

# Validus Reinsurance, Ltd. Singapore Branch

## Public Disclosure

For the year ended December 31, 2022

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## Purpose

This document is meant to satisfy the public disclosure requirements, as outlined in Notice 124 of the Monetary Authority of Singapore (the “MAS”), for Validus Reinsurance, Ltd. Singapore Branch (the “Singapore Branch”).

The information in this document is directly extracted from or based on information from the Validus Reinsurance, Ltd. (“Validus Re Ltd.”) Consolidated Financial Statements, which can be found on the Bermuda Monetary Authority (“BMA”) website located at <http://www.bma.bm>; and the MAS Insurance Company Returns for the Singapore Branch, which can be found on the MAS website located at <http://www.mas.gov.sg/>.

The information provided below is for the fiscal year ended December 31, 2022 and contains disclosures relating to Validus Re Ltd., the intermediate parent and head office of the Singapore Branch. Hereinafter, “the Company”, “us” or “we” is used to describe any or all of Validus Re Ltd. and its subsidiary.

Note: Paragraph 10 of Notice 124 states: *“Where any disclosure which relates to activities conducted at the group\* level or at the head office level (as the case may be) has been made at the group level or head office level (as the case may be), a licensed insurer, may cross-refer to those disclosures made at the group level or head office level (as the case may be). \*Group refers to the ultimate holding company, its subsidiaries and any other company or entity treated as part of the ultimate holding company’s group of companies according to the Accounting Standards.”*. Accordingly, the majority of the disclosures made herein are those of Validus Re Ltd. the intermediate parent entity of the Singapore Branch.

All financial information contained herein relating to Validus Re Ltd. includes results from the Singapore Branch and is expressed in thousands of U.S. dollars utilizing U.S. GAAP unless otherwise indicated. Singapore specific amounts are presented in accordance with the statutory requirements of the annual MAS Insurance Company Returns.

Information provided herein should be referenced in conjunction with additional information provided in the sources cited above.

## Company Profile

Validus Re Ltd. was incorporated under the laws of Bermuda on October 19, 2005. The Company is 100% owned by Validus Holdings, Ltd. (the “parent company” or “Validus Holdings”) which was also incorporated under the laws of Bermuda on October 19, 2005. Validus Re Ltd. is registered as a Class 4 insurer under The Insurance Act 1978 of Bermuda, amendments thereto and the Insurance Account Rules 2016 (the “Legislation”). The Company primarily offers treaty reinsurance coverage on a global basis in the Property and Specialty lines markets.

On July 18, 2018, Validus Holdings completed its previously announced definitive agreement and plan of merger (the “Merger Agreement”) with American International Group, Inc. (“AIG”) in accordance with Section 105 of the Bermuda Companies Act 1981. Pursuant to the Merger Agreement, Validus Holdings merged with an existing AIG subsidiary, with Validus Holdings continuing as the surviving corporation and as a wholly-owned subsidiary of AIG.

### Nature of the Business

The Company’s principal operating objective is to use capital efficiently by underwriting reinsurance contracts with superior risk and return characteristics. The primary underwriting objective is to construct a portfolio of reinsurance contracts that maximizes return on equity subject to prudent risk constraints on the amount of capital exposed to any single event. Risks are managed through a variety of means, including contract terms, portfolio selection, diversification, including line of business and geographic diversification, and retrocession protections

The Company operates as a global provider of reinsurance products, operating primarily through Validus Reinsurance, Ltd., registered as a Class 4 insurer under the Bermuda Insurance Act, Validus Reinsurance (Switzerland) Ltd, licensed as a reinsurer under the Swiss Insurance Supervision Act, both S&P ‘A+’ rated and A.M Best ‘A’ rated balance sheets.

Validus Re Ltd. maintains a branch office in Singapore which commenced operations in December, 2009 and a branch office in Canada which commenced writing business on January 1, 2020.

The Company, including the Singapore Branch, primarily concentrates on property and other reinsurance risks commonly referred to as short-tail reinsurance due to the relatively brief period between the occurrence and payment of a claim.

