Incorporated by reference from S-1 SEC File No. 333-139989)
4.3	Specimen 5.875% Non-Cumulative Preference Shares, Series A (Incorporated by reference to Exhibit 4.2 from the Company's Current Report on Form 8-K filed on June 13, 2016)
4.4	Certificate of Designations of 5.875% Non-Cumulative Preference Shares, Series A, of Validus Holdings, Ltd. (incorporated by reference from Exhibit 4.1 to the Company's Current Report on Form 8-K filed on June 13, 2016)
4.5	Form of depositary receipt (Incorporated by reference from Exhibit 4.4 to the Company's Current Report on Form 8-K filed on June 13, 2016)
4.6	9.069% Junior Subordinated Deferrable Debentures Indenture dated as of June 15, 2006 (Incorporated by reference from S-1 SEC File No. 333-139989)
4.7	Form of 9.069% Junior Subordinated Deferrable Debentures (Included in Exhibit 4.5 hereto) (Incorporated by reference from S-1 SEC File No. 333-139989)
4.8	First Supplemental Indenture to the 9.069% Junior Subordinated Deferrable Debentures Indenture dated as of September 15, 2006 (Incorporated by reference from S-1 SEC File No. 333-139989)
4.9	8.480% Junior Subordinated Deferrable Debentures Indenture dated as of June 29, 2007 (Incorporated by reference from S-1 SEC File No. 333-139989)
4.10	Form of 8.480% Junior Subordinated Deferrable Debentures (Included in Exhibit 4.8 hereto) (Incorporated by reference from S-1 SEC File No. 333-139989)

4.11	Senior Note Indenture, by and between Validus Holdings, Ltd. and The Bank of New York Mellon, dated January 26, 2010 (Incorporated by reference from the Company’s Current Report on Form 8-K filed with the SEC on January 26, 2010)
4.12	8.875% Senior Notes Supplemental Indenture, by and between Validus Holdings, Ltd. and The Bank of New York Mellon, dated January 26, 2010 (Incorporated by reference from the Company’s Current Report on Form 8-K filed with the SEC on January 26, 2010)
4.13	Form of 8.875% Senior Note (Included in Exhibit 4.10 hereto) (Incorporated by reference from the Company’s Current Report on Form 8-K filed with the SEC on January 26, 2010)
4.14	Junior Subordinated Indenture dated as of August 23, 2006, between Flagstone Reinsurance Holdings Limited and JP Morgan Chase Bank, National Association, as trustee (Incorporated by reference from the Company’s Current Report on Form 8-K filed with the SEC on November 30, 2012)

4.15	First Supplemental Indenture, dated as of May 17, 2010, among Flagstone Reinsurance Holdings, S.A., Flagstone Reinsurance Holdings Limited and The Bank of New York Mellon Trust Company, National Association, as trustee (Incorporated by reference from the Company’s Current Report on Form 8-K filed with the SEC on November 30, 2012)
4.16	Second Supplemental Indenture, dated as of November 30, 2012, among Flagstone Reinsurance Holdings (Bermuda) Limited, Flagstone Reinsurance Holding, S.A. and The Bank of New York Mellon Trust Company, National Association, as trustee (Incorporated by reference from the Company’s Current Report on Form 8-K filed with the SEC on November 30, 2012)
4.17	Third Supplemental Indenture, dated as of November 30, 2012, among Validus UPS, Ltd., Validus Holdings, Ltd. and The Bank of New York Mellon Trust Company, National Association, as trustee (Incorporated by reference from the Company’s Current Report on Form 8-K filed with the SEC on November 30, 2012)
4.18	Fourth Supplemental Indenture dated as of July 13, 2016 between Validus Reinsurance Ltd. and The Bank of New York Mellon Trust Company, National Association (as successor in interest to JPMorgan Chase Bank, National Association), as trustee (Incorporated by reference from the Company’s Quarterly Report on Form 10-Q filed with the SEC on August 5, 2016)
4.19	Junior Subordinated Indenture, dated as of September 20, 2007, between Flagstone Reinsurance Holdings Limited and The Bank of New York Trust Company, National Association, as trustee (Incorporated by reference from the Company’s Current Report on Form 8-K filed with the SEC on November 30, 2012)
4.20	First Supplemental Indenture, dated as of May 17, 2010, among Flagstone Reinsurance Holdings, S.A., Flagstone Reinsurance Holdings Limited and The Bank of New York Mellon Trust Company, National Association, as trustee (Incorporated by reference from the Company’s Current Report on Form 8-K filed with the SEC on November 30, 2012)
4.21	Second Supplemental Indenture, dated as of November 30, 2012, among Flagstone Reinsurance Holdings (Bermuda) Limited, Flagstone Reinsurance Holdings, S.A. and The Bank of New York Mellon Trust Company, National Association, as trustee (Incorporated by reference from the Company’s Current Report on Form 8-K filed with the SEC on November 30, 2012)
4.22	Third Supplemental Indenture, dated as of November 30, 2012, among Flagstone Finance S.A., Validus UPS, Ltd., Validus Holdings, Ltd. and Wilmington Trust Company, as trustee (Incorporated by reference from the Company’s Current Report on Form 8-K filed with the SEC on November 30, 2012)
4.23	Fourth Supplemental Indenture dated as of July 13, 2016 between Validus Reinsurance Ltd. and The Bank of New York Mellon Trust Company, National Association (as successor in interest to The Bank of New York Trust Company, National Association), as trustee (Incorporated by reference from the Company’s Quarterly Report on Form 10-Q filed with the SEC on August 5, 2016)
4.24	Junior Subordinated Indenture, dated as of June 8, 2007, among Flagstone Finance S.A., Flagstone Reinsurance Holdings Limited and Wilmington Trust Company, as trustee (Incorporated by reference from the Company’s Current Report on Form 8-K filed with the SEC on November 30, 2012)
4.25	First Supplemental Indenture, dated as of May 17, 2010, among Flagstone Finance S.A., Flagstone Reinsurance Holdings, S.A. and Wilmington Trust Company, as trustee (Incorporated by reference from the Company’s Current Report on Form 8-K filed with the SEC on November 30, 2012)

4.26	Second Supplemental Indenture, dated as of November 30, 2012, among Flagstone Finance S.A., Flagstone Reinsurance Holdings (Bermuda) Limited, Flagstone Reinsurance Holdings, S.A. and Wilmington Trust Company, as trustee (Incorporated by reference from the Company's Current Report on Form 8-K filed with the SEC on November 30, 2012)
4.27	Third Supplemental Indenture, dated as of November 30, 2012, among Flagstone Finance S.A, Validus UPS, Ltd., Validus Holdings, Ltd. and Wilmington Trust Company, as trustee (Incorporated by reference from the Company's Current Report on Form 8-K filed with the SEC on November 30, 2012)
4.28	Fourth Supplemental Indenture dated as of July 12, 2016 between Validus UPS, Ltd. and Wilmington Trust Company, a Delaware trust company, as trustee (Incorporated by reference from the Company's Quarterly Report on Form 10-Q filed with the SEC on August 5, 2016)
4.29	Fifth Supplemental Indenture dated as of July 13, 2016 between Validus Reinsurance, Ltd. and Wilmington Trust Company, a Delaware trust company, as trustee (Incorporated by reference from the Company's Quarterly Report on Form 10-Q filed with the SEC on August 5, 2016)
4.30	Note Purchase Agreement, dated as of August 23, 2006, between Flagstone Reinsurance Holdings Limited and Merrill Lynch International (Incorporated by reference from the Company's Current Report on Form 8-K filed with the SEC on November 30, 2012)

4.31	Amendment No. 1, dated as of November 30, 2012, to the Note Purchase Agreement, among Flagstone Reinsurance Holding (Bermuda) Limited and the noteholders named therein (Incorporated by reference from the Company's Current Report on Form 8-K filed with the SEC on November 30, 2012)
4.32	Amendment No. 2, dated as of November 30, 2012, to the Note Purchase Agreement, among Validus UPS, Ltd., Validus Holdings, Ltd. and the noteholders named therein (Incorporated by reference from the Company's Current Report on Form 8-K filed with the SEC on November 30, 2012)
4.33	Amendment No. 3 to Note Purchase Agreement dated as of July 13, 2016 between Validus Reinsurance, Ltd. and Validus Holdings, Ltd. as Guarantor and the noteholders named therein (Incorporated by reference from the Company's Quarterly Report on Form 10-Q filed with the SEC on August 5, 2016)
10.1	Five-Year Unsecured Revolving Credit and Letter of Credit Facility, dated as of December 9, 2015, among Validus Holdings, Ltd., Validus Reinsurance, Ltd., the Lenders party thereto, JPMorgan Chase Bank, N.A., as administrative agent for the Lenders and Lloyds Securities Inc., as syndication agent (Incorporated by reference from the Company's Current Report on Form 8-K filed on December 10, 2015)
10.2	Five-Year Secured Letter of Credit Facility, dated as of December 9, 2015, among Validus Holdings, Ltd., Validus Reinsurance, Ltd., the Lenders party thereto, JPMorgan Chase Bank, N.A., as administrative agent for the Lenders and Lloyds Securities Inc., as syndication agent (Incorporated by reference from the Company's Current Report on Form 8-K filed on December 10, 2015)
10.3	Amended and Restated Employment Agreement between Validus Holdings, Ltd. and Lixin Zeng dated as of November 1, 2012 (Incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2012 filed with the SEC on November 6. 2012)
10.3.1	Amendment No.1 to Amended and Restated Employment Agreement between Validus Holdings, Ltd. and Lixin Zeng dated as of March 12, 2015 (Incorporated by reference from the Company's Quarterly Report on Form 10-Q filed on May 8, 2015)
10.4	Amended and Restated Employment Agreement dated as of February 15, 2013 between Validus Holdings, Ltd. and Jeffrey D. Sangster (Incorporated by reference from the Company's Annual Report on Form 10-K for year ended December 31, 2012, filed with the SEC on February 15, 2013).
10.4.1	Amendment to No. 1 to Amended and Restated Employment Agreement between Jeffrey D. Sangster and Validus Holdings, Ltd. dated as of March 12, 2015 (Incorporated by reference from the Company's Quarterly Report on Form 10-Q filed on May 8, 2015)
10.5	Amended and Restated Employment Agreement between Validus Holdings, Ltd. and Edward J. Noonan (Incorporated by reference from S-1 SEC File No. 333-139989)
10.5.1	Amendment No.1 to Amended and Restated Employment Agreement between Validus Holdings, Ltd. and Edward J. Noonan (Incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2008, filed with the SEC on November 13, 2008)
10.5.2	Amendment No. 2 to Amended and Restated Employment Agreement between Edward J. Noonan and Validus Holdings, Ltd. dated as of March 12, 2015 (Incorporated by reference from the Company's Quarterly Report on Form 10-Q filed on May 8, 2015)
10.6	

	Employment Agreement dated as of September 1, 2010 between Validus Holdings, Ltd. and Jonathan P. Ritz. (Incorporated by reference from the Company's Current Report on Form 8-K filed with the SEC on September 8, 2010)
10.6.1	Amendment No. 1 to Employment Agreement between Validus Holdings, Ltd. and Jonathan P. Ritz dated as of October 1, 2010 (Incorporated by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2010, filed with the SEC on February 18, 2011)
10.6.2	Amendment No. 2 to Employment Agreement between Jonathan P. Ritz and Validus America, Inc. dated as of March 12, 2015 (Incorporated by reference from the Company's Quarterly Report on Form 10-Q filed on May 8, 2015)
10.6.3*	Amendment No. 3 to Employment Agreement between Validus America, Inc. and Jonathan P. Ritz dated as of November 3, 2016
10.7 *	Employment Agreement between Talbot Underwriting Services Ltd. and Peter A. Bilsby dated as of March 19, 2013 (as amended on March 1, 2016)
10.8	Amended and Restated Employment Agreement between Validus Holdings, Ltd. and Robert F. Kuzloski dated as of April 1, 2011 (Incorporated by reference from the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2011, filed with the SEC on November 4, 2011)

