Chubb Tempest Life Reinsurance Ltd.
and its subsidiaries
(Incorporated in Bermuda)

Consolidated Financial Statements
December 31, 2023 and 2022
(in thousands of U.S. dollars)

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Report of Independent Auditors

To the Board of Directors of Chubb Tempest Life Reinsurance Ltd.

Opinion

We have audited the accompanying consolidated financial statements of Chubb Tempest Life Reinsurance Ltd. and its subsidiaries (the "Company"), which comprise the consolidated balance sheets as of December 31, 2023 and 2022, and the related consolidated statements of operations and comprehensive income, of shareholder’s equity and of cash flows for the years then ended, including the related notes (collectively referred to as the "consolidated financial statements").

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (US GAAS). Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are required to be independent of the Company and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern for one year after the date the consolidated financial statements are available to be issued.

Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with US GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery,

intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the consolidated financial statements.
In performing an audit in accordance with US GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the consolidated financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Company's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

PricewaterhouseCoopers LLP

April 29, 2024

CHUBB TEMPEST LIFE REINSURANCE LTD. AND ITS SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
As at December 31, 2023 and 2022

(in thousands of U.S. dollars, except share and per share data)

	2023 $	2022 As adjusted $
Assets		
Fixed maturities available for sale, at fair value, net of valuation allowance of $15,322 and $21,263 (amortized cost $9,022,960 and $8,966,752)	8,594,499	8,199,773
Fixed maturities held to maturity, at amortized cost, net of valuation allowance of $nil and $23 (fair value $nil and $2,441)	–	2,453
Equity securities, at fair value	81,937	68,406
Short-term investments, at cost and fair value	272,647	309,498
Private equities	9,733,106	8,512,281
Other investments	5,009	4,040
Cash, including restricted cash $8,213 and $14,554	496,250	80,256
Total investments and cash	19,183,448	17,176,707
Securities lending collateral	101,556	212,408
Accrued investment income	92,874	89,028
Reinsurance receivable, net of valuation allowance of $(1,250) and $(1,250)	1,115,315	966,885
Prepaid reinsurance premiums	240,089	229,815
Reinsurance recoverable, net of valuation allowance of $(21,321) and $(21,426)	1,304,816	1,345,761
Value of reinsurance business assumed	87,536	94,175
Deferred policy acquisition costs	496,527	456,998
Goodwill	371,087	371,087
Amounts due from related parties	56,046	133,374
Funds withheld	849,166	737,511
Deferred tax assets	832,208	–
Investments in partially-owned insurance companies	1,459,502	1,511,541
Other assets	122,019	131,201
Total assets	26,312,189	23,456,491
Liabilities		
Unpaid losses and loss expenses	7,741,867	7,234,558
Future policy benefits	425,214	422,450
Market risk benefits	770,788	800,320
Unearned premiums	1,441,364	1,284,244
Reinsurance balances payable	3,827,418	2,870,655
Securities lending payable	101,571	212,423
Accounts payable, accrued expenses and other liabilities	227,203	528,610
Repurchase agreements	100,648	100,157
Amounts due to related parties	19,413	76,827
Total liabilities	14,655,486	13,530,244
Shareholder's equity		
Chubb Tempest Life Reinsurance Ltd. shareholder's equity		
Common shares ($1 par value, 370,000 authorized 370,000 issued and outstanding)	370	370
Additional paid-in capital	4,017,157	4,017,157
Retained earnings	7,310,849	6,029,873
Accumulated other comprehensive income (AOCI)	(1,139,041)	(1,383,083)
Total Chubb Tempest Life Reinsurance Ltd. shareholder's equity	10,189,335	8,664,317
Non-controlling interest	1,467,368	1,261,930
Total shareholder's equity	11,656,703	9,926,247
Total liabilities and shareholder's equity	26,312,189	23,456,491

The accompanying notes are an integral part of these consolidated financial statements.

CHUBB TEMPEST LIFE REINSURANCE LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME
For the years ended December 31, 2023 and 2022

(in thousands of US. dollars)

	2023 $	2022 As adjusted $
Revenues		
Gross premiums written	5,419,639	4,963,049
Reinsurance premiums ceded	(667,753)	(707,931)
Net premiums written	4,751,886	4,255,118
Change in unearned premiums	(94,455)	(110,975)
Net premiums earned	4,657,431	4,144,143
Net investment income	429,658	444,030
Other income (expense), net	814,515	(189,558)
Net realized gains (losses) (includes $(69,130) and $(305,308) reclassified from AOCI)	62,713	(285,079)
Market risk benefits gains (losses)	(306,970)	80,106
Total revenues	5,657,347	4,193,642
Expenses		
Losses and loss expenses	2,185,920	1,898,443
Future policy benefits (includes remeasurement gains (losses) of $196 and $(1,419))	191,757	194,550
Policy acquisition costs	1,084,847	1,035,601
Administrative expenses	27,485	39,054
Interest expense	13,132	12,364
Total expenses	3,503,141	3,180,012
Income before income tax	2,154,206	1,013,630
Income tax benefit/(expense)	832,208	—
Net income	2,986,414	1,013,630
Less: Net income (loss) attributable to the non-controlling interest	205,438	(145,966)
Net income attributable to Chubb Tempest Life Reinsurance Ltd.	2,780,976	1,159,596
Other comprehensive income (loss) (OCI)		
Unrealized appreciation (depreciation) on investments	289,958	(1,406,665)
Reclassification adjustments for net realized (gains) loss included in net income	69,130	305,308
	359,088	(1,101,357)
Change in:		
Current discount rate on future policy benefits	(49,049)	37,216
Instrument-specific credit risk on market risk benefits	1,584	33,377
Cumulative foreign currency translation adjustments	(67,581)	(177,001)
Other comprehensive income (loss)	244,042	(1,207,765)
Comprehensive income (loss)	3,230,456	(194,135)
Less: Comprehensive income (loss) attributable to the non-controlling interest	205,438	(145,966)
Comprehensive income (loss) attributable to Chubb Tempest Life Reinsurance Ltd.	3,025,018	(48,169)

CHUBB TEMPEST LIFE REINSURANCE LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF SHAREHOLDER'S EQUITY
For the years ended December 31, 2023 and 2022

(in thousands of US. dollars)	2023	2022
		As adjusted
	$	$
Common shares		
Balance – beginning and end of year	370	370
Additional paid-in capital		
Balance – beginning of year	4,017,157	4,028,068
Disposal of net assets	—	(10,911)
Balance - end of year	4,017,157	4,017,157
Retained earnings		
Balance – beginning of year	6,029,873	9,770,715
Cumulative effect of adoption of accounting standards (see Note 3)	—	48,389
Balance – beginning of year, as adjusted	6,029,873	9,819,104
Net income	2,780,976	1,159,596
Disposal of net assets	—	(21,327)
Dividends declared on Common Shares	(1,500,000)	(4,927,500)
Balance - end of year	7,310,849	6,029,873
Accumulated other comprehensive income		
Net unrealized appreciation (depreciation) on investments		
Balance – beginning of year	(866,890)	218,198
Change in year, before reclassification from AOCI	289,958	(1,406,665)
Amounts reclassified from AOCI to net income	69,130	305,308
Disposal of net assets	—	16,269
Balance - end of year	(507,802)	(866,890)
Current discount rate - liability for future policy benefits		
Balance – beginning of year	(137,977)	—
Cumulative effect of adoption of accounting standards (see Note 3)	—	(175,193)
Balance – beginning of year, as adjusted	(137,977)	(175,193)
Change in year	(49,049)	37,216
Balance - end of year	(187,026)	(137,977)
Instrument-specific credit risk - market risk benefits		
Balance – beginning of year	(23,413)	—
Cumulative effect of adoption of accounting standards (see Note 3)	—	(56,790)
Balance – beginning of year, as adjusted	(23,413)	(56,790)
Change in year	1,584	33,377
Balance - end of year	(21,829)	(23,413)
Cumulative foreign currency translation adjustments		
Balance – beginning of year	(354,803)	(171,109)
Cumulative effect of adoption of accounting standards (see Note 3)	—	(2,705)
Balance – beginning of year, as adjusted	(354,803)	(173,814)
Change in year	(67,581)	(177,001)
Disposal of net assets	—	(3,988)
Balance - end of year	(422,384)	(354,803)
Accumulated other comprehensive income (loss)	(1,139,041)	(1,383,083)
Total Chubb Tempest Life Reinsurance Ltd. shareholder’s equity	10,189,335	8,664,317
Non-controlling interest		
Balance - beginning of year	1,261,930	1,407,896
Net income (loss)	205,438	(145,966)
Total non-controlling interest	1,467,368	1,261,930

The accompanying notes are an integral part of these consolidated financial statements.