Details of gross premiums written by line of business for the Company, are provided below:

	2022		2021	
	US\$	%	US\$	%
(in thousands of United States Dollars)				
Property	866,042	28.12	1,192,721	37.61
Specialty – Short-tail	792,361	25.72	1,030,965	32.51
Specialty – Other	1,421,913	46.16	947,688	29.88
<b>Total</b>	<b>3,080,316</b>	<b>100.00</b>	<b>3,171,374</b>	<b>100.00</b>

Note: Figures provided in the table above and in the line of business descriptions immediately following are based on Validus Re Ltd. consolidated results.

Details of gross premiums written by line of business for the Singapore Branch, based on information provided in the MAS Insurance Company Returns and presented in thousands of Singapore Dollars, are provided below:

(in thousands of Singapore Dollars)	2022		2021	
	S\$	%	S\$	%
Property	61,355	89.84	56,235	89.14
Marine and Aviation	7,013	10.27	6,492	10.29
Liability and Other	(77)	(0.11)	357	0.57
<b>Total</b>	<b>68,291</b>	<b>100.00</b>	<b>63,084</b>	<b>100.00</b>

**Property:** The Company primarily underwrites property reinsurance business on a catastrophe excess of loss, per risk excess of loss, aggregate excess of loss, and proportional basis. Each of these treaty types are described in greater detail hereunder:

**Property catastrophe excess of loss:** Property catastrophe reinsurance covers insurance companies' (referred to as "ceding companies" or "cedants") 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 responds when aggregate claims and claim expenses from a single occurrence for a covered peril exceed a certain amount specified in a particular contract. (In regards to the Singapore Branch, coverage for property catastrophe in Asia is more evenly distributed between pro-rata and excess of loss). 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. Property catastrophe reinsurance contracts are typically written on an "all perils" basis, providing protection against losses from earthquakes and hurricanes, as well as other natural and man-made catastrophes such as floods, tornadoes, fires and storms. Coverages may also be written to provide limited coverage based on named perils only, such as windstorm-only coverage. The predominant exposures covered are losses stemming from property damage and business interruption coverage resulting from a covered peril. Certain risks, such as terrorism, cyber-crime, war or nuclear contamination may be excluded, partially or wholly, from certain contracts.

**Property per risk excess of loss:** Property per risk reinsurance provides coverage for ceding companies' excess retention on individual property and related risks, such as highly-valued buildings. Per risk reinsurance protects cedants on a "single risk" basis. A "risk" in this context might relate to one building, or a group of buildings, or to one insurance policy which the cedant 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.

**Property aggregate excess of loss:** Property aggregate excess of loss provides coverage for ceding companies on an aggregate basis for losses occurring over a specified period of time, typically one year, as opposed to coverage for losses due to one single occurrence. Losses from each occurrence are typically subject to a franchise deductible, and amounts exceeding that deductible are aggregated over the period to determine the aggregate ultimate loss. This aggregate ultimate loss is in turn subject to limits and deductibles in the aggregate.

**Property proportional:** Property proportional contracts require that the reinsurer share the premiums as well as the losses and loss expenses in an agreed proportion with the reinsured.

The table below illustrates the gross premiums written for property coverage by treaty type:

(in thousands of United States Dollars)	2022		2021	
	US\$	%	US\$	%
Catastrophe excess of loss	465,373	53.74	671,096	56.27
Per risk excess of loss	30,232	3.49	27,333	2.29
Aggregate excess of loss	100,756	11.63	202,567	16.98
Proportional	269,681	31.14	291,725	24.46
<b>Total</b>	<b>866,042</b>	<b>100.00</b>	<b>1,192,721</b>	<b>100.00</b>

**Specialty – Short-tail:** This line consists of reinsurance on aerospace and aviation, agriculture, composite, marine, other specialty (composed of contingency, crisis management and life and accident & health), technical lines, terrorism, trade credit, and workers' compensation. The Company seeks to underwrite specialty lines with very limited exposure correlation with its property portfolios. The Company's specialty - short-tail lines are written on a catastrophe excess of loss, per risk excess of loss, aggregate excess of loss, and proportional basis with the coverage and treaty basis consistent with that described in the property section above.