10.8.1	Amendment No. 1 to Amended and Restated Employment Agreement between Validus Holdings, Ltd. and Robert F. Kuzloski dated as of August 1, 2012 (Incorporated by reference from the Company’s Quarterly Report on Form 10-Q for the period ended September 30, 2012 filed with the SEC on November 6, 2012)
10.8.2	Amendment No. 2 to Amended and Restated Employment Agreement between Robert F. Kuzloski and Validus Holdings, Ltd. dated as of March 12, 2015 (Incorporated by reference from the Company’s Quarterly Report on Form 10-Q filed on May 8, 2015)
10.9	Employment Agreement between Validus Holdings, Ltd. and Andrew Kudera dated as of February 2, 2010 (Incorporated by reference from the Company’s Quarterly Report on Form 10-Q for the period ended September 30, 2011, filed with the SEC on November 4, 2011)
10.9.1	Amendment No. 1 to Employment Agreement between Andrew E. Kudera and Validus Holdings, Ltd. dated as of March 12, 2015 (Incorporated by reference from the Company’s Quarterly Report on Form 10-Q filed on May 8, 2015)
10.10	Employment Agreement dated October 25 2012 between Validus America, Inc. and for purposes of Section 12.04, countersigned by Validus Holdings, Ltd. and John J. Hendrickson (Incorporated by reference from the Company’s Annual Report on Form 10-K for year ended December 31, 2012, filed with the SEC on February 15, 2013)
10.10.1	Amendment No. 1 to Employment Agreement between John J. Hendrickson and Validus America, Inc. dated as of March 12, 2015 (Incorporated by reference from the Company’s Quarterly Report on Form 10-Q filed on May 8, 2015)
10.11	Employment Agreement dated as of April 2, 2013 between Validus America, Inc. and Romel Salam (Incorporated by reference from the Company’s Quarterly Report on Form 10-Q for the period ended March 31, 2013 filed with the SEC on May 6, 2013)
10.11.1	Amendment No. 1 to Employment Agreement between Validus America, Inc. and Romel Salam dated as of May 20, 2014 (Incorporated by reference from the Company’s Quarterly Report on Form 10-Q for the period ended June 30, 2014 filed with the SEC on August 7, 2014)
10.11.2	Amendment No. 2 to Employment Agreement between Romel Salam and Validus America, Inc. dated as of March 12, 2015 (Incorporated by reference from the Company’s Quarterly Report on Form 10-Q filed on May 8, 2015)
10.12	Amended and Restated Employment Agreement dated as of April 30, 2013 between Validus Services (Bermuda), Ltd. and Kean Driscoll (Incorporated by reference from the Company’s Quarterly Report on Form 10-Q for the period ended March 31, 2013 filed with the SEC on May 6, 2013)
10.12.1	Amendment No. 1 to Amended and Restated Employment Agreement between Kean Driscoll and Validus Services (Bermuda) Ltd. dated as of March 12, 2015 (Incorporated by reference from the Company’s Quarterly Report on Form 10-Q filed on May 8, 2015)
10.13	Amended and Restated Employment Agreement dated as of June 1, 2016, between Validus Holdings, Ltd. and Michael Moore (Incorporated by reference from the Company’s Quarterly Report on Form 10-Q filed with the SEC on August 5, 2016)
10.14	

	Amended and Restated Employment Agreement between Validus Holdings, Ltd. and Patrick Boisvert dated as of May 18, 2016 (Incorporated by reference from the Company's Quarterly Report on Form 10-Q filed with the SEC on August 5, 2016)
10.15	Amended and Restated Validus Holdings, Ltd. 2005 Long Term Incentive Plan (As Amended and Restated Effective May 7, 2015) (Incorporated by reference from the Company's Quarterly Report on Form 10-Q filed on November 6, 2015)
10.16	Form of Amended Post-IPO Restricted Share Award Agreement for Validus Executive Officers (Incorporated by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2010, filed with the SEC on February 18, 2011)
10.17	Form of Amended Restricted Share Agreement for Talbot Executive Officers (Incorporated by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2010, filed with the SEC on February 18, 2011)
10.18	Amended and Restated Restricted Share Agreement between Validus Holdings, Ltd. and Edward J. Noonan (Incorporated by reference from S-1 SEC File No. 333-139989)
10.19	Stock Option Agreement between Validus Holdings, Ltd. and Edward J. Noonan (Incorporated by reference from S-1 SEC File No. 333-139989)

10.20		Form of Stock Option Agreement for Executive Officers commencing in 2008 (Incorporated by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2007, filed with the SEC on March 6, 2008)
10.21		Form of Performance Share Award Agreement for Validus Executive Officers (Incorporated by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2010, filed with the SEC on February 18, 2011)
10.22		Form of Performance Share Award Agreement for Talbot Executive Officers (Incorporated by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2010, filed with the SEC on February 18, 2011)
10.23		Nonqualified Supplemental Deferred Compensation Plan (Incorporated by reference from S-1 SEC File No. 333-139989)
10.24		Validus Holdings, Ltd. Director Stock Compensation Plan (Incorporated by reference from S-1 SEC File No. 333-139989)
10.25		Amendment No. 1 to Validus Holdings, Ltd. Directors Stock Compensation Plan dated as of January 5, 2009 (Incorporated by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2008 filed with the SEC on February 27, 2009)
10.26		Subscription Agreement dated as of November 7, 2014 between Aquiline Capital Partners III GP (Offshore) Ltd. and Validus Reinsurance, Ltd. (Incorporated by reference from the Company's Current Report on Form 8-K filed with the SEC on November 7, 2014)
10.27		Form of Amended Restricted Share Award Agreement for Talbot Executive Officers (Incorporated by reference from the Company's Quarterly Report on Form 10-Q filed with the SEC on August 5, 2016)
12	*	Ratio of Earnings to Fixed Charges and Preferred Dividends
21	*	Subsidiaries of the Registrant
23	*	Consent of PricewaterhouseCoopers Ltd.
24		Power of attorney (Incorporated by Reference from signature page)
31	*	Rule 13a-14(a)/15d-14(a) Certifications
32	*	Section 1350 Certification
101.INS	*	XBRL Instance Document
101.SCH	*	XBRL Taxonomy Extension Schema Document
101.CAL	*	XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	*	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	*	XBRL Taxonomy Extension Presentation Linkbase Document

101.DEF * XBRL Taxonomy Extension Definition Linkbase Document
*Filed herewith

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Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized, in Pembroke, Bermuda, on February 23, 2017.

Validus Holdings, Ltd.

By: /s/ EDWARD J. NOONAN
Name: Edward J. Noonan
Title: Chief Executive Officer

By: /s/ JEFFREY D. SANGSTER
Name: Jeffrey D. Sangster
Title: Executive Vice President and Chief Financial Officer

POWER OF ATTORNEY

We, the undersigned directors and executive officers of Validus Holdings, Ltd. hereby severally constitute Edward J. Noonan and Jeffrey D. Sangster, and each of them singly, our true and lawful attorneys with full power to them and each of them to sign for us, and in our names in the capacities indicated below, any and all amendments to the Annual Report on Form 10-K filed with the Securities and Exchange Commission, hereby ratifying and confirming our signatures as they may be signed by our said attorneys to any and all amendments to said Annual Report on Form 10-K.

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, this Annual Report on Form 10-K has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ EDWARD J. NOONAN	Chairman of the Board of Directors	February 23, 2017
Name: Edward J. Noonan	and Chief Executive Officer (Principal Executive Officer)	
/s/ JEFFREY D. SANGSTER	Executive Vice President	February 23, 2017
Name: Jeffrey D. Sangster	and Chief Financial Officer (Principal Finance Officer)	
/s/ PATRICK BOISVERT	Executive Vice President	February 23, 2017
Name: Patrick Boisvert	and Chief Accounting Officer (Principal Accounting Officer)	
/s/ MAHMOUD ABDALLAH	Director	February 23, 2017
Name: Mahmoud Abdallah		
/s/ MICHAEL E. A. CARPENTER	Director	February 23, 2017
Name: Michael E. A. Carpenter		
/s/ MATTHEW J. GRAYSON	Director	February 23, 2017
Name: Matthew J. Grayson		
/s/ JOHN J. HENDRICKSON	Director	February 23, 2017
Name: John J. Hendrickson		
/s/ MANDAKINI PURI	Director	February 23, 2017
Name: Mandakini Puri		
/s/ GAIL ROSS	Director	February 23, 2017
Name: Gail Ross		
/s/ DR. THERESE M. (TERRI) VAUGHAN	Director	February 23, 2017
Name: Dr. Therese M. (Terri) Vaughan		

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS
AND FINANCIAL STATEMENT SCHEDULES

Schedules other than those listed are omitted for the reason that they are not required, are not applicable or that equivalent information has been included in the financial statements, notes thereto, or elsewhere herein.

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of
Validus Holdings, Ltd.
In our opinion, the consolidated financial statements listed in the accompanying index present fairly, in all material respects, the financial position of Validus Holdings, Ltd. and its subsidiaries at December 31, 2016 and December 31, 2015, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2016 in conformity with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statement schedules listed in the accompanying index present fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements and financial statement schedules, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on these financial statements, on the financial statement schedules, and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.
A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.
Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PricewaterhouseCoopers Ltd.
Hamilton, Bermuda
February 23, 2017

PART I. FINANCIAL INFORMATION

ITEM I. FINANCIAL STATEMENTS

Validus Holdings, Ltd.
Consolidated Balance Sheets
As at December 31, 2016 and 2015
(Expressed in thousands of U.S. dollars, except share and per share information)

	December 31, 2016	December 31, 2015
Assets		
Fixed maturities trading, at fair value (amortized cost: 2016—$5,584,599; 2015—$5,556,905)	$5,543,030	$5,510,331
Short-term investments trading, at fair value (amortized cost: 2016—$2,796,358; 2015—$1,941,615)	2,796,170	1,941,635
Other investments, at fair value (cost: 2016—$380,130; 2015—$315,963)	405,712	336,856
Investments in investment affiliates, equity method (cost: 2016—$84,840; 2015—$69,794)	100,431	87,673
Cash and cash equivalents	419,976	723,109
Restricted cash	70,956	73,270
Total investments and cash	9,336,275	8,672,874
Investment in operating affiliate, equity method (cost: 2016—$nil; 2015—$392)	—	392
Premiums receivable	725,390	658,682
Deferred acquisition costs	209,227	181,002
Prepaid reinsurance premiums	77,996	77,992
Securities lending collateral	9,779	4,863
Loss reserves recoverable	430,421	350,586
Paid losses recoverable	35,247	23,071
Income taxes recoverable	4,870	16,228
Deferred tax asset	43,529	21,661
Receivable for investments sold	3,901	39,766
Intangible assets	115,592	121,258
Goodwill	196,758	196,758
Accrued investment income	26,488	23,897
Other assets	134,282	126,782
Total assets	$11,349,755	$10,515,812
Liabilities		
Reserve for losses and loss expenses	$2,995,195	$2,996,567
Unearned premiums	1,076,049	966,210
Reinsurance balances payable	54,781	75,380
Securities lending payable	10,245	5,329
Deferred tax liability	3,331	3,847
Payable for investments purchased	29,447	77,475
Accounts payable and accrued expenses	587,648	627,331
Notes payable to AlphaCat investors	278,202	75,493
Senior notes payable	245,362	245,161
Debentures payable	537,226	537,668
Total liabilities	5,817,486	5,610,461
Commitments and contingent liabilities		
Redeemable noncontrolling interests	1,528,001	1,111,714
Shareholders' equity		

Preferred shares (Issued and Outstanding: 2016—6,000; 2015—nil)	150,000	—
Common shares (Issued: 2016—161,279,976; 2015—160,570,772; Outstanding: 2016—79,132,252; 2015—82,900,617)	28,224	28,100
Treasury shares (2016—82,147,724; 2015—77,670,155)	(14,376)	(13,592)
Additional paid-in capital	821,023	1,002,980
Accumulated other comprehensive loss	(23,216)	(12,569)
Retained earnings	2,876,636	2,634,056
Total shareholders’ equity available to Validus	3,838,291	3,638,975
Noncontrolling interests	165,977	154,662
Total shareholders’ equity	4,004,268	3,793,637
Total liabilities, noncontrolling interests and shareholders’ equity	$11,349,755	$10,515,812

The accompanying notes are an integral part of these Consolidated Financial Statements.