CHUBB TEMPEST LIFE REINSURANCE LTD. AND ITS SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

For the years ended December 31, 2023 and 2022

(in thousands of US. dollars)	2023	2022 As adjusted
Cash flows from (used in) operating activities	**$**	**$**
Net income	2,986,414	1,013,630
Adjustments to reconcile net income to net cash flows from operating activities:		
Net realized (gains) losses	(62,713)	297,670
Market risk benefits (gains) losses	306,970	(80,106)
Amortization of premiums/discounts on fixed maturities	(9,030)	20,612
Deferred income taxes	(832,208)	—
Unpaid losses and loss expenses, net of reinsurance recoverable	524,966	247,221
Future policy benefits, net of reinsurance recoverable	(4,569)	(15,471)
Unearned premiums	104,999	117,129
Reinsurance balances payable	900,225	225,214
Accounts payable, accrued expenses, other liabilities and funds withheld	78,804	(80,223)
Reinsurance balances receivable	(153,438)	(206,976)
Prepaid reinsurance premiums	(8,250)	(22,535)
Accrued investment income	(2,694)	17,942
Deferred policy acquisition costs	(28,244)	(57,357)
Value of reinsurance business assumed	6,639	15,322
Amounts received from (paid to) parent and affiliates	18,483	(441,950)
Equity in net income of partially-owned entities	(814,981)	205,212
Other	(108,644)	(146,469)
Net cash flows from (used in)operating activities	2,902,729	1,108,865
Cash flows from (used in) investing activities		
Purchases of fixed maturities (available for sale and held to maturity)	(2,218,370)	(2,914,712)
Purchases of equity securities	—	(1,000)
Sales of fixed maturities available for sale	1,572,488	5,285,251
Maturities and redemptions of fixed maturities (available for sale and held to maturity)	572,070	1,169,284
Net change in short-term investments	39,439	42,589
Net derivative instruments settlements	(203,443)	177,893
Private equity contributions	(1,120,732)	(1,125,421)
Private equity distributions	783,305	486,860
Payment, including deposit, for Huatai Group interest	—	488,745
Disposal of net assets (net of cash)	—	32,721
Other	4,273	(6,066)
Net cash flows from (used in) investing activities	(570,970)	3,636,144
Cash flows from (used in) financing activities		
Dividends paid	(1,500,000)	(4,927,500)
Net proceeds (repayment of) affiliated notional cash pooling program	(331,617)	177,888
Other	(140,158)	(85,622)
Net cash flows from (used in) financing activities	(1,971,775)	(4,835,234)
Effect of foreign currency rate change on cash and restricted cash	56,007	(49,061)
Net increase (decrease) in cash and restricted cash	415,991	(139,286)
Cash and restricted cash - beginning of year	80,259	219,545
Cash and restricted cash - end of year	496,250	80,259
Supplemental cash flow information		
Interest paid	11,864	11,728

The accompanying notes are an integral part of these consolidated financial statements.

1. General

Chubb Tempest Life Reinsurance Ltd. (the Company or CTLR) was incorporated under the laws of Bermuda and is ultimately a wholly owned subsidiary of Chubb Limited (Chubb). Chubb Tempest Reinsurance Ltd. (CTR) was incorporated under the laws of Bermuda and is a 100 percent owned subsidiary.

Chubb Life Insurance Myanmar Limited, Chubb Life Europe SE, Oasis Investments Limited and Oasis Investments 2 Ltd are consolidated in these financial statements because CTR owns 100%, 99.99%, 66.7% and 66.7%, respectively. There has been no change in the ownership percentages held during 2023.

Chubb Tempest Reinsurance Ltd. Escritório de Representação No Brasil Ltda. is a subsidiary established in Brazil and is owned 99.999999% by CTR. The results of this entity are consolidated in these financial statements.

On December 1, 2022, the Company completed a net assets transfer (the transfer) pursuant to which its Taiwan branch transferred all of its net assets to Cigna Taiwan Life Assurance Company Ltd., a party under common control of Chubb Limited. In connection with the transfer, the Company received $88 million of consideration and the net impact of the transfer is reflected as a reduction of $20 million to equity in the Consolidated statement of shareholder's equity for 2022.

2. Principal Business

The Company provides life and annuity (Life) reinsurance and, through CTR, property catastrophe, property and casualty reinsurance as well as Life reinsurance for a diverse group of customers worldwide.

3. Significant accounting policies:

(a) Basis of presentation

The accompanying Consolidated financial statements, which include the accounts of the Company and its subsidiaries, have been prepared in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP) and, in the opinion of management, reflect all adjustments necessary for a fair statement of the results and financial position for such periods. All significant intercompany accounts and transactions including internal reinsurance transactions have been eliminated. Certain items in the prior year financial statements have been reclassified to conform to the current year presentation.

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, 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. Amounts included in the Consolidated financial statements reflect the Company’s best estimates and assumptions; actual amounts could differ materially from these estimates. The Company’s principal estimates include:

- unpaid loss and loss expense reserves;
- future policy benefits reserves
- value of reinsurance business assumed;
- the assessment of risk transfer for certain reinsurance contracts;
- reinsurance recoverable, including a valuation allowance for uncollectible reinsurance;
- the valuation of the investment portfolio and assessment of valuation allowance for expected credit losses;
- the valuation of deferred income taxes; and
- the assessment of goodwill for impairment.

(b) Premiums

Premiums are generally recorded as written upon inception of the policy. For multi-year policies for which premiums written are payable in annual installments, only the current annual premium is included as written at policy inception due to the ability of the insured/reinsured to commute or cancel coverage within the policy term. The remaining annual premiums are recorded as written at each successive anniversary date within the multi-year term.

For property and casualty (P&C) reinsurance products, premiums written are primarily earned on a pro-rata basis over the policy terms to which they relate. Unearned premiums represent the portion of premiums written applicable to the unexpired portion of the policies in force. For retrospectively-rated policies, written premiums are adjusted to reflect expected ultimate premiums consistent with changes to incurred losses, or other measures of exposure as stated in the policy, and earned over the policy coverage period.

Mandatory reinstatement premiums assessed on reinsurance policies are earned in the period of the loss event that gave rise to the reinstatement premiums. All remaining unearned premiums are recognized over the remaining coverage period.

Premiums from long duration contracts such as certain traditional term life, whole life, and long duration personal accident and health (A&H) policies are generally recognized as revenue when due from policyholders. Traditional life policies include those contracts with fixed and guaranteed premiums and benefits. Benefits and expenses are recognized in relation to insurance in force resulting in the recognition of profit over the life of the contracts.

Retroactive loss portfolio transfer (LPT) contracts in which the insured loss events occurred prior to contract inception are evaluated to determine whether they meet criteria for reinsurance accounting. If reinsurance accounting is appropriate, written premiums are fully earned and corresponding losses and loss expenses recognized at the contract inception. These contracts can cause significant variances in gross premiums written, net premiums written, net premiums earned, and net incurred losses in the years in which they are written.

Reinsurance premiums assumed are based on information provided by ceding companies supplemented by the Company's own estimates of premium when the Company has not received ceding company reports. Estimates are reviewed and adjustments are recorded in the period in which they are determined. Premiums are earned over the coverage terms of the related reinsurance contracts and range from one to three years.

(c) Deferred policy acquisition costs (DAC)

Policy acquisition costs consist of commissions (direct and ceded), premium taxes, and certain underwriting costs related directly to the successful acquisition of new or renewal insurance contracts. Amortization is recorded in Policy acquisition costs in the Consolidated statements of operations.