The table below illustrates the gross premiums written for specialty – short-tail coverage by treaty type:

(in thousands of United States Dollars)	2022		2021	
	US\$	%	US\$	%
Catastrophe excess of loss	76,147	9.61	92,339	8.96
Per risk excess of loss	90,065	11.37	91,628	8.89
Aggregate excess of loss	24,100	3.04	40,009	3.88
Proportional	602,049	75.98	806,989	78.27
<b>Total</b>	<b>792,361</b>	<b>100.00</b>	<b>1,030,965</b>	<b>100.00</b>

**Specialty - Other:** This class provides reinsurance on casualty and financial lines of business. The Company's specialty – other lines are written on a catastrophe excess of loss, per risk excess of loss, aggregate excess of loss, and proportional basis with the coverage and treaty basis consistent with that described in the property section above.

The table below illustrates the gross premiums written for specialty – other coverage by treaty type:

(in thousands of United States Dollars)	2022		2021	
	US\$	%	US\$	%
Catastrophe excess of loss	(1,506)	(0.11)	4,751	0.50
Per risk excess of loss	51,041	3.59	30,472	3.22
Aggregate excess of loss	102,452	7.21	88,533	9.34
Proportional	1,269,926	89.31	823,932	86.94
<b>Total</b>	<b>1,421,913</b>	<b>100.00</b>	<b>947,688</b>	<b>100.00</b>

## Corporate Governance

### Board of Directors

The directors of the Company oversee the management of the Company's business and affairs and are responsible for the corporate governance framework. The directors are elected annually at the Company's annual general meeting and as at December 31, 2022, consisted of the following persons, each of whom is either a senior executive of the Company or of AIG:

- Christopher Schaper;
- Catherine Duffy; and

- Patrick Boisvert,

The Company's executive leadership team are responsible for the development and execution of the Company's internal controls, budgets, strategic plans and objectives. Executive leadership team consists of :

- Christopher Schaper;
- Patrick Boisvert;
- Kevin Downs;
- William S. Randolph;
- Eric Kobrick;
- Jesse DeCouto;
- Simon Biggs;
- Sven Wehmeyer;
- Marc Haushofer (Singapore);
- Angeline Ang (Singapore);
- Joy Manning (Corporate Secretary).

# Enterprise Risk Management

## Risk Management Framework

The Company promotes sound risk management practices at all levels of the organization, and has 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 establishes, identifies, assesses, quantifies and manages risks and opportunities. The Framework 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.
- 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.
- Provide risk-based independent review & challenge of business related activities and decisions.
- Establish procedures through which the company may choose to accept identified risks that are otherwise not mitigated to a preferred level.

## Risk Governance:

Our risk governance philosophy reflects the overall governance of the Company while adhering to the overall strategy of the Company.

The Company’s Board of Directors provides broad oversight of risk management for Validus Re Ltd. and 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 Validus Risk Management Committee (“VRMC”). The VRMC reports to the Company’s Board of Directors and is governed by a charter that is reviewed and approved annually. The VRMC also has a subcommittee, the Model Validation Subcommittee (“MVS”), which is governed by a charter that is reviewed annually. 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 operates. 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 net income 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 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, liquidity 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, Strategic & Group and Business & Emerging risks, all of which the Insurer'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 approach not only creates workflow efficiencies, it 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 VRMC.

## 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. We have established controls 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. We may also design new controls in response to the incident reporting process.

The Company also has in place 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, an exposure management policy is in place to ensure appropriate and consistent risk assessment and aggregation of exposures that accumulate.

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 Risk Management Policy

The Company relies extensively on a wide range of models to support key decisions made across the business, and has implemented a Model Risk Management Policy to establish a uniform set of validation and governance standards that ensure the quality and reliability of key models across the Company.

## Capital Modelling

The Company has developed a comprehensive Economic Capital Model ("ECM") to assess various risks, including operational risks, and determine the minimum capital required by the Company and its subsidiaries to remain solvent and achieve its business objectives. In addition, the ECM enables the Company to evaluate the impact of strategic and tactical decisions on risk appetite metrics and assess the associated risk/return trade-offs. This includes decisions related to growth strategy, new product launches, business mix and retrocession strategy, mergers and acquisitions, planning and budgeting, investment strategy and capital management. By leveraging the ECM, the Company can make informed decisions and optimize its capital allocation to achieve its strategic goals.