Validus Holdings, Ltd.
Consolidated Statements of Income and Comprehensive Income
For the Years Ended December 31, 2016, 2015 and 2014
(Expressed in thousands of U.S. dollars, except share and per share information)

	December 31, 2016	December 31, 2015	December 31, 2014
Revenues			
Gross premiums written	$ 2,648,705	$ 2,557,506	$ 2,358,865
Reinsurance premiums ceded	(289,705)	(328,681)	(313,208)
Net premiums written	2,359,000	2,228,825	2,045,657
Change in unearned premiums	(109,835)	18,064	(52,602)
Net premiums earned	2,249,165	2,246,889	1,993,055
Net investment income	150,385	127,824	100,086
Net realized gains on investments	15,757	2,298	14,917
Change in net unrealized gains (losses) on investments	16,871	(32,395)	(2,842)
(Loss) income from investment affiliates	(2,083)	4,281	8,411
Other insurance related income and other income	2,195	5,111	1,229
Foreign exchange gains (losses)	10,864	(8,731)	(12,181)
Total revenues	2,443,154	2,345,277	2,102,675
Expenses			
Losses and loss expenses	1,065,097	977,833	765,015
Policy acquisition costs	449,482	410,058	339,467
General and administrative expenses	336,294	363,709	329,362
Share compensation expenses	42,907	38,341	33,073
Finance expenses	58,520	74,742	68,324
Transaction expenses	—	—	8,096
Total expenses	1,952,300	1,864,683	1,543,337
Income before taxes, loss from operating affiliate and (income) attributable to AlphaCat investors	490,854	480,594	559,338
Tax benefit (expense)	19,729	(6,376)	(155)
Loss from operating affiliate	(23)	(3,949)	(4,340)
(Income) attributable to AlphaCat investors	(23,358)	(2,412)	—
Net income	487,202	467,857	554,843
Net (income) attributable to noncontrolling interests	(123,363)	(92,964)	(74,880)
Net income available to Validus	363,839	374,893	479,963
Dividends on preferred shares	(4,455)	—	—
Net income available to Validus common shareholders	$ 359,384	$ 374,893	$ 479,963
Comprehensive income:			
Net income	$ 487,202	$ 467,857	$ 554,843
Other comprehensive (loss) income:			
Change in foreign currency translation adjustments	(10,440)	(3,716)	(7,501)
Change in minimum pension liability, net of tax	(484)	544	(210)
Change in fair value of cash flow hedge	277	(841)	(228)
Other comprehensive (loss), net of tax	(10,647)	(4,013)	(7,939)
Comprehensive (income) attributable to noncontrolling interests	(123,363)	(92,964)	(74,880)
Comprehensive income available to Validus	$ 353,192	$ 370,880	$ 472,024
Earnings per share			
Basic earnings per share available to Validus common shareholders	$ 4.43	$ 4.47	$ 5.24

Earnings per diluted share available to Validus common shareholders	$ 4.36	$ 4.34	$ 5.07
Cash dividends declared per common share	$ 1.40	$ 1.28	$ 1.20
Weighted average number of common shares and common share equivalents outstanding:			
Basic	81,041,974	83,107,236	90,354,745
Diluted	82,359,460	86,426,760	94,690,271

The accompanying notes are an integral part of these Consolidated Financial Statements.

Validus Holdings, Ltd.
Consolidated Statements of Shareholders’ Equity
For the Years Ended December 31, 2016, 2015 and 2014
(Expressed in thousands of U.S. dollars)

	December 31, 2016	December 31, 2015	December 31, 2014
Preferred shares			
Balance - beginning of year	$ —	$ —	$ —
Preferred shares issued	150,000	—	—
Balance - end of year	$ 150,000	$ —	$ —
Common shares			
Balance - beginning of year	$ 28,100	$ 27,222	$ 27,036
Common shares issued, net	124	878	186
Balance - end of year	$ 28,224	$ 28,100	$ 27,222
Treasury shares			
Balance - beginning of year	$ (13,592)	$ (12,545)	$ (10,228)
Repurchase of common shares	(784)	(1,047)	(2,317)
Balance - end of year	$ (14,376)	$ (13,592)	$ (12,545)
Additional paid-in capital			
Balance - beginning of year	$ 1,002,980	$ 1,207,493	$ 1,677,894
Offering expenses on preferred shares	(5,148)	—	—
Common shares (redeemed) issued, net	(7,825)	16,529	5,161
Repurchase of common shares	(211,891)	(259,383)	(508,635)
Share compensation expenses	42,907	38,341	33,073
Balance - end of year	$ 821,023	$ 1,002,980	$ 1,207,493
Accumulated other comprehensive loss			
Balance - beginning of year	$ (12,569)	$ (8,556)	$ (617)
Other comprehensive loss	(10,647)	(4,013)	(7,939)
Balance - end of year	$ (23,216)	$ (12,569)	$ (8,556)
Retained earnings			
Balance - beginning of year	$ 2,634,056	$ 2,372,972	$ 2,010,009
Net income	487,202	467,857	554,843
Net (income) attributable to noncontrolling interests	(123,363)	(92,964)	(74,880)
Dividends on common shares	(116,804)	(113,809)	(117,000)
Dividends on preferred shares	(4,455)	—	—
Balance - end of year	$ 2,876,636	$ 2,634,056	$ 2,372,972
Total shareholders’ equity available to Validus	$ 3,838,291	$ 3,638,975	$ 3,586,586
Noncontrolling interests	$ 165,977	$ 154,662	$ 292,274
Total shareholders’ equity	$ 4,004,268	$ 3,793,637	$ 3,878,860

The accompanying notes are an integral part of these Consolidated Financial Statements.

Validus Holdings, Ltd.
Consolidated Statements of Cash Flows
For the Years Ended December 31, 2016, 2015 and 2014
(Expressed in thousands of U.S. dollars)

	December 31, 2016	December 31, 2015	December 31, 2014
Cash flows provided by (used in) operating activities			
Net income	$ 487,202	$ 467,857	$ 554,843
Adjustments to reconcile net income to cash provided by operating activities:			
Share compensation expenses	42,907	38,341	33,073
Gain on sale of subsidiary	—	—	(709)
Amortization of discount on senior notes	108	108	108
Loss (income) from investment and operating affiliates	2,106	(332)	(4,071)
Net realized and change in net unrealized (gains) losses on investments	(32,628)	30,097	(12,075)
Amortization of intangible assets	5,666	5,666	4,538
Foreign exchange losses included in net income	3,043	18,907	23,591
Amortization of premium on fixed maturity investments	17,961	23,075	19,107
Change in operational balance sheet items:			
Premiums receivable	(76,659)	44,154	22,034
Deferred acquisition costs	(28,225)	(19,980)	(27,131)
Prepaid reinsurance premiums	(4)	4,955	34,443
Loss reserves recoverable	(85,264)	24,659	81,824
Paid losses recoverable	(11,932)	15,111	43,580
Reserve for losses and loss expenses	37,042	(231,345)	(404,280)
Unearned premiums	109,839	(23,019)	18,161
Reinsurance balances payable	(18,487)	(52,785)	(32,262)
Other operational balance sheet items, net	(42,472)	(10,963)	(14,613)
Net cash provided by operating activities	410,203	334,506	340,161
Cash flows provided by (used in) investing activities			
Proceeds on sales of fixed maturity investments	2,671,226	3,842,408	4,756,555
Proceeds on maturities of fixed maturity investments	349,722	332,410	554,619
Purchases of fixed maturity investments	(3,074,703)	(4,225,031)	(4,391,814)
Purchases of short-term investments, net	(856,021)	(436,690)	(329,301)
Purchases of other investments, net	(64,943)	(5,988)	(143,597)
(Increase) decrease in securities lending collateral	(4,916)	(4,393)	2,922
Distributions from operating affiliates	369	46,603	—
Investments in investment affiliates, net	(14,841)	(19,886)	(12,468)
Decrease in restricted cash	2,314	99,733	27,489
Proceeds on sale of subsidiary, net of cash	—	—	16,459
Purchase of subsidiary, net of cash	—	—	(643,545)
Net cash used in investing activities	(991,793)	(370,834)	(162,681)
Cash flows provided by (used in) financing activities			
Net proceeds on issuance of notes payable to AlphaCat investors	296,325	75,493	—
Net proceeds on issuance of preferred shares	144,852	—	—
(Redemption) issuance of common shares, net	(7,701)	17,407	5,347
Purchases of common shares under share repurchase program	(212,675)	(260,430)	(510,952)
Dividends paid on preferred shares	(4,455)	—	—

Dividends paid on common shares	(115,625)	(112,967)	(117,043)
Increase (decrease) in securities lending payable	4,916	4,393	(2,922)
Third party investments in redeemable noncontrolling interests	393,450	499,200	300,200
Third party redemptions of redeemable noncontrolling interests	(17,285)	(86,933)	(13,192)
Third party investments in noncontrolling interests	171,674	9,600	117,243
Third party distributions of noncontrolling interests	(127,103)	(168,758)	(237,183)
Third party subscriptions (deployed) received on AlphaCat Funds and Sidecars	(225,284)	249,636	127,400
Net cash provided by (used in) financing activities	301,089	226,641	(331,102)
Effect of foreign currency rate changes on cash and cash equivalents	(22,632)	(17,605)	(25,310)
Net (decrease) increase in cash and cash equivalents	(303,133)	172,708	(178,932)
Cash and cash equivalents—beginning of year	723,109	550,401	729,333
Cash and cash equivalents—end of year	$ 419,976	$ 723,109	$ 550,401
Supplemental disclosure of cash flow information:			
Taxes paid during the year	$ 6,034	$ 16,050	$ 42,689
Interest paid during the year	$ 54,638	$ 55,047	$ 54,526

The accompanying notes are an integral part of these Consolidated Financial Statements.

Validus Holdings, Ltd.
Notes to Consolidated Financial Statements
(Expressed in thousands of U.S. dollars, except share and per share information)

1. Nature of the business

Validus Holdings, Ltd. (together with its wholly and majority owned subsidiaries, the "Company") was incorporated under the laws of Bermuda on October 19, 2005. The Company provides reinsurance coverage, insurance coverage and insurance linked securities ("ILS") management through four distinct global operating segments, Validus Re, Talbot, Western World, and AlphaCat. Validus Re is a global reinsurance segment focused primarily on treaty reinsurance. Talbot is a specialty insurance segment, primarily operating within the Lloyd's insurance market through Syndicate 1183. Western World is a U.S. based specialty excess and surplus lines insurance segment operating within the U.S. commercial market. AlphaCat is a Bermuda based investment adviser, managing capital for third parties and the Company in ILS and other property catastrophe and specialty reinsurance investments.

2. Basis of preparation and consolidation

These Consolidated Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP"). The Company consolidates in these Consolidated Financial Statements the results of operations and financial position of all voting interest entities ("VOE") in which the Company has a controlling financial interest and all variable interest entities ("VIE") in which the Company is considered to be the primary beneficiary. The consolidation assessment, including the determination as to whether an entity qualifies as a VIE or VOE, depends on the facts and circumstances surrounding each entity.

All significant intercompany accounts and transactions have been eliminated.