Short-duration contracts

Policy acquisition costs are amortized ratably over the period the related premiums are earned. Policy acquisition costs are reviewed to determine if they are recoverable from future income including investment income. Unrecoverable policy acquisition costs are expensed in the period identified.

Long-duration contracts

Policy acquisition costs are grouped by contract type and issue year into cohorts consistent with the groupings used in estimating the associated liability and are expensed on a constant level basis over the expected term of the related contracts to approximate straight-line amortization at the contract level. The constant level basis used for amortization is the insurance in-force and is projected using the same assumptions used in estimating the liability for future policy benefits. If those projected assumptions change in future periods, they will be reflected in the cohort level amortization basis at that time. Unexpected changes in the in-force portfolio, due to variances in mortality and lapse experience, are recognized over the contract term. Changes in future mortality and lapse assumptions are also recognized prospectively over the remaining expected contract term.

(d) Reinsurance

The Company assumes and cedes reinsurance with other insurance companies to provide greater diversification of business and minimize the net loss potential arising from large risks. Ceded reinsurance contracts do not relieve the Company of its primary obligation to its policyholders.

For both ceded and assumed reinsurance, risk transfer requirements must be met in order to account for a contract as reinsurance, principally resulting in the recognition of cash flows under the contract as premiums and losses. To meet risk transfer requirements, a reinsurance contract must include insurance risk, consisting of both underwriting and timing risk, and a reasonable possibility of a significant loss for the assuming entity. To assess risk transfer for certain contracts, the Company generally develops expected discounted cash flow analyses at contract inception. Deposit accounting is used for contracts that do not meet risk transfer requirements.

Reinsurance recoverable includes the balances due from reinsurance companies for paid and unpaid losses and loss expenses and future policy benefits that will be recovered from reinsurers, based on contracts in force. The method for determining the reinsurance recoverable on unpaid losses and loss expenses incurred but not reported (IBNR) involves actuarial estimates consistent with those used to establish the associated liability for unpaid losses and loss expenses as well as a determination of the Company's ability to cede unpaid losses and loss expenses under the terms of the reinsurance agreement.

Reinsurance recoverable is presented net of a valuation allowance for uncollectible reinsurance determined based upon a review of the financial condition of the reinsurers and other factors. The valuation allowance for uncollectible reinsurance is based on an estimate of the amount of the reinsurance recoverable balance that will ultimately be unrecoverable due to reinsurer insolvency, a contractual dispute, or any other reason. The valuation of this allowance includes several judgments including certain aspects of the allocation of reinsurance recoverable on IBNR claims by reinsurer and a default analysis to estimate uncollectible reinsurance. The primary components of the default analysis are reinsurance recoverable balances by reinsurer, net of collateral, and default factors used to determine the portion of a reinsurer's balance deemed uncollectible.

The definition of collateral for this purpose requires some judgment and is generally limited to assets held in a Chubb-only beneficiary trust, letters of credit, and liabilities held by the Company with the same legal entity for which it believes there is a contractual right of offset. The determination of the default factor is principally based on the financial strength rating of the reinsurer. Default factors require considerable judgment and are determined using the current financial strength rating, or rating equivalent, of each reinsurer as well as other key considerations and assumptions. Changes in the valuation allowance for uncollectible reinsurance recoverables are recorded in Losses and loss expenses in the Consolidated statements of operations. The more significant considerations to calculate the valuation allowance include, but are not necessarily limited to, the following:

- For reinsurers that maintain a financial strength rating from a major rating agency, and for which recoverable balances are considered representative of the larger population (i.e., default probabilities are consistent with similarly rated reinsurers and payment durations conform to averages), the financial rating is based on a published source and the default factor is based on published default statistics of a major rating agency applicable to the reinsurer's particular rating class. When a recoverable is expected to be paid in a brief period of time by a highly rated reinsurer, such as certain property catastrophe claims, a default factor may not be applied;
- For balances recoverable from reinsurers that are both unrated by a major rating agency and for which management is unable to determine a credible rating equivalent based on a parent, affiliate, or peer company, the Company determines a rating equivalent based on an analysis of the reinsurer that considers an assessment of the creditworthiness of the particular entity, industry benchmarks, or other factors as considered appropriate. The Company then applies the applicable default factor for that rating class. For balances recoverable from unrated reinsurers for which the ceded reserve is below a certain threshold, the Company generally applies a default factor of 34 percent, consistent with published statistics of a major rating agency;
- For balances recoverable from reinsurers that are either insolvent or under regulatory supervision, the Company establishes a default factor and resulting valuation allowance for uncollectible reinsurance based on reinsurer-specific facts and circumstances. Upon initial notification of an insolvency, the Company generally recognizes expense for a substantial portion of all balances outstanding, net of collateral, through a combination of write-offs of recoverable balances and increases to the valuation allowance for uncollectible reinsurance. When regulatory action is taken on a reinsurer, the Company generally recognizes a default factor by estimating an expected recovery on all balances outstanding, net of collateral. When sufficient credible information becomes available, the Company adjusts the valuation allowance for uncollectible reinsurance by establishing a default factor pursuant to information received; and
- For other recoverables, management determines the valuation allowance for uncollectible reinsurance based on the specific facts and circumstances of that dispute.

The methods used to determine the reinsurance recoverable balance and related valuation allowance for uncollectible reinsurance are regularly reviewed and updated and any resulting adjustments are reflected in earnings in the period identified.

The methods used to determine the valuation allowance for uncollectible high deductible recoverable amounts and valuation allowance for insurance and reinsurance balances receivable are similar to the processes used to determine the valuation allowance for uncollectible reinsurance recoverable.

Prepaid reinsurance premiums represent the portion of premiums ceded to reinsurers applicable to the unexpired coverage terms of the reinsurance contracts in force.

The value of reinsurance business assumed is the deferred gain or loss related to loss portfolio transfers assumed and is calculated as the difference between the estimated ultimate value of the liabilities assumed under retroactive reinsurance contracts over consideration received. The gain or loss is amortized and recorded to Losses and loss expenses based on the payment pattern of the losses assumed. The unamortized value is reviewed regularly to determine if it is recoverable based upon the terms of the contract, estimated losses and loss expenses, and anticipated investment income. Unrecoverable amounts are expensed in the period identified.

(e) Investments

Fixed maturities, short-term investments, and equity securities

Fixed maturities are classified as available-for-sale (AFS) and are reported at fair value, net of a valuation allowance for credit losses, with changes in fair value recorded as a separate component of AOCI in Shareholder's equity. The Company, classified securities for which it had the ability and intent to hold to maturity or redemption as held to maturity (HTM), and reported these securities at amortized cost, net of a valuation allowance for credit losses.

Short-term investments comprise securities due to mature within one year of the date of purchase and are recorded at fair value which typically approximates cost.

Equity securities are reported at fair value with changes in fair value recorded in Net realized gains (losses) on the Consolidated statements of operations.

Interest, dividend income, amortization of fixed maturity market premiums and discounts related to these securities are recorded in Net investment income, net of investment management and custody fees, in the Consolidated statements of operations. Realized gains or losses on sales of investments are determined on a first-in, first-out basis.

For mortgage-backed securities (MBS) 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 prospectively. Prepayment fees or call premiums that are only payable when a security is called prior to its maturity are earned when received and reflected in Net investment income.

Valuation allowance for fixed income securities

Management evaluates expected credit losses (ECL) for AFS securities when fair value is below amortized cost. AFS securities are evaluated for potential credit loss on an individual security level but the evaluation may use assumptions consistent with expectations of credit losses for a group of similar securities. If management has the intent to sell or will be required to sell the security before recovery, the entire impairment loss will be recorded through income to Net realized gains and losses. If management does not have the intent to sell or will not be required to sell the security before recovery, an allowance for credit losses is established and is recorded through income to Net realized gains and losses, and the non-credit loss portion is recorded through other comprehensive income.