## Underwriting Risk Management

The Company's underwriters manage risk by monitoring a number of qualitative and quantitative indicators. Our in-house pricing platform, the Validus Capital Allocation and Pricing System ("VCAPS"), a proprietary computer-based system for modeling, pricing, allocating capital and analyzing catastrophe-exposed risks, provides reinsurance underwriters with a real-time view of the risk-adjusted profitability of each account. This tool allows our underwriters 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 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 group 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 subject all lines to regular audits.

## Use of Models

The Company's superior risk management expertise in catastrophe risk and portfolio optimization is a key differentiator. Its proprietary models are updated with the latest science and data, providing a competitive advantage over reinsurers relying solely on commercial models. The Company has invested significantly in risk modelling expertise and assembled an experienced team to capitalize on this opportunity. By optimizing its portfolio to generate attractive returns on capital while controlling exposure to risk, the Company gains a competitive edge. 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 major commercial vendor models, including 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 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 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
- 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 utilizes 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 functionality 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's use of 100,000-year simulations enables robust pricing of catastrophe-exposed business. This capability 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.

The following table sets forth the gross premiums written allocated to the territory of coverage for the Company:

(in thousands of United States Dollars)	2022		2021	
	US\$	%	US\$	%
Worldwide excluding United States <sup>(a)</sup>	90,053	2.92	78,580	2.48
Australia and New Zealand	8,149	0.26	7,390	0.23
Europe	72,740	2.36	82,833	2.61
Latin America and Caribbean	55,451	1.80	57,901	1.83
Japan	47,337	1.54	94,765	2.99
Canada	13,161	0.43	30,416	0.96
Rest of the world <sup>(b)</sup>	59,529	1.93	57,777	1.82
Sub-total, non-United States	346,420	11.24	409,662	12.92
United States	550,857	17.88	849,834	26.80
Worldwide including United States	397,314	12.90	560,673	17.68
Other locations non-specific <sup>(c)</sup>	1,785,725	57.98	1,351,205	42.60
<b>Total</b>	<b>3,080,316</b>	<b>100.00</b>	<b>2,409,467</b>	<b>100.00</b>

<sup>(a)</sup> Represents risks in two or more geographic zones.

<sup>(b)</sup> Represents risks in one geographic zone.

- (c) The other locations non-specific category refers to business for which an analysis of exposure by geographic zone is not applicable since these exposures can span multiple geographic areas and, in some instances, are not fixed locations.

Note: Figures provided in the table above are based on the Validus Re Ltd. Consolidated Financial Statements.

The following table sets forth the gross premiums written by line of business and allocated to the territory of coverage for the Singapore Branch based on information provided in the MAS Insurance Company Returns:

(Singapore Dollars in thousands)	<b>2022</b>		<b>2021</b>	
	<b>S\$</b>	<b>%</b>	<b>S\$</b>	<b>%</b>
China	47,057	68.91	40,236	63.78
Japan	5,158	7.55	9,575	15.18
Korea	10,271	15.04	8,494	13.46
Thailand	793	1.16	1,029	1.63
Philippine	267	0.39	535	0.85
Taiwan	4,215	6.17	2,775	4.40
Others	530	0.78	440	0.70
<b>Total</b>	<b>68,291</b>	<b>100.00</b>	<b>63,084</b>	<b>100.00</b>

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 retrocession agreements in order to mitigate its accumulation of exposure and manage total risk. The ceding of the 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 relating to the possibility that the retrocessionaire fails to meet its obligations under the retrocession agreement.

**Retrocession:** The Company monitors the opportunity to purchase retrocessional coverage for its reinsurance business 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”)). The Company also considers and at times uses alternative retrocessional structures, including collateralized quota share facilities and other capital markets products (e.g. catastrophe bonds), where the pricing and terms are attractive.