The preparation of these financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. While management believes that the amounts included in the Consolidated Financial Statements reflect its best estimates and assumptions, actual results could differ from those estimates. The Company's principal estimates include:

- reserve for losses and loss expenses;
- premium estimates for business written on a line slip or proportional basis;
- the valuation of goodwill and intangible assets;
- reinsurance recoverable balances including the provision for uncollectible amounts; and
- investment valuation of financial assets.

The term "ASC" used in these notes refers to Accounting Standard Codification issued by the United States Financial Accounting Standards Board (the "FASB").

3. Significant accounting policies
The following is a summary of significant accounting policies adopted by the Company.
(a) Premiums
Insurance premiums written are recorded in accordance with the terms of underlying policies. Reinsurance premiums written are recorded at the inception of the policy and are estimated based on information received from brokers, ceding companies and reinsureds, and any subsequent differences arising on such estimates will be recorded in the periods in which they are determined. Premiums written are earned on a pro-rated basis over the term of the policy. For contracts and policies written on a losses occurring basis, the risk period is generally the same as the contract or policy terms. For contracts written on a risks attaching basis, the risk period is based on the terms of the underlying contracts and policies and is generally assumed to be 24 months. The portion of the premiums written applicable to the unexpired terms of the underlying contracts and policies in force is recorded as unearned premiums. Reinstatement premiums are recorded at the time a loss event occurs and coverage limits for the remaining life of the contract are reinstated under predefined contract terms. The accrual of reinstatement premiums is based on our estimate of losses and loss expenses, which reflects management's judgment, as described in Note 3(c), "Reserve for losses and loss expenses" below.
(b) Policy acquisition costs
Policy acquisition costs are costs that vary with, and are directly related to, the successful production of new and renewal business, and consist principally of commissions and brokerage expenses. Acquisition costs are shown net of commissions earned on reinsurance ceded. These costs are deferred and amortized over the periods in which the related premiums are earned. Deferred acquisition costs are limited to their estimated realizable value based on the related unearned premiums and anticipated claims expenses. The realizable value of the Company's deferred acquisition costs is determined without consideration of investment income. Policy acquisition costs also include profit commissions. Profit commissions are recognized on a basis consistent with our estimate of losses and loss expenses.
(c) Reserve for losses and loss expenses
The reserve for losses and loss expenses includes reserves for unpaid reported losses ("case reserves") and for losses incurred but not reported ("IBNR"). Case reserves are established by management based on reports from brokers, ceding companies and insureds and represents the estimated ultimate cost of events or conditions that have been reported to, or specifically identified by, the Company. IBNR reserves are established by management based on actuarially determined estimates of ultimate losses and loss expenses. Inherent in the estimate of ultimate losses and loss expenses are expected trends in claim severity and frequency and other factors which may vary significantly as claims are settled. Accordingly, ultimate losses and loss expenses may differ materially from the amounts recorded in the Consolidated Financial Statements. These estimates are reviewed regularly and, as experience develops and new information becomes known, the reserves are adjusted as necessary. Such adjustments, if any, will be recorded in earnings in the period in which they become known. Prior period development arises from changes to these estimates recognized in the current year that relate to reserves for losses and loss expenses established in previous calendar years.
(d) Reinsurance
In the normal course of business, the Company seeks to reduce the potential amount of loss arising from claims events by reinsuring certain levels of risk assumed in various areas of exposure with other insurers or reinsurers. The accounting for reinsurance ceded depends on the method of reinsurance. If the policy is on a "losses occurring" basis, reinsurance premiums ceded are expensed (and any commissions thereon are earned) on a pro-rata basis over the period the reinsurance coverage is provided. If the policy is a "risks attaching" policy, reinsurance premiums ceded are expensed (and any commissions thereon are earned) in line with the earning of the gross premiums to which the risk attaching policy relates. Prepaid reinsurance premiums represent the portion of premiums ceded applicable to the

unexpired term of policies in force. Mandatory reinstatement premiums ceded are recorded at the time the loss event occurs. Reinsurance recoverables are based on contracts in force at the time of the underlying loss event. The method for determining the reinsurance recoverable on unpaid losses and loss expenses involves the actuarial estimates of unpaid losses and loss expenses as well as a determination of the Company's ability to cede unpaid losses and loss expenses under its reinsurance treaties. The use of different assumptions could have a material effect on the provision for uncollectible reinsurance. To the extent the creditworthiness of the Company's reinsurers was to deteriorate due to adverse events affecting the reinsurance industry, such as a large number of major catastrophes, actual uncollectible amounts could be significantly greater than the Company's provision. Amounts recoverable from reinsurers are estimated in a manner consistent with the underlying liabilities.

(e) Investments

The Company classifies its fixed maturity and short-term investments as trading and accounts for its other investments in accordance with ASC Topic 825 "Financial Instruments." As such, all investments are carried at fair value with interest and dividend income and realized and unrealized gains and losses included in net income for the year.

All investment transactions are recorded on a first-in-first-out basis and realized gains and losses on the sale of investments are determined on the basis of amortized cost (or cost). Interest on fixed maturity securities is recorded in net investment income when earned and includes amortization of premium or accretion of discount.

For mortgage-backed securities, and any other holdings for which there is a prepayment risk, prepayment assumptions are evaluated and revised as necessary. Any adjustments required due to the resultant change in effective yields and maturities are recognized retrospectively. Prepayment fees or call premiums that are only payable to the Company when a security is called prior to its maturity, are earned when received and reflected in net investment income.

Short-term investments primarily comprise of investments with a remaining maturity of less than one year at time of purchase and money market funds held at the Company's investment managers. Certain short-term investments relate to funds held in trust in support of collateralized reinsurance transactions.

Restricted cash primarily relates to funds held in trust for support of collateralized reinsurance transactions.

The fair value of other investments is generally recorded on the basis of the net asset valuation criteria established by the managers of the investments, normally based upon the governing documents of such investments. In addition, due to a lag in reporting, some of the fund managers, fund administrators, or both, are unable to provide final fund valuations as of the Company's reporting date. In these circumstances, the Company estimates the fair value of these funds by starting with the prior month's or prior quarter's fund valuation, adjusting these valuations for capital calls, redemptions or distributions and the impact of changes in foreign currency exchange rates, and then estimating the return for the current period. In circumstances in which the Company estimates the return for the current period, it uses all credible information available. This includes utilizing preliminary estimates reported by its fund managers, obtaining the valuation of underlying portfolio investments where such underlying investments are publicly traded and therefore have a readily observable price, using information that is available to the Company with respect to the underlying investments, reviewing various indices for similar investments or asset classes, as well as estimating returns based on the results of similar types of investments for which the Company has reported results, or other valuation methods, as necessary. Actual final fund valuations may differ, perhaps materially so, from the Company's estimates and these differences are recorded in the period they become known as a change in estimate.

Investments in which the Company has significant influence over the operating and financial policies of the investee are accounted for under the equity method of accounting. Under this method, the Company records its proportionate share of income or loss from such investments in its results for the period.

(f) Fair value of financial instruments

Fair value is defined as the price received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date reflecting the highest and best use valuation concepts. ASC Topic 820 "Fair Value Measurement and Disclosure" provides a framework for measuring fair value by creating a hierarchy of fair value measurements that distinguishes market data between observable independent market inputs and unobservable market assumptions by the reporting entity. The guidance further expands disclosures about such fair value measurements. The guidance applies broadly to most existing accounting pronouncements that require or permit fair value measurements (including both financial and non-financial assets and liabilities) but does not require any new fair value measurements. The Company has adopted all authoritative guidance in effect as of the balance sheet date regarding certain market conditions that allow for fair value measurements that incorporate unobservable inputs where active market transaction based measurements are unavailable.

(g) Derivative instruments

Fair Value Hedges

The Company uses derivative instruments in the form of foreign currency forward exchange contracts to manage foreign currency risk. A foreign currency forward exchange contract involves an obligation to purchase or sell a specified amount of a specified currency at a future date at a price set at the time of the contract. Foreign currency forward exchange contracts will not eliminate fluctuations in the value of our assets and liabilities denominated in foreign currencies but rather allow the Company to establish a rate of exchange for a future point in time. The foreign currency forward exchange contracts are recorded as derivatives at fair value as either assets or liabilities, depending on their rights or obligations, with changes in fair value recorded as a net foreign exchange gain or loss in the Company's Statements of Income and Comprehensive Income.

To qualify for hedge accounting treatment, the derivative must be highly effective in mitigating the designated changes in fair value of the hedged item. The Company formally documents all relationships between designated hedging instruments and hedged items, as well as its risk management objective and strategy for undertaking various hedge transactions. The documentation process includes linking derivatives to specific assets or liabilities on the balance sheet. The Company also formally assesses, both at the hedge's inception and on an ongoing basis, whether the derivatives that are used in hedging transactions are highly effective in offsetting the changes in fair value of the hedged items. The Company assesses the effectiveness of its designated hedges on an individual currency basis. If the ratio obtained with this method is within the range of 80% to 125%, the Company considers the hedge effective.

The Company discontinues hedge accounting prospectively when it is determined that the derivative is no longer highly effective in offsetting changes in the fair value of a hedged item; the derivative is de-designated as a hedging instrument; or the derivative expires or is sold, terminated or exercised. To the extent that the Company discontinues hedge accounting, because, based on management's assessment, the derivative no longer qualifies as an effective hedge, the derivative will continue to be carried in the Consolidated Balance Sheets at its fair value, with changes in its fair value recognized in current period net income through foreign exchange gains (losses).

Cash Flow Hedges

The Company uses derivative instruments in the form of interest rate swaps to manage the interest rate exposure associated with certain assets and liabilities. These derivatives are recorded at fair value. Changes in the fair value of a derivative that is designated and qualifies as a cash flow hedge are recorded in accumulated other comprehensive income ("AOCI") and are reclassified into earnings when the variability of the cash flow of the hedged item impacts earnings. Gains and losses on derivative contracts that are reclassified from AOCI to current period earnings are included in the line item in the Consolidated Statements of Income and Comprehensive Income in which the cash flows of the hedged item are recorded. Any hedge ineffectiveness is recorded immediately in current period earnings.

To qualify for hedge accounting treatment, a derivative must be highly effective in mitigating the designated changes in cash flow of the hedged item. The Company formally documents all relationships between designated hedging instruments and hedged items, as well as its risk management objective and strategy for undertaking various hedge transactions. The documentation process includes linking derivatives to specific assets or liabilities on the balance sheet. The Company also formally assesses, both at the hedge's inception and on an ongoing basis, whether the derivatives that are used in hedging transactions are highly effective in offsetting the changes in cash flows of the hedged items. The Company assesses the effectiveness of its designated hedges on an individual contract basis. The Company currently applies the long haul method when assessing the hedge's effectiveness.

The Company discontinues hedge accounting prospectively when it is determined that the derivative is no longer highly effective in offsetting changes in the cash flows of a hedged item; the derivative is de-designated as a hedging instrument; or the derivative expires or is sold, terminated or exercised. When hedge accounting is discontinued because the Company becomes aware that it is not probable that the forecasted transaction will occur, the derivative continues to be carried on the balance sheet at its fair value, and gains and losses that were included as part of AOCI are reclassified and recognized immediately in earnings.

(h) Cash and cash equivalents

The Company considers time deposits and money market funds with an original maturity of one month or less as equivalent to cash.

(i) Foreign exchange

The U.S. dollar is the functional currency of the Company and the majority of its subsidiaries. For these companies, monetary assets and liabilities denominated in foreign currencies are revalued at the exchange rates in effect at the balance sheet date and revenues and expenses denominated in foreign currencies are translated at the prevailing exchange rate on the transaction date with the resulting foreign exchange gains and losses included in earnings. Non-monetary assets and liabilities denominated in foreign currencies are revalued at the exchange rate in effect at the time of the underlying transaction.