Examples of criteria that are collectively evaluated to determine if a credit loss has occurred include the following:

- The extent to which the fair value is less than amortized cost;
- Adverse conditions related to the security, industry, or geographic area;
- Downgrades in the security's credit rating by a rating agency; and
- Failure of the issuer to make scheduled principal or interest payments

AFS securities that meet any one of the criteria included above will be subject to a discounted cash flow analysis by comparing the present value of expected future cash flows with the amortized cost basis. Projected cash flows are driven primarily by assumptions regarding probability of default and the timing and amount of recoveries associated with defaults. The Company developed the projected cash flows using market data, issuer-specific information, and credit ratings. In combination with contractual cash flows and the use of historical default and recovery data by Moody's Investors Service (Moody's) rating category the Company generates expected cash flows using the average cumulative issuer-weighted global default rates by letter rating.

If the present value of expected future cash flows is less than the amortized cost, a credit loss exists and an allowance for credit losses will be recognized. If the present value of expected future cash flows is equal to or greater than the amortized cost basis, management will conclude an expected credit loss does not exist.

Management reviews credit losses and the valuation allowance for expected credit losses each quarter. When all or a portion of a fixed maturity security is identified to be uncollectible and written off, the valuation allowance for expected credit losses is reduced. In general, a security is considered uncollectible no later than when all efforts to collect contractual cash flows have been exhausted. Below are considerations for when a security may be deemed uncollectible:

- The Company has sufficient information to determine that the issuer of the security is insolvent;
- The Company receives notice that the issuer of the security has filed for bankruptcy, and the collectability is expected to be adversely impacted by the bankruptcy;
- The issuer of a security has violated multiple debt covenants;
- Amounts have been past due for a specified period of time with no response from the issuer;
- A significant deterioration in the value of the collateral has occurred; and
- The Company has received correspondence from the issuer of the security indicating that it doesn’t intend to pay the contractual principal and interest.

The Company elected to not measure an allowance for accrued investment income as uncollectible balances are written off in a timely manner, typically 30 to 45 days after uncollected balances are due.

Private Equities

Private Equities principally consist of Investment funds, limited partnerships, and partially owned investment companies.

Investment funds and limited partnerships

Investment funds and limited partnerships over which the Company cannot exercise significant influence, generally, when we own less than three percent of the investee's shares, are accounted for as follows:

- Income and expenses from these funds are reported within Net investment income.
- These funds are carried at net asset value which approximates fair value with changes in fair value recorded in Net realized gains (losses) on the Consolidated statement of operations. Refer to Note 13 for a further discussion on net asset value.
- As a result of the timing of the receipt of valuation data from the investment managers, these investments are generally reported on a three-month lag.
- Sales of these investments are reported within Net realized gains (losses).

Partially-owned investment companies

Partially-owned investment companies are limited partnerships where the Company's ownership interest is in excess of three percent and are accounted for under the equity method because the Company exerts significant influence. These investments apply investment company accounting to determine operating results, and the Company retains the investment company accounting in applying the equity method.

- This means that investment income, realized gains or losses, and unrealized gains or losses are included in the portion of equity earnings reflected in Other (income) expense.
- As a result of the timing of the receipt of valuation data from the investment managers, these investments are generally reported on a three-month lag.

Other investments

Policy loans are carried at outstanding balance and interest income is reflected in Net investment income.

Investments in partially-owned insurance companies

Investments in partially-owned insurance companies primarily represent direct investments in which the Company has significant influence and as such, meet the requirements for equity method accounting. Generally, the Company owns twenty percent or more of the investee's shares. The company reports its share of the net income or loss of the partially-owned insurance companies in Other (income) expense.

Securities lending program

The Company participates in a securities lending program operated by a third party banking institution whereby certain assets are loaned to qualified borrowers and from which the Company earns an incremental return which is recorded within Net investment income in the Consolidated statement of operations.

Borrowers provide collateral, in the form of either cash or approved securities, at a minimum of 102 percent of the fair value of the loaned securities. Each security loan is deemed to be an overnight transaction. Cash collateral is invested in a collateral pool which is managed by the banking institution. The collateral pool is subject to written investment guidelines with key objectives which include the safeguard of principal and adequate liquidity to meet anticipated redemptions. The fair value of the loaned securities is monitored on a daily basis, with additional collateral obtained or refunded as the fair value of the loaned securities changes. The fair value of the securities on loan is included in Fixed maturities available-for-sale and Equity securities in the Consolidated balance sheets. The collateral is held by the third-party banking institution, and the collateral can only be accessed in the event that the institution borrowing the securities is in default under the lending agreement. As a result of these restrictions, we consider our securities lending activities to be non-cash investing and financing activities. An indemnification agreement with the lending agent protects us in the event a borrower becomes insolvent or fails to return any of the securities on loan. The securities lending collateral is reported as a separate line in the Consolidated balance sheets with a related liability reflecting our obligation to return the collateral plus interest.

Repurchase agreements

Similar to securities lending arrangements, securities sold under repurchase agreements, whereby the Company sells securities and repurchases them at a future date for a predetermined price, are accounted for as collateralized investments and borrowings and are recorded at the contractual repurchase amounts plus accrued interest. Assets to be repurchased are the same or substantially the same as the assets transferred and the transferor, through right of substitution, maintains the right and ability to redeem the collateral on short notice. The fair value of the underlying securities is included in fixed maturities. In contrast to securities lending programs, the use of cash received is not restricted. The Company reports the obligation to return the cash as Repurchase agreements in the Consolidated balance sheets and record the fees under these repurchase agreements within Interest expense on the Consolidated statement of operations.

Refer to Note 13 for a discussion on the determination of fair value for the Company’s various investment securities.

Derivative instruments not designated as hedging instruments

Derivative instruments which are not designated as hedges are carried at fair value in the Consolidated balance sheets in either Accounts payable, accrued expenses, and other liabilities or Other assets. The Company participates in these derivative instruments primarily to mitigate financial risks and manage certain investment portfolio risks and exposures, including assets and liabilities denominated in foreign currencies. The Company uses derivative instruments including futures, options, swaps, and foreign currency forward contracts. Refer to Note 11 for additional information.

Changes in fair value are included in Net realized gains (losses) and changes in fair value of futures contracts on equities related to our variable annuity reinsurance business are included in Market risk benefits gains (losses) in the Consolidated statements of operations. The Company did not designate any derivatives as accounting hedges during 2023 or 2022.

(f) Cash

Chubb has agreements with a third party bank provider which implemented two international multi-currency notional cash pooling programs. In each program, participating Chubb entities establish deposit accounts in different currencies with the bank provider and each day the credit or debit balances in every account are notionally translated into a single currency (U.S. dollars) and then notionally pooled. The bank extends overdraft credit to any participating Chubb entity as needed, provided that the overall notionally-pooled balance of all accounts in each pool at the end of each day is at least zero. Actual cash balances are not physically converted and are not commingled between legal entities. Any overdraft balances incurred under this program by a Chubb entity would be guaranteed by Chubb Limited (up to $300 million in the aggregate). The syndicated letter of credit facility allows for same day drawings to fund a net pool overdraft should participating Chubb entities overdraw contributed funds from the pool. The Company is a participating Chubb entity.

Restricted cash

Included in Cash is restricted cash of $8.2 million and $14.6 million at December 31, 2023 and 2022 respectively. Restricted cash represents amounts held for the benefit of third parties and is legally or contractually restricted as to withdrawal or usage. Amounts include deposits with non-U.S. regulatory authorities, trust funds set up for the benefit of ceding companies, and amounts pledged as collateral to meet financing arrangements.

(g) Goodwill

Goodwill represents the excess of the cost of acquisitions over the fair value of net assets acquired and is not amortized. Goodwill is assigned at acquisition to the applicable reporting unit of the acquired entities giving rise to the goodwill. Goodwill impairment tests are performed annually, or more frequently if circumstances indicate a possible impairment. For goodwill impairment testing, the Company uses a qualitative assessment to determine whether it is more likely than not (i.e., more than a 50 percent probability) that the fair value of a reporting unit is greater than its carrying amount. If our assessment indicates it is more likely than not that carrying value exceeds fair value, the Company quantitatively estimate a reporting unit's fair value. Goodwill recorded in connection with investments in partially-owned insurance companies is recorded in Investments in partially-owned insurance companies and is also measured for impairment annually.