When the Company buys retrocessional coverage on an indemnity basis, payment is for an agreed upon portion of the losses actually suffered. In contrast, when the Company 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 the industry suffers a loss over a threshold that triggers a recovery from the purchaser (as agreed in the contract). The industry loss is reported by one of a number of independent agencies. With an ILW, the Company 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.

## Reserve for Losses and Loss Expenses

For 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.

The nature of the Company’s high excess of loss liability 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.

Validus Re Ltd.’s reinsurance loss reserves are established based upon an estimate of the total cost of claims that have been incurred, including estimates of unpaid liability on known individual claims, the costs of additional case reserves on claims reported but not considered to be adequately reserved in such reporting (“ACRs”) and amounts that have been incurred but not yet reported. ACRs are used in certain cases and are calculated based on management’s estimate of the required case reserve on an individual claim less the case

reserves reported by the client. The Loss Reserve Committee follows catastrophe event ultimate loss reserve estimation procedures for the investigation, analysis, estimation and approval of ultimate loss reserving.

For reported losses, case reserves are established within the parameters of the coverage provided in the impacted reinsurance contracts. Where there is a reported claim for which the reported case reserve is determined to be insufficient, an ACR or individual claim IBNR estimate will be booked that is adjusted as claims notifications are received. Information is obtained from various sources including brokers, proprietary and third party vendor models and internal data regarding reinsured exposures related to the geographic location of the event, as well as other sources. Generally accepted actuarial techniques are used in the IBNR estimation process. Historical insurance industry loss emergence patterns, as well as estimates of future trends in claims severity, frequency and other factors, are used in establishing loss reserves.

Loss reserves represent estimates, including actuarial and statistical projections at a given point in time, of the expectations of the ultimate settlement and administration costs of claims incurred. Such estimates are not precise in that, among other things, they are based on predictions of future developments and estimates of future trends in loss severity and frequency and other variable factors such as inflation, litigation and tort reform. This uncertainty is heightened by the low frequency high severity nature of the reinsurance business written, thereby providing limited claims loss emergence patterns that directly pertain to the reinsurance operations. This continues to necessitate the partial use of industry loss emergence patterns in deriving IBNR, which contribute to the inherent uncertainty within the loss reserve estimation process and therefore will differ from actual experience. Further, expected losses and loss ratios are typically developed in part by using outputs from vendor and proprietary computer models and these expected losses and loss ratios are a significant component in the calculation of IBNR. Finally, the uncertainty surrounding estimated costs is greater in cases where large, unique events have been reported and the associated claims are in early stages of resolution. As a result of these uncertainties, it is likely that the ultimate liability will differ from such estimates, perhaps materially.

The following table represents an analysis of paid and unpaid losses and loss expenses incurred and a reconciliation of the beginning and ending unpaid loss expenses for Validus Re Ltd. as at December 31, 2022 and 2020:

	2022 US\$	2021 US\$
(in thousands of United States Dollars)		
Reserve for losses and loss expenses, beginning of year	4,733,761	3,211,396
Loss reserves recoverable, beginning of year	(2,140,746)	(1,074,617)
Net reserves for losses and loss expenses, beginning of year	2,593,015	2,136,779
Increase (decrease) in net reserves for losses and loss expenses in respect of losses occurring in:		
Current year	1,447,592	1,563,703
Prior years	(30,604)	(32,866)
Total incurred losses and loss expenses	1,416,988	1,530,837
Foreign exchange (gains) losses	(45,030)	(50,941)
Net impact of commodity derivatives recognized in losses and loss expense	(13,107)	(9,694)
Less net losses and loss expenses paid in respect of losses occurring in:		
Current year	(190,004)	(413,001)
Prior years	(693,645)	(600,965)
Total net paid losses	(883,649)	(1,013,966)
Net reserve for losses and loss expenses, end of year	3,068,217	2,593,015
Loss reserves recoverable, end of year	1,900,032	2,140,746
Reserve for losses and loss expenses, end of year	4,968,249	4,733,761

Total incurred losses and loss expenses for the years ended December 31, 2022 and 2021 is comprised of:

(In thousands of United States Dollars)	2022	2021
	US\$	US\$
Gross losses and loss expenses	1,297,514	2,782,914
Reinsurance recoveries	119,474	(1,252,077)
<b>Net incurred losses and loss expenses</b>	<b>1,416,988</b>	<b>1,530,837</b>

Note: Figures provided in the table above are based on the Validus Re Ltd. Consolidated Financial Statements.