Assets and liabilities of subsidiaries whose functional currency is not the U.S. dollar are translated at prevailing year end exchange rates. Revenue and expenses of such foreign operations are translated at average exchange rates during the year. The net effect of translation differences between functional and reporting currencies in foreign operations, net of applicable deferred income taxes, is included in AOCI.

(j) Stock plans

The Company accounts for its stock plans in accordance with the ASC Topic 718 "Compensation - Stock Compensation." Accordingly, the Company recognizes the compensation expense for stock option grants, restricted share grants and performance share awards based on the fair value of the award on the date of grant over the requisite service period.

(k) Warrants

The Company has accounted for certain warrant contracts issued to our sponsoring investors in conjunction with the capitalization of the Company, and which may be settled by the Company using either the physical settlement or net-share settlement methods, in accordance with ASC Topic 815 "Derivatives and Hedging, Contracts in Entity's Own Equity." Accordingly, the fair value of these warrants has been recorded in equity as an addition to additional paid-in capital.

(l) Earnings per share

Basic earnings per common share is calculated in accordance with ASC Topic 260 "Earnings per Share" by dividing net income available to common shareholders by the weighted average number of common shares outstanding. Earnings per diluted common share are based on the weighted average number of common shares and share equivalents excluding any anti-dilutive effects of warrants, options and other awards under stock plans.

(m) Income taxes and uncertain tax provisions

Deferred tax assets and liabilities are recorded in accordance with ASC Topic 740 "Income Taxes." Consistent with ASC 740, the Company records deferred income taxes which reflect operating losses and tax credits carried forward and the tax effect of the temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and their respective tax bases.

The Company and its Bermuda domiciled subsidiaries are not subject to any income, withholding or capital gains taxes under current Bermuda law. The Company has operating subsidiaries in various other jurisdictions around the world, including but not limited to the U.K., U.S., Switzerland, Luxembourg and Canada that are subject to relevant taxes in those jurisdictions.

The Company recognizes the tax benefits of uncertain tax positions only where the position is more likely than not to be sustained upon examination by tax authorities based upon the technical merits of the position. Based on the more-likely-than-not recognition threshold, we must presume that the tax position will be subject to examination by a taxing authority with full knowledge of all relevant information. If the recognition threshold is met, then the tax position is measured at the largest amount of benefit that is more than 50% likely of being realized upon ultimate settlement. The Company classifies all interest and penalties related to uncertain tax positions in income tax expenses.

(n) Business combinations, goodwill and other intangible assets

The Company accounts for business combinations in accordance with ASC Topic 805 "Business Combinations" and goodwill and other intangible assets that arise from business combinations in accordance with ASC Topic 350 "Intangibles – Goodwill and Other."

A purchase price paid that is in excess of the fair value of the net assets acquired ("goodwill") arising from a business combination is recorded as an asset, and is not amortized. Where the fair value of the net assets acquired exceeds the consideration paid ("negative goodwill"), the acquirer will record a gain as a result of the bargain purchase, to be recognized through the Consolidated Statements of Income and Comprehensive Income at the close of the transaction. Other intangible assets with a finite life are amortized over the estimated useful life of the asset, whereas other intangible assets with an indefinite useful life are not amortized.

Goodwill and other intangible assets are assessed for impairment on an annual basis or more frequently if events or changes in circumstances indicate that it is more likely than not that an impairment exists. Such events or circumstances may include an economic downturn in a geographic market or change in the assessment of future operations. In performing this assessment, the

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Company may first assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount as a basis for determining whether it is necessary to perform the quantitative goodwill impairment test. Similarly, the Company may first assess qualitative factors to determine whether it is more likely than not that an other intangible asset is impaired as a basis for determining whether it is necessary to perform the quantitative impairment test. The factors assessed in making this determination included the overall insurance industry outlook, business strategy, premium rates, earnings sustainability, market capitalization and the regulatory and political environment.

If goodwill or other intangible assets are impaired, they are written down to their fair value with a corresponding expense reflected in the Consolidated Statements of Income and Comprehensive Income.

(n) Variable interest entities

The Company determines whether it has relationships with entities defined as VIEs in accordance with ASC Topic 810 “Consolidation.” A VIE is consolidated by the variable interest holder that is determined to be the primary beneficiary.

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

The primary beneficiary is defined as the variable interest holder that is determined to have the controlling financial interest as a result of having both (a) the power to direct the activities of a VIE that most significantly impact the economic performance of the VIE and (b) the obligation to absorb losses or right to receive benefits from the VIE that could potentially be significant to the VIE. At inception of the VIE, as well as following an event that requires reassessment, the Company determines whether it is the primary beneficiary based on the facts and circumstances surrounding each entity.

(o) Noncontrolling interests

The Company accounts for its noncontrolling interests in accordance with ASC Topic 810 “Consolidation.” Redeemable noncontrolling interests are presented as a mezzanine item, between liabilities and shareholders’ equity, in the Company’s Consolidated Balance Sheet and the non-redeemable noncontrolling interests are presented within shareholders’ equity in the Company’s Consolidated Balance Sheets and Consolidated Statements of Shareholders’ Equity. The net (income) loss attributable to noncontrolling interests is presented separately in the Company’s Consolidated Statements of Income and Comprehensive Income.

4. Recent accounting pronouncements

(a) Accounting Standards Adopted in 2016

In June 2014, the FASB issued Accounting Standard Update ("ASU") No. 2014-12, "Compensation - Stock Compensation (Topic 718) - Accounting for Share-Based Payments When the Terms of an Award Provide That a Performance Target Could Be Achieved after the Requisite Service Period." The amendments in this ASU apply to all reporting entities that grant their employees share-based payments in which the terms of the award provide that a performance target that affects vesting could be achieved after the requisite service period. That is the case when an employee is eligible to retire or otherwise terminate employment before the end of the period in which a performance target (for example, an initial public offering or a profitability target) could be achieved and still be eligible to vest in the award if and when the performance target is achieved. The amendments in this ASU became effective for the Company on January 1, 2016. Adoption of this guidance did not have a material impact on the Company's Consolidated Financial Statements.

In August 2014, the FASB issued ASU 2014-13, "Consolidation (Topic 810) - Measuring the Financial Assets and the Financial Liabilities of a Consolidated Collateralized Financing Entity." The fair value of the financial assets of a collateralized financing entity, as determined under GAAP, may differ from the fair value of its financial liabilities even when the financial liabilities have recourse only to the financial assets. The amendments in this ASU provide an alternative to Topic 820 for measuring the financial assets and the financial liabilities of a consolidated collateralized financing entity to eliminate that difference. The amendments in this ASU became effective for the Company on January 1, 2016. Adoption of this guidance did not have a material impact on the Company's Consolidated Financial Statements.

In August 2014, the FASB issued ASU 2014-15, "Presentation of Financial Statements - Going Concern (Subtopic 205-40) - Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern." The amendments in this ASU require management to assess an entity's ability to continue as a going concern by incorporating and expanding upon certain principles that are currently in U.S. auditing standards. The amendments in this ASU became effective for the Company on January 1, 2016. Adoption of this guidance did not have a material impact on the Company's Consolidated Financial Statements.

In May 2015, the FASB issued ASU 2015-09, "Financial Services - Insurance (Topic 944) - Disclosures about Short-Duration Contracts." The amendments in this ASU enhance annual disclosures relating to reserves for losses and loss expenses by requiring the following: (1) net incurred and paid claims development information by accident year; (2) a reconciliation of incurred and paid claims development information to the aggregate carrying amount of the reserve for losses and loss expenses; (3) for each accident year presented, total IBNR plus expected development on case reserves included in the reserve for losses and loss expenses, accompanied by a description of reserving methodologies and any changes thereto; (4) for each accident year presented, quantitative information about claim frequency (unless impracticable) accompanied by a qualitative description of methodologies used for determining claim frequency information and any changes thereto; and (5) the average annual percentage payout of incurred claims by age for the same number of accident years presented. The amendments in this ASU became effective for the Company on January 1, 2016 and the required annual disclosures have been included in Note 14, "Reserves for Losses and Loss Expenses."

In September 2015, the FASB issued ASU 2015-16, "Business Combinations (Topic 805) - Simplifying the Accounting for Measurement-Period Adjustments." The amendments in this ASU simplify the accounting for adjustments made to provisional amounts recognized in a business combination by eliminating the requirement to retrospectively account for those adjustments. The amendments in this ASU became effective for the Company on January 1, 2016. Adoption of this guidance did not have a material impact on the Company's Consolidated Financial Statements.

(b) Recently Issued Accounting Standards Not Yet Adopted

In May 2014, the FASB issued ASU 2014-09, “Revenue from Contracts with Customers (Topic 606).” The guidance in this ASU affects any entity that either enters into contracts with customers to transfer goods or services or enters into contracts for the transfer of nonfinancial assets, unless those contracts are within the scope of other standards (for example, insurance contracts or lease contracts). The core principle of the guidance is that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In March and April 2016, the FASB issued ASU 2016-08, “Revenue from Contracts with Customers (Topic 606) - Principal versus Agent Considerations (Reporting Revenue Gross versus Net)” and ASU 2016-10, “Revenue from Contracts with Customers (Topic 606) - Identifying Performance Obligations and Licensing.” The amendments in these ASUs clarify the implementation guidance within ASU 2014-09 on principal versus agent considerations and the aspects of identifying performance obligations, respectively, while retaining the related principals in those areas. In May 2016, the FASB issued ASU 2016-12, “Revenue from Contracts with Customers (Topic 606) - Narrow-Scope Improvements and Practical Expedients.” The amendments in this ASU do not change the core principle of the guidance in Topic 606. Rather, the amendments provide clarifying guidance in a few narrow areas and add practical expedients to reduce the potential for diversity in practice as well as the cost and complexity of applying the guidance. In December 2016, the FASB issued ASU 2016-20, “Technical Corrections and Improvements to Topic 606 - Revenue from Contracts with Customers.” The amendments in this ASU affect narrow aspects of the guidance issued in ASU 2014-09. The original effective date for the amendments in ASU 2014-09 was for annual reporting periods beginning after December 15, 2016; however, in August 2015, the FASB delayed the effective date by one year through the issuance of ASU 2015-14, “Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date.” As such, the new effective date is for interim and annual reporting periods beginning after December 15, 2017. Entities may adopt the standard as of the original effective date; however, earlier adoption is not permitted.

The Company has evaluated this guidance and determined it will likely impact the timing of when performance fees are recognized by AlphaCat Managers Ltd. (“AlphaCat Managers”). Currently, performance fees are recognized by AlphaCat Managers monthly, on a seasonal basis, in line with the underlying insurance contracts of the ILS it manages. However, upon adoption, performance fees will only be recognized when it’s probable that a significant reversal of the amount of cumulative revenue recognized will not occur. While performance fees are variable and dependent on the results of the AlphaCat sidecars and higher risk ILS funds, the impact on the results of the Company would not be material. The Company plans to adopt this guidance on January 1, 2018.

In January 2016, the FASB issued ASU 2016-01, “Financial Instruments - Overall (Subtopic 825-10) - Recognition and measurement of financial assets and financial liabilities.” The amendments in this ASU address certain aspects of recognition, measurement and disclosure of financial instruments and are effective for interim and annual reporting periods beginning after December 15, 2017. Early adoption is not permitted. The Company has evaluated the impact of this guidance and it will not have a material impact on the Company’s Consolidated Financial Statements. The Company plans to adopt this guidance on January 1, 2018.

In February 2016, the FASB issued ASU 2016-02, “Leases (Topic 842).” The amendments in this ASU increase the transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and requiring the disclosure of key information about leasing arrangements. The amendments in this ASU are effective for interim and annual reporting periods beginning after December 15, 2018. Early adoption is permitted. Upon adoption, the Company expects to report higher assets and liabilities as a result of recognizing lease assets and liabilities on the Consolidated Balance Sheet. The Company does not expect the new guidance to have a significant impact on the Consolidated Financial Statements. The Company plans to adopt this guidance on January 1, 2019.