(h) Unpaid losses and loss expenses

A liability is established for the estimated unpaid losses and loss expenses under the terms of the Company's policies and agreements. Similar to premiums that are recognized as revenues over the coverage period of the policy, a liability for unpaid losses and loss expenses is recognized as expense when insured events occur over the coverage period of the policy. This liability includes a provision for both reported claims (case reserves) and incurred but not reported claims (IBNR reserves). IBNR reserve estimates are generally calculated by first projecting the ultimate cost of all losses that have occurred (expected losses), and then subtracting paid losses, case reserves, and loss expenses. The methods of determining such estimates and establishing the resulting liability are reviewed regularly and any adjustments are reflected in income in the period in which they become known. Future developments may result in losses and loss expenses materially greater or less than the recorded amounts. The Company does not discount it's property and casualty loss reserves.

Prior period development arises from changes to loss estimates recognized in the current year that relate to loss reserves first reported in previous calendar years and excludes the effect of losses from the development of earned premiums from previous accident years.

For purposes of analysis, management views prior period development to be changes in the nominal value of loss estimates from period to period, net of premium and profit commission adjustments on loss sensitive contracts. Prior period development generally excludes changes in loss estimates that do not arise from the emergence of claims, such as those related to uncollectible reinsurance, interest, unallocated loss adjustment expenses, or foreign currency.

Accordingly, specific items excluded from prior period development include the following: gains/losses related to foreign currency remeasurement; losses recognized from the early termination or commutation of reinsurance agreements that principally relate to the time value of money; changes in the value of reinsurance business assumed reflected in losses incurred but principally related to the time value of money; and losses that arise from changes in estimates of earned premiums from prior accident years. Except for foreign currency remeasurement, which is included in Net realized gains (losses), these items are included in current year losses within Losses and loss expenses on the Consolidated statements of operations.

(i) Future policy benefits

For traditional and limited-payment contracts, contracts are grouped into cohorts by coverage type and issue year to determine a liability for future policy benefits. The future policy benefit liability (FPBL) is the present value of estimated future policy benefits to be paid to or on behalf of policyholders and certain related expenses less the present value of estimated future net premiums to be collected from policyholders and is accrued as premium revenue is recognized. The valuation of this liability requires management to make estimates and assumptions regarding expenses, mortality, and persistency. Estimates are primarily based on historical experience. Actual results could differ materially from these estimates. The liability is adjusted for differences between actual and expected experience.

For traditional and limited payment contracts, the discount rate assumption is based on an upper-medium grade fixed-income instrument yield. An equivalent rate is derived based on A-credit-rated fixed-income instruments with similar duration to the liability. The discount rate assumption is updated quarterly and used to remeasure the liability at each reporting date, with the resulting change reflected in Other comprehensive income. For liability cash flows that are projected beyond the duration of market-observable A-credit-rated fixed-income instruments, the Company uses the last market-observable yield level, as the basis for a linear interpolation to determine yield assumptions for durations that do not have market-observable yields.

(j) Market risk benefits

The Company reinsures various death and living benefit guarantees associated with variable annuities issued primarily in the United States, which meet the definition of Market risk benefits (MRB). These reinsurance contracts provide protection to the ceding entity from, and expose us to, other-than-nominal capital market risk. Market risk benefits are measured at fair value using a valuation model based on current net exposures, market data, our experience, and other factors. Changes in fair value are recognized in Market risk benefits gains (losses) in the Consolidated statements of operations, except the change in fair value due to a change in the instrument-specific credit risk, which is recognized in other comprehensive income.

The Company generally receives a monthly premium during the accumulation phase of the covered annuities (in-force) based on a percentage of either the underlying accumulated account values or the underlying accumulated guaranteed values. Depending on an annuitant's age, the accumulation phase can last many years. To limit the Company’s exposure under these programs, all reinsurance treaties include annual or aggregate claim limits and many include an aggregate deductible.

The guarantees which are payable on death, referred to as guaranteed minimum death benefits (GMDB), principally cover shortfalls between accumulated account value at the time of an annuitant's death and either i) an annuitant's total deposits; ii) an annuitant's total deposits plus a minimum annual return; or iii) the highest accumulated account value attained at any policy anniversary date. In addition, a death benefit may be based on a formula specified in the variable annuity contract that uses a percentage of the growth of the underlying contract value.

Under reinsurance programs guaranteeing living benefits (GLB), the Company assumes the risk of guaranteed minimum income benefits (GMIB) associated with variable annuity contracts. The GMIB risk is triggered if, at the time the contract holder elects to convert the accumulated account value to a periodic payment stream (annuitize), the accumulated account value is not sufficient to provide a guaranteed minimum level of monthly income.

(k) Foreign currency remeasurement and translation

The functional currency for each of the Company’s foreign operations is generally the currency of the local operating environment. Transactions in currencies other than a foreign operation's functional currency are remeasured into the functional currency and the resulting foreign exchange gains and losses are reflected in Net realized gains (losses) in the Consolidated statements of operations. Functional currency assets and liabilities are translated into the reporting currency, U.S. dollars, using period end exchange rates and the related translation adjustments are recorded as a separate component of AOCI in Shareholder’s equity. Functional statement of operations amounts expressed in functional currencies are translated using average exchange rates.

(l) Administrative expenses

Administrative expenses generally include all operating costs other than policy acquisition costs.

(m) Share-based compensation

The Company receives an allocation of share-based compensation costs from its ultimate parent, Chubb Limited. Chubb Limited measures and records compensation cost for all share-based payment awards at grant-date fair value. Compensation costs are recognized for vesting of share-based payment awards with only service conditions on a straight-line basis over the requisite service period for each separately vesting portion of the award as if the award were, in substance, multiple awards. For retirement-eligible participants, compensation costs for certain share-based payment awards are recognized immediately at the date of grant.

(n) Income taxes

Deferred tax assets and liabilities result from temporary differences between the amounts recorded in the Consolidated Financial Statements and the tax basis of our assets and liabilities. The effect on deferred tax assets and liabilities of a change in tax law or rates is recognized in the period that includes the enactment date. A valuation allowance against deferred tax assets is recorded if it is more likely than not that all, or some portion, of the benefits related to these deferred tax assets will not be realized. Adjustments to the valuation allowance are made when there is a change in management's assessment of the amount of deferred tax assets that are realizable. The valuation allowance assessment considers tax planning strategies, where appropriate.

We recognize uncertain tax positions that are determined to be more likely than not of being sustained upon examination. Recognized income tax positions are measured at the largest amount that has a greater than 50 percent likelihood of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs. Refer to Note 15 for additional details.

(o) New accounting pronouncements

Accounting guidance adopted in 2023

Targeted Improvements to the Accounting for Long-Duration Contracts

Effective January 1, 2023, the Company adopted new guidance on the accounting for long-duration contracts (LDTI). The new accounting guidance requires more frequent updating of assumptions and a standardized discount rate for non-participating traditional and limited pay insurance contract liabilities, a requirement to use the fair value measurement model for policies with market risk benefits, simplified amortization of deferred acquisition costs, and enhanced disclosures.

With the exception of market risk benefits, the Company adopted this guidance on a modified retrospective basis. Under the modified retrospective basis, the liability for future policy benefits is remeasured using the current discount rate at the transition date and the impact of the changes are recorded in AOCI and best estimate cash flow assumptions are applied to contracts in force. The liability for future policy benefits prior to the transition date continues to use the original discount rate (interest accretion rate). The guidance for long-duration contracts applicable to market risk benefits, primarily assumed reinsurance programs involving minimum benefit guarantees under variable annuity contracts, was adopted on a retrospective transition approach. Under the retrospective transition approach, the Company calculated the fair value of market risk benefits which were previously accounted for under an insurance accounting model and recognized an adjustment to retained earnings as of transition date. The Company also reclassified changes in our own credit risk on Market risk benefits from Retained earnings to Accumulated other comprehensive income at transition date.