Insurance liabilities of the Singapore Branch are set in accordance with the MAS Insurance (Valuation and Capital) Regulations 2004. For year ended December 31, 2022, premium and claim liabilities, as provided in the MAS Insurance Company Returns, were S\$21.7 million and S\$66.6 million respectively.

The following table provides a summary of the Singapore Branch's insurance liabilities by claim and premium categories and by line of business as at December 31, 2022 and 2021:

(United States Dollars in thousands)	2022	2021
	S\$	S\$
<b>Net reserves by claim and premium categories:</b>		
Net reserves for claims reported and loss expenses	34,081	25,873
Net reserves for claims incurred but not reported	32,467	31,779
Net unearned premium reserve	21,708	21,784
<b>Total net policy liabilities</b>	<b>88,256</b>	<b>79,436</b>
<b>Net reserves by line of business:</b>		
Property	72,721	61,913
Marine and Aviation	15,387	17,178
Casualty & Others	148	345
<b>Total net policy liabilities</b>	<b>88,256</b>	<b>79,436</b>

## Capital Adequacy

Validus Re Ltd. has operations which are subject to laws and regulations in the jurisdictions in which they operate, the most significant of which are Bermuda and Switzerland.

Validus Re Ltd. and its subsidiaries are required to maintain certain measures of solvency and liquidity which provide restrictions on declaring dividends and distributions. Statutory capital and surplus as at December 31, 2022 and 2021 and statutory net income for the years ended December 31, 2022 and 2021 for our reinsurance subsidiaries based in our most significant regulatory jurisdictions were as follows:

	Statutory capital and surplus				Statutory net income (loss)	
	Required		Actual			
	2022	2021	2022	2021	2022	2021
	US\$	US\$	US\$	US\$	US\$	US\$
Bermuda	1,228,168	1,211,090	3,654,884	3,893,878	(90,040)	108,408
Switzerland	617,000	557,000	1,197,052	1,236,051	(38,999)	91,491



Bermuda-based insurers are required to maintain minimum statutory capital and surplus equal to the greater of a Minimum Margin of Solvency (“MMS”) and the Enhanced Capital Requirement (“ECR”) where applicable. The ECR is equal to the higher of the MMS or the Bermuda Solvency Capital Requirement (“BSCR”) model or approved internal capital model.

At December 31, 2022 and 2021, the actual statutory capital and surplus of the Company and the Bermuda-based insurance subsidiaries exceeded the relevant regulatory requirements.

The Company maintains branch offices in Singapore and Canada. As the branch offices are not considered separate entities for regulatory purposes, the required and actual statutory capital and surplus amount includes amounts, as set out above, related to the applicable branch office.

The Company’s Singapore branch office is subject to a capital minimum adequacy requirement of SGD 5,000 as at December 31, 2022 and 2021.

The Canada branch office is subject to regulation by the Office of the Superintendent of Financial Institutions Canada (“OSFI”). Under regulations and guidelines prescribed by OSFI, the Canada branch office is required to maintain prescribed levels of capital, which are dependent on the type and amount of insurance policies in force and the nature of the Canada branch office’s assets. At December 31, 2022, the margin of net assets required is CAD 814. The revised margin of net assets required as at December 31, 2021 of CAD 466 is based on the actual December 31, 2021 Branch Adequacy of Assets Test.

At December 31, 2022 and 2021, the actual capital and assets for the branch offices exceeded the relevant local regulatory requirements.

Additional information relating to Validus Re Ltd.’s statutory and regulatory requirements is provided in the Validus Re Ltd. Consolidated Financial Statements.