In March 2016, the FASB issued ASU 2016-07, “Investments-Equity Method and Joint Ventures (Topic 323) - Simplifying the Transition to the Equity Method of Accounting.” The amendments in this ASU eliminate the requirement to retroactively adopt the equity method of accounting when an investment becomes qualified for the equity method of accounting as a result of an increase in the level of ownership interest or degree of influence. The amendments in this ASU are effective for interim and annual reporting periods beginning after December 15, 2016. Early adoption is permitted. The Company has evaluated the impact of this guidance and it will not have a material impact on the Company’s Consolidated Financial Statements. The Company plans to adopt this guidance on January 1, 2017.

In March 2016, the FASB issued ASU 2016-09, “Compensation-Stock Compensation (Topic 718) - Improvements to Employee Share-Based Payment Accounting.” The amendments in this ASU simplify several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities and classification on the statement of cash flows. The amendments in this ASU are effective for interim and annual reporting periods beginning after December 15, 2016. Early adoption is permitted. The Company has evaluated the impact of this guidance and it will not have a material impact on the Company’s Consolidated Financial Statements. The Company plans to adopt this guidance on January 1, 2017.

In June 2016, the FASB issued ASU 2016-13, “Financial Instruments - Credit Losses (Topic 326).” The new guidance introduces an approach based on expected losses to estimate credit losses on certain types of financial instruments. It also modifies the impairment model for available-for-sale debt securities and provides for a simplified accounting model for purchased financial assets with credit deterioration since their origination. This guidance is effective for annual periods beginning after December 15, 2019, and interim periods within those fiscal years. Early adoption is permitted for annual periods beginning after December 15, 2018, and interim periods within those fiscal years. This ASU also impacts the assessment of the recoverability of the Company’s reinsurance balances recoverable. The Company evaluates the financial condition of its reinsurers and monitors concentration of credit risk arising from its exposure to individual reinsurers. The reinsurance program is generally placed with reinsurers whose rating, at the time of placement, was A- or better as rated by Standard & Poor's or the equivalent with other rating agencies. As at December 31, 2016, 99.1% of the Company's total reinsurance balances recoverable were either fully collateralized or recoverable from reinsurers rated A- or better. As a result, the Company does not expect the new guidance to have a material impact on the Company's Consolidated Financial Statements. The Company plans to adopt this guidance on January 1, 2020.

In August 2016, the FASB issued ASU 2016-15, "Statement of Cash Flows (Topic 230) - Classification of Certain Cash Receipts and Cash Payments." This ASU is directed at reducing diversity in practice and addresses eight specific issues in how certain cash receipts and cash payments are presented and classified in the statement of cash flows. The ASU is effective for fiscal periods beginning after December 15, 2017, and interim periods within those fiscal years. Early adoption is permitted, including adoption in an interim period. Any adjustments should be reflected as of the beginning of the fiscal year that includes that interim period. An entity that elects early adoption must adopt all of the amendments in the same period. The amendments in this ASU should be applied using a retrospective transition method to each period presented. If it is impracticable to apply the amendments retrospectively for some of the issues, the amendments for those issues would be applied prospectively as of the earliest date practicable. The Company has evaluated the impact of this guidance and it will not have a material impact on the Company's Consolidated Financial Statements. The Company plans to adopt this guidance on January 1, 2018.

In October 2016, the FASB issued ASU 2016-16, "Income Taxes (Topic 740) - Intra-Entity Transfers of Assets Other Than Inventory." This ASU aims to improve the accounting for the income tax consequences of intra-entity transfers of assets other than inventory. Current U.S. GAAP prohibits the recognition of current and deferred income taxes for an intra-entity asset transfer until the asset has been sold to an outside party. The ASU states that an entity should recognize the income tax consequences of an intra-entity transfer of an asset, other than inventory, when the transfer occurs. The ASU does not include new disclosure requirements; however, existing disclosure requirements might be applicable when accounting for the current and deferred income taxes for an intra-entity transfer of an asset other than inventory. The ASU is effective for fiscal periods beginning after December 15, 2017, and interim periods within those fiscal years. Early adoption is permitted for all entities as of the beginning of an annual reporting period for which financial statements (interim or annual) have not been issued or made available for issuance. That is, earlier adoption should be in the first interim period if an entity issues interim financial statements. The Company has evaluated the impact of this guidance and determined that it will not have a material impact on the Company's Consolidated Financial Statements. The Company plans to adopt this guidance on January 1, 2018.

In October 2016, the FASB issued ASU 2016-17, "Consolidation (Topic 810) - Interests Held Through Related Parties That Are Under Common Control." The amendments in this ASU do not change the characteristics of a primary beneficiary in current U.S. GAAP. Rather, the ASU requires that a reporting entity, in determining whether it satisfies the second characteristic of a primary beneficiary, include all of its direct variable interests in a VIE and, on a proportionate basis, its indirect variable interests in a VIE held through related parties, including related parties that are under common control with the reporting entity. The ASU is effective for public business entities for fiscal years beginning after December 15, 2016, including interim periods within those fiscal years. Early adoption is permitted, including adoption in an interim period. If an entity early adopts the amendments in an interim period, any adjustments should be reflected as of the beginning of the fiscal year that includes that interim period. Entities that already have adopted ASU 2015-02 are required to apply the amendments in this ASU retrospectively to all relevant prior periods beginning with the fiscal year in which ASU 2015-02 initially were applied. The Company has evaluated the impact of this guidance and it will not have a material impact on the Company's Consolidated Financial Statements.The Company plans to adopt this guidance on January 1, 2017.

In November 2016, the FASB issued ASU 2016-18, “Statement of Cash Flows (Topic 230) - Restricted Cash.” This ASU is directed at reducing diversity that exists in the classification and presentation of changes in restricted cash on the statement of cash flows. The ASU is effective for fiscal periods beginning after December 15, 2017, and interim periods within those fiscal years. Early adoption is permitted, including adoption in an interim period. Any adjustments should be reflected as of the beginning of the fiscal year that includes that interim period. The amendments in this ASU should be applied using a retrospective transition method to each period presented. The Company has evaluated the impact of this guidance and determined that it will not have a material impact on the Company’s Consolidated Financial Statements. The Company plans to adopt this guidance on January 1, 2018.

In January 2017, the FASB issued ASU 2017-01, “Business Combinations (Topic 805) - Clarifying the Definition of a Business.” The amendments in this ASU clarify the definition of a business with the objective of adding guidance to assist entities with evaluating whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. This ASU is effective for fiscal periods beginning after December 15, 2017, and interim periods within those fiscal years. The amendments in this ASU should be applied prospectively on or after the effective date. No disclosures are required at transition and early application is allowed in certain situations. The Company has evaluated the impact of this guidance and determined that it will not have a material impact on the Company's Consolidated Financial Statements. The Company plans to adopt this ASU on January 1, 2018.

In January 2017, the FASB issued ASU 2017-04, "Intangibles - Goodwill and Other (Topic 350)." The amendments in this ASU simplify the subsequent measurement of goodwill by eliminating Step 2 from the goodwill impairment test. Under this ASU, an entity would perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An entity should recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. Additionally, an entity should consider income tax effects from any tax deductible goodwill on the carrying amount of the reporting unit when measuring the goodwill impairment loss, if applicable. This ASU is effective for annual or any interim goodwill impairment tests in fiscal years beginning after December 15, 2019. The Company completed its qualitative assessments for impairment of both goodwill and other intangible assets and concluded that there had been no impairment as at December 31, 2016. The Company has evaluated the impact of this guidance and determined that it will not have a material impact on the Company's Consolidated Financial Statements. The Company plans to adopt this ASU on January 1, 2020.

(Expressed in thousands of U.S. dollars, except share and per share information)

5. Business combination

Western World Insurance Group, Inc.

On October 2, 2014, Validus Specialty, Inc., a wholly owned subsidiary of the Company, acquired all of the issued and outstanding capital stock of Western World for an aggregate purchase price of $692,305 in cash. The Western World acquisition was undertaken to enhance the Company's access to the specialty U.S. commercial insurance market. Additional factors that added to the value of Western World included its State Licenses, Brand Name, Distribution Network and Technology. These factors resulted in a market value greater than the value of net tangible and intangible assets which resulted in the recognition of goodwill. This goodwill is reflective of the strategic benefits that a U.S. based insurer can provide to the Company.

For reporting purposes, the results of Western World's operations have been included in the Consolidated Financial Statements as a separate segment from the acquisition date.

The estimates of fair values for tangible and intangible assets acquired and liabilities assumed were determined by management based on various market and income analyses. Significant judgment was required to arrive at these estimates of fair value and changes to assumptions used could have led to materially different results.

The fair value of net assets acquired, including pro forma U.S. GAAP adjustments, are summarized as follows:

Total purchase price		$692,305
Assets acquired		
Cash and cash equivalents	$48,760	
Investments	1,126,185	
Receivables	37,848	
Other assets	19,418	
Tangible assets acquired		1,232,211
Intangible asset - State licenses	$12,325	
Intangible asset - Brand name	5,756	
Intangible asset - Distribution network	4,651	
Intangible asset - Technology	2,323	
Intangible assets acquired		$25,055
Liabilities acquired		
Net loss reserves and paid losses recoverable	$523,315	
Unearned premiums, net of expenses	135,686	
Other liabilities	81,464	
Liabilities acquired		740,465
Excess purchase price (goodwill) as at December 31, 2014		$175,504
Measurement period adjustments [(a)]		861
Excess purchase price (goodwill) as at December 31, 2015		$176,365

(a) During the year ended December 31, 2015, measurement period adjustments of $861 were made to certain other assets, net of taxes.

For details on the intangible assets acquired, refer to Note 6, "Goodwill and other intangible assets."

The Company also incurred transaction expenses related to the Western World acquisition. Transaction expenses included legal, financial advisory and audit related services.

Supplemental Pro Forma Information

Operating results of Western World have been included in the Consolidated Financial Statements from the October 2, 2014 acquisition date. The following selected unaudited pro forma financial information has been provided to present a summary of the combined results of the Company and Western World, assuming the transaction had been effected on January 1, 2014.

The unaudited pro forma data is for informational purposes only and does not necessarily represent results that would have occurred if the transaction had taken place on the basis assumed above.

(Dollars in thousands)	Year Ended December 31, 2014 Unaudited
Net premiums earned	$2,216,349
Net operating income	$481,179
Net income	$448,071

The following selected audited information has been provided to present a summary of the results of Western World that have been included in the Consolidated Financial Statements for the year ended December 31, 2014.

(Dollars in thousands)	From Acquisition Date to December 31, 2014
Net premiums written	$ 58,807
Total revenue	78,325
Total expenses	(66,882)
Net income	$ 11,443

(Expressed in thousands of U.S. dollars, except share and per share information)

6. Goodwill and other intangible assets

The following table presents a reconciliation of the beginning and ending goodwill and other intangible assets for the years ended December 31, 2016 and 2015:

	Year Ended December 31, 2016					
	Goodwill			Other Intangible Assets		
	Talbot	Western World	Total	With a Finite Life	With an Indefinite Life	Total
Balance, beginning of year	$20,393	$176,365	$196,758	$17,090	$104,168	$121,258
Amortization	—	—	—	(5,666)	—	(5,666)
Balance, end of year	$20,393	$176,365	$196,758	$11,424	$104,168	$115,592

	Year Ended December 31, 2015					
	Goodwill			Other Intangible Assets		
	Talbot	Western World	Total	With a Finite Life	With an Indefinite Life	Total
Balance, beginning of year	$20,393	$175,504	$195,897	$22,756	$104,168	$126,924
Amortization	—	—	—	(5,666)	—	(5,666)
Measurement period adjustments	—	861	861	—	—	—
Balance, end of year	$20,393	$176,365	$196,758	$17,090	$104,168	$121,258

Goodwill relates to the Company’s 2007 acquisition of Talbot and 2014 acquisition of Western World. As at December 31, 2016 and 2015, the total amount of carried goodwill was $196,758. During the year ended December 31, 2015, measurement period adjustments of $861 were made to certain other assets, net of taxes, for Western World.