On January 1, 2023, the Company recorded a cumulative effect adjustment and increased 2022 opening retained earnings by $48.4 million, and decreased 2022 opening AOCI by $234.7 million. Results for the prior reporting periods in this report are presented in accordance with the new guidance. The Company also adopted the required disclosures in Note 5 Deferred acquisition costs, Note 7 Future policy benefits, and Note 8 Market risk benefits.

The impact of adoption of the new guidance on the Company's historical financial statements is as follows:

(in thousands of U.S. dollars)	December 31, 2022 As Previously Reported	LDTI Adoption Adjustment	As Adjusted
Consolidated balance sheet			
Reinsurance recoverable on losses and loss expenses	1,349,729	(3,968)	1,345,761
Deferred policy acquisition costs	431,465	25,533	456,998
Prepaid reinsurance premiums	228,730	1,085	229,815
Investments in partially-owned insurance companies	1,644,100	(132,559)	1,511,541
Unpaid losses and loss expenses	7,326,972	(92,414)	7,234,558
Unearned premiums	1,302,536	(18,292)	1,284,244
Future policy benefits[1]	344,757	77,693	422,450
Market risk benefits	—	800,320	800,320
Accounts payable, accrued expenses and other liabilities	1,264,946	(736,336)	528,610
Retained earnings	6,004,936	24,937	6,029,873
Accumulated other comprehensive income (loss)	(1,217,266)	(165,817)	(1,383,083)

[1] The impact includes the effects of change in discount rates and reclassification of future policy benefits previously included within Unpaid losses and loss expenses on the pre-adoption Consolidated balance sheets, primarily certain international Accident & Health (A&H) business.

(in thousands of U.S. dollars)	Twelve Months Ended December 31, 2022 As Previously Reported	LDTI Adoption Adjustment	As Adjusted
Consolidated statements of operations and comprehensive income			
Net premiums written	4,290,585	(35,467)	4,255,118
Net premiums earned	4,179,610	(35,467)	4,144,143
Net realized gains (losses)	(175,772)	(109,307)	(285,079)
Market risk benefits gains (losses)	—	80,106	80,106
Losses and loss expenses	1,975,543	(77,100)	1,898,443
Future policy benefits	148,095	46,455	194,550
Policy acquisition costs	1,050,097	(14,496)	1,035,601
Other income (expense)	(183,814)	(5,744)	(189,558)
Administrative expenses	40,873	(1,819)	39,054
Net Income	1,037,082	(23,452)	1,013,630
Other comprehensive income			
Change in current discount rate on future policy benefits	—	37,216	37,216
Change in instrument-specific credit risk on market risk benefits	—	33,377	33,377
Cumulative Translation Adjustments	(175,279)	(1,722)	(177,001)
Comprehensive income (loss)	(239,554)	45,419	(194,135)

	Twelve Months Ended December 31, 2022		
(in thousands of U.S. dollars)	As Previously Reported	LDTI Adoption Adjustment	As Adjusted
Consolidated statement of cash flows			
Net cash flows from operating activities	1,098,266	10,599	1,108,865
Net cash flows used for financing activities	(4,824,638)	(10,599)	(4,835,234)

The following table presents a reconciliation of the pre-adoption December 31, 2021, to the post adoption January 1, 2022, balance of market risk benefits:

(in thousands of U.S. dollars)		Offsetting Equity Line Classification
Market risk benefits		
Balance - December 31, 2021	785,104	
Cumulative effect of changes in instrument-specific credit risk between original issuance date and transition date.	56,760	AOCI
Other fair value adjustments	(29,545)	Retained Earnings
Balance - January 1, 2022	812,319	

4. *Investments*

(a) Fixed maturities

The following table presents fixed maturities at December 31, 2023 and 2022:

2023 (in thousands of U.S. dollars)	Amortized Cost	Valuation Allowance	Gross Unrealized Appreciation	Gross Unrealized Depreciation	Fair Value
Available-for-sale					
U.S. Treasury /agency	353,255	–	3,863	(9,661)	347,457
Non-U.S.	3,770,851	(8,826)	42,597	(218,470)	3,586,152
Corporate and asset-backed securities	2,935,223	(6,179)	23,551	(97,714)	2,854,881
Mortgage-backed securities	1,819,640	(317)	5,991	(159,571)	1,665,743
Municipal	143,991	–	923	(4,648)	140,266
	9,022,960	(15,322)	76,925	(490,064)	8,594,499

2022 (in thousands of U.S. dollars)	Amortized Cost	Valuation Allowance	Gross Unrealized Appreciation	Gross Unrealized Depreciation	Fair Value
Available-for-sale					
U.S. Treasury /agency	386,467	–	738	(23,234)	363,971
Non-U.S.	3,465,648	(11,446)	12,846	(338,938)	3,128,110
Corporate and asset-backed securities	3,466,087	(8,730)	10,403	(226,364)	3,241,396
Mortgage-backed securities	1,512,255	(1,087)	899	(174,562)	1,337,505
Municipal	136,295	–	564	(8,068)	128,791
	8,966,752	(21,263)	25,450	(771,166)	8,199,773
Held to maturity					
Corporate and asset-backed securities	114	(23)	17	(4)	104
Mortgage-backed securities	2,362	–	17	(42)	2,337
	2,476	(23)	34	(46)	2,441

The following table presents the amortized cost of the Company's HTM securities according to S&P rating:

(in thousands of U.S. dollars)	2022 Amortized Cost	2022 % of total
AAA	61	2 %
AA	2,362	96 %
Other	53	2 %
Total	2,476	100 %

The following table presents fixed maturities by contractual maturity at December 31, 2023 and 2022.

(in thousands of U.S. dollars)	2023		2022	
	Fair Value	Net Carrying Value	Fair Value	Net Carrying Value
Available for sale; maturity period				
Due in 1 year or less	456,530	456,530	346,853	346,853
Due after 1 year through 5 years	2,933,417	2,933,417	2,830,862	2,830,862
Due after 5 years through 10 years	2,396,253	2,396,253	2,516,934	2,516,934
Due after 10 years	1,142,556	1,142,556	1,167,619	1,167,619
	6,928,756	6,928,756	6,862,268	6,862,268
Mortgage-backed securities	1,665,743	1,665,743	1,337,505	1,337,505
	8,594,499	8,594,499	8,199,773	8,199,773
Held to maturity; maturity period				
Due after 5 years through 10 years	—	—	104	91
	—	—	104	91
Mortgage-backed securities	—	—	2,337	2,362
	—	—	2,441	2,453

Expected maturities could differ from contractual maturities because borrowers may have the right to call or prepay obligations, with or without call or prepayment penalties.

(b) Gross unrealized loss

Fixed maturities in an unrealized loss position at December 31, 2023 and 2022 comprised both investment grade and below investment grade securities for which fair value declined, principally due to rising interest rates since the date of purchase.

The following table present, for AFS fixed maturities in an unrealized loss position at December 31, 2023 and 2022 (including securities on loan) that are not deemed to have expected credit losses, the aggregate fair value and gross unrealized loss by length of time the security has continuously been in an unrealized loss position:

(in thousands of U.S. dollars)	2023					
	0 - 12 Months		Over 12 Months		Total	
	Fair Value	Gross Unrealized Loss	Fair Value	Gross Unrealized Loss	Fair Value	Gross Unrealized Loss
U.S. Treasury /agency	4,011	(13)	208,133	(9,648)	212,144	(9,661)
Non-U.S.	272,045	(4,727)	1,976,315	(165,932)	2,248,360	(170,659)
Corporate and asset-backed securities	193,878	(1,448)	1,529,303	(67,775)	1,723,181	(69,223)
Mortgage-backed securities	275,991	(2,372)	1,089,604	(152,586)	1,365,595	(154,958)
Municipal	6,915	(79)	99,589	(4,569)	106,504	(4,648)
Total AFS fixed maturities	752,840	(8,639)	4,902,944	(400,510)	5,655,784	(409,149)