# 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.

A significant portion of reinsurance 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. 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 Investment Guidelines ("IG") requires the portfolio duration to be +/- 1 year of the target asset duration, which will be communicated by the Company to its investment manager at least annually and may be updated from time to time. Target asset duration as at December 31, 2022 is 2.75 years (2021: average duration in the range of 0.75 years to 3.25 years). As at December 31, 2022, the average duration of the Company's investment portfolio was 2.54 years (2021:2.69 years).

During 2022, AIG entered into investment management agreements with BlackRock, Inc. ("BlackRock"), a third party investment manager. Effective October 17, 2022, the Company likewise entered into investment management agreements with BlackRock, whereunder the Company has engaged BlackRock to be the investment manager for the Company's investment portfolio. . The Company continues to be responsible for the overall investment portfolio, including investment strategy and developing and monitoring of investment guidelines

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.

More information regarding investments and related valuation, risks and accounting policies can be found in the Validus Re, Ltd. Consolidated Financial Statements.

The Singapore Branch maintains a liquid portfolio of high quality fixed-income investments with a duration profile commensurate with its insurance liabilities.

# Financial Performance

The following table provides consolidated statements of operations and comprehensive income for Validus Re Ltd. for the years ended December 31, 2022 and 2021 (expressed in thousands of U.S. dollars):

	2022	2021
(in thousands of United States Dollars)	\$	\$
<b>Revenues</b>		
Gross premiums written	3,080,316	3,171,374
Reinsurance premiums ceded	(551,785)	(719,266)
Net premiums written	2,528,531	2,452,108
Change in unearned premiums	(294,027)	(338,403)
Net premiums earned	2,234,504	2,113,705
Net investment income	128,063	110,714
Net realized (losses) / gains on investments	(12,537)	146,603
Net change in unrealized (losses) / gains on investments	(364,069)	(154,677)
Other insurance-related income and other income	8,659	10,377
Foreign exchange gains / (losses)	25,626	34,264
<b>Total revenues</b>	<b>2,020,246</b>	<b>2,260,986</b>
<b>Expenses</b>		
Losses and loss expenses	1,416,988	1,530,837
Policy acquisition costs	583,837	487,570
General and administrative expenses	109,628	115,632
Share compensation expenses	1,187	1,310
Finance expenses	5,578	5,800
Transaction expenses	-	92
<b>Total expenses</b>	<b>2,117,218</b>	<b>2,141,241</b>
<b>Income before taxes and (loss) income from operating affiliates and structured notes</b>	<b>(96,972)</b>	<b>119,745</b>
Tax benefit	6,060	3,702
Income / (loss) from operating affiliates	792	(14,866)
Income / (loss) from structured notes receivable from AlphaCat ILS fund	80	(173)
<b>Net income / (loss) and comprehensive income / (loss)</b>	<b>(90,040)</b>	<b>108,408</b>

Note: Figures provided in the table above are based on the Validus Re Ltd. Consolidated Financial Statements.

The following table provides information from Form 2 – Fund Profit and Loss Account, as provided in the MAS Insurance Company Returns, for the years ended December 31, 2022 and 2021 (expressed in thousands of Singapore dollars):

	2022	2021
(in thousands of Singapore Dollars)	S\$	S\$
<b>Revenues</b>		
Earned gross premiums written	68,291	63,084
Earned reinsurance premiums ceded	(7,514)	(4,694)
<b>Net earned Premium</b>	<b>60,777</b>	<b>58,390</b>
Investment income	(9,607)	916
Investment expenses	122	-
<b>Net investment income</b>	<b>(9,729)</b>	<b>916</b>
Other Investment Income	104	163
<b>Total revenues</b>	<b>51,152</b>	<b>59,469</b>
<b>Expenses</b>		
Gross claims settled	27,219	25,518
Reinsurance recoveries	(228)	(3,521)
Management expenses	5,921	6,061
Distribution expenses	17,866	17,644
Increase (decrease) in net policy liabilities	9,474	4,501
Provision for doubtful debts	-	-
Taxation expenses	-	-
Other expenses	3,746	1,295
<b>Total expenses</b>	<b>63,998</b>	<b>51,498</b>
<b>Net income</b>	<b>(12,846)</b>	<b>7,971</b>