Other intangible assets with a finite life includes the distribution network, technology, trade name and customer relationships related to the Company’s acquisitions of Talbot and Western World. These assets are amortized on a straight-line basis over a period ranging from 5 to 10 years. Amortization expense associated with these assets for the years ended December 31, 2016, 2015 and 2014 was $5,666, $5,666 and $4,538, respectively.

Other intangible assets with an indefinite life consist of U.S. state licenses that provide a legal right to transact business indefinitely which were acquired with the Company’s acquisition of Western World, along with Lloyd’s Syndicate capacity related to the Company’s acquisition of Talbot.

The Company completed its qualitative assessments for impairment of both goodwill and other intangible assets and concluded that there had been no impairment as at December 31, 2016 and 2015.

(Expressed in thousands of U.S. dollars, except share and per share information)

The gross carrying value, accumulated amortization and net carrying value of other intangible assets by type as at December 31, 2016 and 2015 were as follows:

	December 31, 2016			December 31, 2015		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Other intangible assets with a finite life						
Trade name and customer relationships	$18,189	$ (13,406)	$4,783	$18,189	$ (12,187)	$6,002
Distribution network	39,831	(34,468)	5,363	39,831	(30,485)	9,346
Technology	2,323	(1,045)	1,278	2,323	(581)	1,742
Total	$60,343	$ (48,919)	$11,424	$60,343	$ (43,253)	$17,090
Other intangible assets with an indefinite life						
Syndicate capacity	$91,843	n/a	$91,843	$91,843	n/a	$91,843
State licenses	12,325	n/a	12,325	12,325	n/a	12,325
Total	$104,168		$104,168	$104,168		$104,168

The estimated remaining amortization expense for the Company's other intangible assets with a finite life is as follows:

	Total Remaining Amortization Expense
2017	$ 3,585
2018	1,505
2019	1,389
2020	1,041
2021	1,041
2022 and thereafter	2,863
	$ 11,424

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7. Investments
Managed investments represent assets governed by the Company's investment policy statement ("IPS") whereas, non-managed investments represent assets held in support of consolidated AlphaCat VIEs which are not governed by the Company's IPS. Refer to Note 9, "Variable interest entities," for further details.
The amortized cost (or cost) and fair value of the Company's investments as at December 31, 2016 and 2015 were as follows:

	December 31, 2016		December 31, 2015	
	Amortized Cost or Cost	Fair Value	Amortized Cost or Cost	Fair Value
Managed investments				
U.S. government and government agency	$809,392	$804,126	$940,428	$937,202
Non-U.S. government and government agency	245,651	240,791	241,549	237,968
U.S. states, municipalities and political subdivisions	271,742	271,830	299,929	301,289
Agency residential mortgage-backed securities	684,490	679,595	606,676	610,582
Non-agency residential mortgage-backed securities	15,858	15,477	27,025	26,920
U.S. corporate	1,540,036	1,534,508	1,503,614	1,489,951
Non-U.S. corporate	418,520	410,227	453,178	446,570
Bank loans	579,121	570,399	592,981	576,211
Asset-backed securities	528,563	526,814	440,363	437,124
Commercial mortgage-backed securities	333,740	330,932	263,310	260,135
Total fixed maturities	5,427,113	5,384,699	5,369,053	5,323,952
Short-term investments	228,574	228,386	237,349	237,369
Other investments				
Fund of hedge funds	1,457	955	1,457	1,417
Hedge funds	11,292	17,381	14,018	20,980
Private equity investments	72,814	89,809	53,489	63,771
Fixed income investment funds	241,536	242,093	188,121	188,721
Overseas deposits	50,106	50,106	54,484	54,484
Mutual funds	2,925	5,368	4,394	7,483
Total other investments	380,130	405,712	315,963	336,856
Investments in investment affiliates (a)	84,840	100,431	69,794	87,673
Total managed investments	$6,120,657	$6,119,228	$5,992,159	$5,985,850
Non-managed investments				
Catastrophe bonds	$157,486	$158,331	$187,847	$186,379
Short-term investments	2,567,784	2,567,784	1,704,266	1,704,266
Total non-managed investments	2,725,270	2,726,115	1,892,113	1,890,645
Total investments	$8,845,927	$8,845,343	$7,884,272	$7,876,495

(a) The Company's investments in investment affiliates have been treated as equity method investments with the corresponding gains and losses recorded in
income as "Income (loss) from investment affiliates."

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(a) Fixed maturity investments
The following table sets forth certain information regarding the investment ratings of the Company's fixed maturity investments as at December 31, 2016 and 2015:

	December 31, 2016		December 31, 2015	
	Fair Value	% of Total	Fair Value	% of Total
Managed fixed maturities				
AAA	$2,405,597	43.4 %	$2,367,642	43.0 %
AA	538,289	9.7 %	569,386	10.3 %
A	1,081,949	19.5 %	1,031,326	18.7 %
BBB	740,861	13.4 %	691,538	12.6 %
Total investment grade managed fixed maturities	4,766,696	86.0 %	4,659,892	84.6 %
BB	213,568	3.9 %	235,724	4.3 %
B	177,737	3.2 %	179,069	3.2 %
CCC	13,371	0.2 %	5,706	0.1 %
CC	—	0.0 %	1,015	0.0 %
NR	213,327	3.8 %	242,546	4.4 %
Total non-investment grade managed fixed maturities	618,003	11.1 %	664,060	12.0 %
Total managed fixed maturities	$5,384,699	97.1 %	$5,323,952	96.6 %
Non-managed fixed maturities				
BBB	$—	0.0 %	$1,911	0.0 %
Total investment grade non-managed catastrophe bonds	—	0.0 %	1,911	0.0 %
BB	29,731	0.6 %	70,962	1.3 %
B	4,524	0.1 %	30,698	0.6 %
NR	124,076	2.2 %	82,808	1.5 %
Total non-investment grade non-managed catastrophe bonds	158,331	2.9 %	184,468	3.4 %
Total non-managed fixed maturities	158,331	2.9 %	186,379	3.4 %
Total fixed maturities	$5,543,030	100.0 %	$5,510,331	100.0 %

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The amortized cost and estimated fair value amounts for the Company's fixed maturity investments held at December 31, 2016 and 2015 are shown below by contractual maturity. Actual maturity may differ from contractual maturity because certain borrowers may have the right to call or prepay certain obligations with or without call or prepayment penalties.

	December 31, 2016		December 31, 2015	
	Amortized Cost	Fair Value	Amortized Cost	Fair Value
Managed fixed maturities				
Due in one year or less	$350,733	$346,161	$367,132	$366,019
Due after one year through five years	2,954,856	2,933,146	2,965,920	2,936,053
Due after five years through ten years	430,365	426,647	548,183	539,083
Due after ten years	128,508	125,927	150,444	148,036
	3,864,462	3,831,881	4,031,679	3,989,191
Asset-backed and mortgage-backed securities	1,562,651	1,552,818	1,337,374	1,334,761
Total managed fixed maturities	$5,427,113	$5,384,699	$5,369,053	$5,323,952
Non-managed catastrophe bonds				
Due in one year or less	$43,664	$45,418	$7,504	$7,544
Due after one year through five years	112,572	111,656	165,093	163,575
Due after five years through ten years	1,250	1,257	15,250	15,260
Due after ten years	—	—	—	—
Total non-managed fixed maturities	157,486	158,331	187,847	186,379
Total fixed maturities	$5,584,599	$5,543,030	$5,556,900	$5,510,331

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(b) Other investments
The following tables set forth certain information regarding the Company's other investments as at December 31, 2016 and 2015:

	December 31, 2016				
	Fair Value	Investments with redemption restrictions	Investments without redemption restrictions	Redemption frequency (a)	Redemption notice period (a)
Fund of hedge funds	$955	$ 955	$ —		
Hedge funds	17,381	17,381	—		
Private equity investments	89,809	89,809	—		
Fixed income investment funds	242,093	211,151	30,942	Daily	2 days
Overseas deposits	50,106	50,106	—		
Mutual funds	5,368	—	5,368	Daily	Daily
Total other investments	$405,712	$ 369,402	$ 36,310		

	December 31, 2015				
	Fair Value	Investments with redemption restrictions	Investments without redemption restrictions	Redemption frequency (a)	Redemption notice period (a)
Fund of hedge funds	$1,417	$ 1,417	$ —		
Hedge funds	20,980	20,980	—		
Private equity investments	63,771	63,771	—		
Fixed income investment funds	188,721	167,910	20,811	Daily	2 days
Overseas deposits	54,484	54,484	—		
Mutual funds	7,483	—	7,483	Daily	Daily
Total other investments	$336,856	$ 308,562	$ 28,294		

(a) The redemption frequency and notice periods only apply to investments without redemption restrictions.

Other investments include alternative investments in various funds and pooled investment schemes. These alternative investments employ various investment strategies primarily involving, but not limited to, investments in collateralized obligations, fixed income securities, private equities, distressed debt and equity securities.

Certain securities included in other investments are subject to redemption restrictions and are unable to be redeemed from the funds. Distributions from these funds will be received as the underlying investments of the funds are liquidated. Currently, it is not known to the Company when these underlying assets will be sold by their investment managers; however, it is estimated that the majority of the underlying assets of the investments would liquidate over five to ten years from inception of the funds. In addition, one of the fixed income investment funds with a fair value of $184,749 (December 31, 2015: $167,910), has a lock-up period of three years as at December 31, 2016 and may also impose a redemption gate. A lock-up period refers to the initial amount of time an investor is contractually required to remain invested before having the ability to redeem. Typically, the imposition of a gate delays a portion of the requested redemption, with the remaining portion settled in cash shortly after the redemption date. Furthermore, the underlying investments held in the overseas deposit funds are liquid and will generally trade freely in an open market. However, the Company's ability to withdraw from the overseas deposit funds is restricted by an annual and quarterly, funding and release process for Lloyd’s market participants.

The Company’s maximum exposure to any of these alternative investments is limited to the invested amounts and any remaining capital commitments. Refer to Note 23, “Commitments and contingencies,” for further details. As at December 31, 2016, the Company does not have any plans to sell any of the other investments listed above.

(c) Investments in investment affiliates

Aquiline Financial Services Fund II L.P.

On December 20, 2011, the Company entered into an Assignment and Assumption Agreement (the "Agreement") with Aquiline Capital Partners LLC, a Delaware limited liability company (the "Assignor") and Aquiline Capital Partners II GP (Offshore) Ltd., a Cayman Islands company limited by shares (the "Aquiline II General Partner") pursuant to which the Company has assumed 100% of the Assignor's interest in Aquiline Financial Services Fund II L.P. (the "Aquiline II Partnership") representing a total capital commitment of $50,000 (the "Aquiline II Commitment"), as a limited partner in the Partnership (the "Transferred Interest"). The Transferred Interest is governed by the terms of an Amended and Restated Exempted Limited Partnership Agreement of the Fund.

On October 2, 2014, the Company assumed an additional investment in the Aquiline II Partnership as part of the Western World acquisition representing a total capital commitment of $10,000. This interest is also governed by the terms of the Aquiline II Limited Partnership Agreement.

The Aquiline II Partnership is a VIE and the Company is not the primary beneficiary. Therefore, the Company's investment in the Aquiline II Partnership has been treated as an equity method investment. The Aquiline II Partnership provides a quarterly capital account statement, with a three month delay in its valuation, which was used as the basis for calculating the Company's share of partnership income for the period.