(in thousands of U.S. dollars)	2022					
	0 - 12 Months		Over 12 Months		Total	
	Fair Value	Gross Unrealized Loss	Fair Value	Gross Unrealized Loss	Fair Value	Gross Unrealized Loss
U.S. Treasury /agency	182,752	(8,367)	166,754	(14,867)	349,506	(23,234)
Non-U.S.	1,731,440	(135,082)	806,246	(126,543)	2,537,686	(261,625)
Corporate and asset-backed securities	2,458,217	(144,741)	369,103	(36,600)	2,827,320	(181,341)
Mortgage-backed securities	826,016	(70,846)	426,640	(91,664)	1,252,656	(162,510)
Municipal	100,993	(6,977)	9,370	(1,091)	110,363	(8,068)
Total AFS fixed maturities	5,299,418	(366,013)	1,778,113	(270,765)	7,077,531	(636,778)

The following table presents a roll-forward of valuation allowance for expected credit losses on fixed maturities

(in thousands of U.S. dollars)	2023	2022
Available for sale		
Valuation allowance for expected credit losses - beginning of period	21,263	3,502
Provision for expected credit loss	20,075	27,902
Foreign currency revaluation	(182)	(223)
Recovery of expected credit loss	(25,834)	(9,918)
Valuation allowance for expected credit losses - end of period	15,322	21,263
Held to maturity		
Valuation allowance for expected credit losses - beginning of period	23	30
Provision for expected credit loss	–	8
Recovery of expected credit loss	(23)	(15)
Valuation allowance for expected credit losses - end of period	–	23

(c) Net realized gains (losses)

The following table presents, for the years ended December 31, 2023 and 2022, the components of Net realized gains (losses) and the change in net unrealized appreciation (depreciation) of investments.

(in thousands of U.S. dollars)	2023	2022
Fixed maturities:		
Gross realized gains	7,488	37,877
Gross realized losses	(71,245)	(308,134)
Net (provision for) recovery of expected credit losses	5,776	(18,050)
Impairment [1]	(11,149)	(17,001)
Total fixed maturities	(69,130)	(305,308)
Equity securities	10,357	(37,945)
Private equities (less than 3 percent ownership)	80,170	(25,863)
Foreign exchange gains (losses)	41,690	31,034
Derivative instruments	(123)	52,090
Other	(251)	913
Net realized gains (losses)	62,713	(285,079)

(in thousands of U.S. dollars)	2023	2022
Change in net unrealized appreciation (depreciation) on investments:		
Fixed maturities available for sale	333,867	(1,106,965)
Fixed maturities held to maturity	(702)	(172)
Other	25,923	5,780
Change in net unrealized appreciation (depreciation) on investments	359,088	(1,101,357)
Total net realized gains (losses) and change in net unrealized appreciation (depreciation) on investments	421,801	(1,399,024)

[1] Relates to certain securities the company intended to sell and securities written to market entering default.

Realized gains and losses from equity securities and private equities from the table above include sales of securities and unrealized gains and losses from fair value changes as follows:

	Year Ended December 31, 2023			Year Ended December 31, 2022		
(in thousands of U.S. dollars)	Equity securities	Private Equities	Total	Equity securities	Private Equities	Total
Net gains (losses) recognized during the period	10,357	80,170	90,527	(37,945)	(25,863)	(63,808)
Less: Net gains (losses) recognized from sales of securities	—	—	—	(104)	(353)	(457)
Unrealized gains (losses) recognized for securities still held at reporting date	10,357	80,170	90,527	(37,841)	(25,510)	(63,351)

(d) Other investments

The following table presents Other Investments at December 31, 2023 and 2022:

(in thousands of U.S. dollars)	**2023**	**2022**
	Fair Value/Cost	Fair Value/Cost
Policy loans and other	5,009	4,040

(e) Private equities

Private equities include investment funds, limited partnerships and partially owned investment companies measured at fair value using net asset value (NAV) as a practical expedient.

The following table presents, by investment category, the expected liquidation period, fair value of and maximum future funding commitments for private equities.

	December 31, 2023			**December 31, 2022**	
	Expected Liquidation Period	Fair Value	Maximum Future Funding Commitments	Fair Value	Maximum Future Funding Commitments
			(in thousands of U.S. dollars)		
Financial	2 to 10 Years	1,117,563	330,445	929,485	471,381
Real assets	2 to 13 Years	250,010	106,444	209,924	139,153
Distressed	2 to 8 Years	444,534	315,146	324,729	359,538
Private credit	3 to 8 Years	21,759	137,187	141,264	237,153
Traditional	2 to 14 Years	7,665,400	3,845,368	6,516,289	4,725,240
Vintage	1 to 2 Years	16,060	–	17,612	–
Investment funds	Not Applicable	217,780	–	372,978	–
		9,733,106	4,734,590	8,512,281	5,932,465

Included in all categories in the above table except for investment funds are investments for which the Company will never have the contractual option to redeem but receives distributions based on the liquidation of the underlying assets. Further, for all categories except for Investment funds, the Company does not have the ability to sell or transfer the investments without the consent from the general partner of individual funds.

Investment Category	**Consists of investments in private equity funds**
Financial	targeting financial services companies, such as financial institutions and insurance services worldwide
Real assets	targeting investments related to hard physical assets, such as real estate, infrastructure and natural resources
Distressed	targeting distressed corporate debt/credit and equity opportunities in the U.S.
Private credit	targeting privately originated corporate debt investments, including senior secured loans and subordinated bonds
Traditional	employing traditional private equity investment strategies such as buyout and growth equity globally
Vintage	funds where the initial fund term has expired

Included in private equities are 62 individual limited partnerships covering a broad range of investment strategies including large cap buyouts, specialist buyouts, growth capital, distressed, mezzanine, real estate, and co-investments. The underlying portfolio consists of various public and private debt and equity securities of publicly traded and privately held companies and real estate assets. The underlying investments across various partnerships, geographies, industries, asset types, and investment strategies provide risk diversification within the limited partnership portfolio and the overall investment portfolio.

Investment funds employ various investment strategies such as long/short equity and arbitrage/distressed. Included in this category are investments for which the Company has the option to redeem at agreed upon value as described in each investment fund's subscription agreement. Depending on the terms of the various subscription agreements, investment fund investments may be redeemed monthly, quarterly, semi-annually, or annually. If the Company wishes to redeem an investment fund investment, it must first determine if the investment fund is still in a lock-up period (a time when the Company cannot redeem its investment so that the investment fund manager has time to build the portfolio). If the investment fund is no longer in its lock-up period, the Company must then notify the investment fund manager of its intention to redeem by the notification date prescribed by the subscription agreement. Subsequent to notification, the investment fund can redeem the Company's investment within several months of the notification. Notice periods for redemption of the investment funds are up to 270 days. The Company can redeem its investment funds without consent from the investment fund managers.

(f) Investments in partially-owned insurance companies

The following table presents Investments in partially-owned insurance companies

(in thousands of U.S. dollars)	2023			2022			
	Carrying value	Goodwill	Ownership Percentage	Carrying value	Goodwill	Ownership Percentage	Domicile
Huatai Group	1,308,884	815,485	26.0%	1,374,258	839,845	26.0%	China
ABR Reinsurance Ltd	150,618	–	18.7%	137,283	–	18.8%	Bermuda
Total	1,459,502	815,485		1,511,541	839,845		

The Company maintains a direct investment in Huatai Insurance Group Co., Ltd. (Huatai Group) is a Chinese financial services holding company and the parent company of, among others, Huatai Property & Casualty Insurance Co., Ltd. (Huatai P&C), Huatai Life Insurance Co., Ltd. (Huatai Life), Huatai Asset Management Co., Ltd., and Huatai Baoxing Fund Management Co., Ltd., of which Huatai Group owns 100 percent, 80 percent, 91 percent, and 85 percent, respectively (collectively, Huatai Group).

As of December 31, 2023, the Company's aggregate ownership interest in Huatai Group was 26 percent. The Company applies the equity method of accounting to its investment in Huatai Group by recording its share of net income or loss in Other income (expense) in the Consolidated statements of operations. In addition the discount rate assumption is updated quarterly and used to remeasure the liability at each reporting date, with resulting change reflected in Other comprehensive income.