In accordance with the terms of the Agreement, no limited partner has the right to withdraw from the Aquiline II Partnership or to withdraw any part of its capital account without prior consent from the Aquiline II General Partner. The Company's maximum exposure to the Aquiline II Partnership is limited to the amount invested and any remaining capital commitment. Refer to Note 23, "Commitments and contingencies," for further details.

Aquiline Financial Services Fund III L.P.

On November 7, 2014, the Company, entered into a Subscription Agreement (the "Subscription Agreement") with Aquiline Capital Partners III GP (Offshore) Ltd., a Cayman Islands company limited by shares (the "Aquiline III General Partner") pursuant to which the Company committed and agreed to purchase limited partnership or other comparable limited liability equity interests (the "Limited Partnership Interests") in Aquiline Financial Services Fund III L.P., a Cayman Islands exempted limited partnership (the "Aquiline III Partnership"), and/or one or more Alternative Investment Vehicles and Intermediate Entities (together with the Aquiline III Partnership, the "Fund" or the "Entities") with a capital commitment (the "Aquiline III Commitment") in an amount equal to $100,000, as a limited partner in the Aquiline III Partnership. The Limited Partnership Interests are governed by the terms of an Amended and Restated Exempted Limited Partnership Agreement.

The Aquiline III Partnership is a VIE and the Company is not the primary beneficiary. Therefore, the Company's investment in the Aquiline III Partnership has been treated as an equity method investment. The Aquiline III Partnership provides a quarterly capital account statement, with a three month delay in its valuation, which was used as the basis for calculating the Company's share of partnership income for the period.

In accordance with the terms of the Agreement, no limited partner has the right to withdraw from the Aquiline III Partnership or to withdraw any part of its capital account without prior consent from the Aquiline III General Partner. The Company's maximum exposure to the Aquiline III Partnership is limited to the amount invested and any remaining capital commitment. Refer to Note 23, "Commitments and contingencies," for further details.

(Expressed in thousands of U.S. dollars, except share and per share information)

The following table presents a reconciliation of the Company's beginning and ending investments in investment affiliates for the years ended December 31, 2016 and 2015:

	Years Ended December 31,	
	2016	2015
Investment affiliates, beginning of year	$87,673	$63,506
Net capital contributions	14,841	19,886
(Loss) income from investment affiliate	(2,083)	4,281
Investment affiliates, end of year	$100,431	$87,673

The following table presents the Company's investments in the partnerships as at December 31, 2016 and 2015:

	December 31, 2016			
	Investment at cost	Voting ownership %	Equity ownership %	Carrying value
Aquiline II Partnership	$46,871	—%	8.1 %	$61,999
Aquiline III Partnership	37,969	—%	9.0 %	38,432
Total	$84,840			$100,431

	December 31, 2015			
	Investment at cost	Voting ownership %	Equity ownership %	Carrying value
Aquiline II Partnership	$55,904	—%	8.1 %	$73,880
Aquiline III Partnership	13,890	—%	13.7 %	13,793
Total	$69,794			$87,673

(d) Net investment income

Net investment income was derived from the following sources:

	Years Ended December 31,		
	2016	2015	2014
Managed investments			
Fixed maturities and short-term investments	$119,085	$113,627	$93,044
Other investments	27,860	13,307	5,111
Cash and cash equivalents and restricted cash	2,939	1,911	5,106
Securities lending income	55	16	11
Total gross investment income	149,939	128,861	103,272
Investment expenses	(8,221)	(7,695)	(7,472)
Total managed net investment income	$141,718	$121,166	$95,800
Non managed investments			
Fixed maturities and short-term investments	$6,931	$6,528	$4,204
Cash and cash equivalents and restricted cash	1,736	130	82
Total non-managed net investment income	8,667	6,658	4,286
Total net investment income	$150,385	$127,824	$100,086

Net investment income from other investments includes distributed and undistributed net income from certain fixed income investment funds.

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(e) Net realized gains and change in net unrealized gains (losses) on investments

The following table sets forth an analysis of net realized gains and the change in net unrealized gains (losses) on investments:

	Years Ended December 31,		
	2016	2015	2014
Managed fixed maturities, short-term and other investments			
Gross realized gains	$22,491	$15,678	$20,201
Gross realized (losses)	(7,811)	(13,980)	(8,041)
Net realized gains on investments	14,680	1,698	12,160
Change in net unrealized gains (losses) on investments	14,106	(32,007)	(1,030)
Total net realized and change in net unrealized gains (losses) on managed investments	$28,786	$(30,309)	$11,130
Non-managed fixed maturities, short-term and other investments			
Gross realized gains	$1,086	$611	$2,757
Gross realized (losses)	(9)	(11)	—
Net realized gains on investments	1,077	600	2,757
Change in net unrealized gains (losses) on investments	2,765	(388)	(1,812)
Total net realized and change in net unrealized gains on non-managed investments	3,842	212	945
Total net realized and change in net unrealized gains (losses) on total investments	$32,628	$(30,097)	$12,075

(f) Pledged investments and cash

As at December 31, 2016, the Company had $5,173,966 (December 31, 2015: $4,056,788) of cash and cash equivalents, restricted cash, short-term investments and fixed maturity investments that were pledged during the normal course of business. Of those, $5,068,092 were held in trust (December 31, 2015: $4,007,215). Pledged assets are generally for the benefit of the Company's cedants and policyholders, to support AlphaCat's fully collateralized reinsurance transactions and to facilitate the accreditation of Validus Reinsurance, Ltd., Validus Reinsurance (Switzerland) Ltd. ("Validus Re Swiss") and Talbot as an alien insurer/reinsurer by certain regulators.

In addition, the Company has pledged cash and investments as collateral under the Company's credit facilities in the amount of $442,184 (December 31, 2015: $826,535). For further details on the credit facilities, refer to Note 20 "Debt and financing arrangements."

During 2014, Validus Reinsurance, Ltd. established a Multi-Beneficiary Reinsurance Trust ("MBRT") to collateralize its (re)insurance liabilities associated with and for the benefit of U.S. domiciled cedants who, as a result, will receive automatic credit in their regulatory filings for the reinsurance provided prospectively by the Company. As of December 31, 2016, Validus Reinsurance, Ltd. was approved as a trusteed reinsurer in 48 states as well as Puerto Rico and the District of Columbia. In addition, Validus Re Swiss established a MBRT in December 2015 and was approved as a trusteed reinsurer in 44 states as well as Puerto Rico and the District of Columbia as at December 31, 2016.

(g) Securities lending

The Company participates in a securities lending program whereby certain securities from its portfolio are loaned to third parties for short periods of time through a lending agent. The Company retains all economic interest in the securities it lends and receives a fee from the borrower for the temporary use of the securities. Collateral in the form of cash, government securities and letters of credit is required at a rate of 102% of the market value of the loaned securities and is held by a third party.

8. Fair value measurements

(a) Classification within the fair value hierarchy

Fair value is defined as the price to sell an asset or transfer a liability in an orderly transaction between market participants. Under U.S. GAAP, a company must determine the appropriate level in the fair value hierarchy for each fair value measurement. The fair value hierarchy prioritizes the inputs, which refer broadly to assumptions market participants would use in pricing an asset or liability, into three levels. It gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs. The level in the fair value hierarchy within which a fair value measurement in its entirety falls is determined based on the lowest level input that is significant to the fair value measurement in its entirety.

The three levels of the fair value hierarchy are described below:

Level 1 - Fair values are measured based on unadjusted quoted prices in active markets for identical assets or liabilities that we have the ability to access.

Level 2 - Fair values are measured based on quoted prices in active markets for similar assets or liabilities, quoted prices for identical assets or liabilities in inactive markets, or for which significant inputs are observable (e.g., interest rates, yield curves, prepayment speeds, default rates, loss severities, etc.) or can be corroborated by observable market data.

Level 3 - Fair values are measured based on inputs that are unobservable and significant to the overall fair value measurement. The unobservable inputs reflect the Company’s own judgments about assumptions where there is little, if any, market activity for that asset or liability that market participants might use.

The availability of observable inputs can vary from financial instrument to financial instrument and is affected by a wide variety of factors including, for example, the type of financial instrument, whether the financial instrument is new and not yet established in the marketplace, and other characteristics particular to the instrument. To the extent that valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires significantly more judgment.

Accordingly, the degree of judgment exercised by management in determining fair value is greatest for instruments categorized in Level 3. In periods of market dislocation, the observability of prices and inputs may be reduced for many instruments. This may lead the Company to change the selection of our valuation technique (for example, from market to cash flow approach) or to use multiple valuation techniques to estimate the fair value of a financial instrument. These circumstances could cause an instrument to be reclassified between levels within the fair value hierarchy.

During 2015, the Company early adopted and implemented ASU 2015-07, “Fair Value Measurement (Topic 820) - Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent).” As such, the investments measured at fair value using the net asset value (“NAV”) per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy.

(Expressed in thousands of U.S. dollars, except share and per share information)

At December 31, 2016, the Company's investments were allocated between Levels 1, 2 and 3 as follows:

	Level 1	Level 2	Level 3	Fair value based on NAV practical expedient	Total
Managed investments					
U.S. government and government agency	$—	$804,126	$—	$—	$804,126
Non-U.S. government and government agency	—	240,791	—	—	240,791
U.S. states, municipalities and political subdivisions	—	271,830	—	—	271,830
Agency residential mortgage-backed securities	—	679,595	—	—	679,595
Non-agency residential mortgage-backed securities	—	15,477	—	—	15,477
U.S. corporate	—	1,534,508	—	—	1,534,508
Non-U.S. corporate	—	410,227	—	—	410,227
Bank loans	—	323,903	246,496	—	570,399
Asset-backed securities	—	502,883	23,931	—	526,814
Commercial mortgage-backed securities	—	330,932	—	—	330,932
Total fixed maturities	—	5,114,272	270,427	—	5,384,699
Short-term investments	209,651	18,735	—	—	228,386
Other investments					
Fund of hedge funds	—	—	—	955	955
Hedge funds	—	—	—	17,381	17,381
Private equity investments	—	—	—	89,809	89,809
Fixed income investment funds	—	30,941	12,168	198,984	242,093
Overseas deposits	—	—	—	50,106	50,106
Mutual funds	—	5,368	—	—	5,368
Total other investments	—	36,309	12,168	357,235	405,712
Investments in investment affiliates [(a)]	—	—	—	—	100,431
Total managed investments	$209,651	$5,169,316	$282,595	$357,235	$6,119,228
Non-managed investments					
Catastrophe bonds	$—	$109,956	$48,375	$—	$158,331
Short-term investments	2,567,784	—	—	—	2,567,784
Total non-managed investments	2,567,784	109,956	48,375	—	2,726,115
Total investments	$2,777,435	$5,279,272	$330,970	$357,235	$8,845,343

(a) In accordance with ASC Topic 825 "Financial Instruments," the Company's investments in investment affiliates have not been classified in the fair value hierarchy.

Validus Holdings, Ltd.
Notes to Consolidated Financial Statements
(Expressed in thousands of U.S. dollars, except share and per share information)

At December 31, 2015, the Company's investments were allocated between Levels 1, 2 and 3 as follows:

	Level 1	Level 2	Level 3	Fair value based on NAV practical expedient	Total
Managed investments					
U.S. government and government agency	$ —	$937,202	$ —	$ —	$937,202
Non-U.S. government and government agency	—	237,968	—	—	237,968
U.S. states, municipalities and political subdivisions	—	301,289	—	—	301,289
Agency residential mortgage-backed securities	—	610,582	—	—	610,582
Non-agency residential mortgage-backed securities	—	26,920	—	—	26,920
U.S. corporate	—	1,489,951	—	—	1,489,951
Non-U.S. corporate	—	446,570	—	—	446,570
Bank loans	—	343,874	232,337	—	576,211
Asset-backed securities	—	437,124	—	—	437,124
Commercial mortgage-backed securities	—	260,135	—	—	260,135
Total fixed maturities	—				