At December 31, 2023, the Company owns 18.7 percent of the common equity of ABR Reinsurance Capital Holdings Ltd. and warrants to acquire 0.5 percent of additional equity. ABR Reinsurance Capital Holdings Ltd., is the parent company of ABR Reinsurance Ltd. (ABR Re), an independent reinsurance company. Through long-term arrangements, Chubb will be the sole source of reinsurance risks ceded to ABR Re, and BlackRock, Inc. serves as an investment management service provider. As an investor, the Company is expected to benefit from underwriting profit generated by ABR Re's reinsuring a wide range of Chubb's primary insurance business and the income and capital appreciation BlackRock, Inc. seeks to deliver through its investment management services.

ABR Re is a variable interest entity; however, the Company is not the primary beneficiary and does not consolidate ABR Re because the Company does not have the power to control and direct ABR Re's most significant activities, including investing and underwriting. The Company's ownership interest is accounted for under the equity method of accounting. The Company cedes premiums to ABR Re and recognizes the associated commissions.

(g) Net investment income

The following table presents the source of net investment income for the years ended December 31, 2023 and 2022.

(in thousands of U.S. dollars)	2023	2022
Fixed maturities	395,089	397,151
Short-term investments	11,742	2,019
Equity securities	42	—
Private equities (less than 3 percent ownership)	17,946	52,991
Investment income from affiliates	27,230	19,134
Gross investment income	452,049	471,295
Investment expenses	(22,391)	(27,265)
Net investment income	429,658	444,030

(h) Restricted Assets

The Company is required to maintain assets on deposit with various regulatory authorities to support its reinsurance operations. These requirements are generally promulgated in the statutory regulations of the individual jurisdictions. The assets on deposit are available to settle reinsurance liabilities. The Company is also required to restrict assets pledged under repurchase agreements which represent the Company's agreement to sell securities and repurchase them at a future date for a predetermined price. The Company uses trust funds in certain large reinsurance transactions where the trust funds are set up for the benefit of the ceding companies and generally take the place of Letter of Credit (LOC) requirements. The Company has investments in segregated portfolios primarily to provide collateral or guarantees for LOCs and derivative transactions. Included in restricted assets at December 31, 2023 and 2022, are investments, primarily fixed maturities and short term investments totaling $3.7 billion and $3.6 billion, respectively, and cash of $8.2 million and $14.6 million, respectively.

The following table presents the components of the restricted assets at December 31, 2023 and 2022.

(in thousands of U.S. dollars)	2023	2022
Deposits with regulatory authorities	28,452	28,620
Trust funds	3,625,781	3,473,740
Assets pledged under repurchase agreements	104,806	101,473
Other pledged assets	729	940
	3,759,768	3,604,773

5. *Deferred acquisition costs*

Deferred acquisition costs comprise capitalized costs on short-duration contracts of $295.6 million and $253.6 million; and long-duration contracts of $200.9 million, and $203.4 million at December 31, 2023, and 2022, respectively.

The following tables present a roll-forward of deferred acquisitions costs on long-duration contracts:

	Year Ended December 31, 2023		
(in thousands of U.S. dollars)	**Term Life and Other**	**Universal Life**	**Total**
Balance – beginning of period	19,935	142,575	162,510
Capitalizations	2,909	43,242	46,151
Amortization expense	(1,443)	(30,472)	(31,915)
Other (including foreign exchange)	31	(4,234)	(4,203)
Balance – end of period	21,432	151,111	172,543
International A&H business excluded from table			28,365
Total deferred acquisition costs on long-duration			200,908

(in thousands of U.S. dollars)	Year Ended December 31, 2022 Term Life and Other	Universal Life	Total
Balance – beginning of period	18,415	137,234	155,649
Capitalizations	2,399	45,491	47,890
Amortization expense	(1,186)	(26,716)	(27,902)
Other (including foreign exchange)	306	(13,434)	(13,128)
Balance – end of period	19,934	142,575	162,509
International A&H business excluded from table			40,860
Total deferred acquisition costs on long-duration			203,369

6. *Unpaid losses and loss expenses*

The Company establishes reserves for the estimated unpaid ultimate liability for losses and loss expenses under the terms of its treaties and agreements. Reserves include estimates for both claims that have been reported and for IBNR claims, and include estimates of expenses associated with processing and settling these claims. Reserves are recorded in Unpaid losses and loss expenses in the consolidated balance sheets. While the Company believes that its reserves for unpaid losses and loss expenses at December 31, 2023 are adequate, new information or trends may lead to future developments in incurred losses and loss expenses significantly greater or less than the reserves provided. Any such revisions could result in future changes in estimates of losses or reinsurance recoverable and would be reflected in the Company's results of operations in the period in which the estimates are changed.

The following table presents a reconciliation of unpaid losses and loss expenses for the years ended December 31, 2023 and 2022:

(in thousands of U.S. dollars)	**2023**	**2022**
Gross unpaid losses and loss expenses at beginning of year	7,234,558	7,104,940
Reinsurance recoverable[(1)]	(1,134,183)	(1,132,021)
Net unpaid losses and loss expenses at beginning of year	6,100,375	5,972,919
Net losses and loss expenses incurred in respect of losses occurring in:		
Current year	2,106,370	1,999,728
Prior years[(2)]	79,550	(101,285)
Total	2,185,920	1,898,443
Net losses and loss expenses paid in respect of losses occurring in:		
Current year	(458,716)	(289,478)
Prior years	(1,253,045)	(1,296,873)
Total	(1,711,761)	(1,586,351)
Foreign currency revaluation and other	28,094	(184,636)
Net unpaid losses and loss expenses at end of year	6,602,628	6,100,375
Reinsurance recoverable[(1)]	1,139,239	1,134,183
Gross unpaid losses and loss expenses at end of year	7,741,867	7,234,558

(1) Net of valuation allowance for uncollectible reinsurance

(2) Relates to prior period loss reserve development only and excludes prior period development related to reinstatement premiums, expense adjustments and earned premium.

In 2023, $195.3 million of net unfavourable prior period development ($35.6 million of net favourable prior period development in 2022) was attributable to long-tailed business. In addition, there was net favourable development of $115.7 million ($65.7 million of net favourable prior period development in 2022) in short-tailed lines. These developments included offsetting movements from a number of lines and accident years due to claims emergence and claim settlements at different levels than was expected. These prior period developments relate to prior period loss reserve development only and excludes prior period development related to reinstatement premiums, expense adjustments, and earned premium.

Business written or assumed by the Company that is long-tailed in nature (e.g., Workers' Compensation and Professional Lines) can exhibit a high degree of variability. The nature of the business written can expose the reserves to a higher-than-normal degree of uncertainty and the ultimate losses may be materially different.

The following table presents a reconciliation of the loss development tables to the liability for unpaid losses and loss expenses in the consolidated balance sheet as at December 31, 2023:

(in thousands of U.S. dollars)	**2023**
Net unpaid loss and allocated loss adjustment expense:	
North America P&C – Casualty	1,607,018
North America P&C – Non-Casualty	175,639
Overseas General P&C – Casualty	2,474,344
Overseas General P&C – Non-Casualty	1,537,686
Global Reinsurance – Casualty	333,787
Global Reinsurance – Non-Casualty	136,204
Excluded from the loss development tables	–
Other	157,163
Net unpaid loss and allocated loss adjustment expense	6,421,841
Ceded unpaid loss and allocated loss adjustment expense:	
North America P&C – Casualty	–
North America P&C – Non-Casualty	–
Overseas General P&C – Casualty	277,196
Overseas General P&C – Non-Casualty	771,560
Global Reinsurance – Casualty	14,139
Global Reinsurance – Non-Casualty	76,344
Ceded unpaid loss and allocated loss adjustment expense	1,139,239
Unpaid unallocated loss adjustment expenses	180,787
Unpaid losses and loss expenses	7,741,867

(a) Description of Reserving Methodologies

The Company’s recorded reserves represent management's best estimate of the provision for unpaid claims as of the balance sheet date. The process of establishing loss and loss expense reserve can be complex and is subject to considerable uncertainty as it requires the use of estimates and judgments based on circumstances underlying the insured loss at the date of accrual. The reserves for the Company’s various product lines each require different qualitative and quantitative assumptions and judgments to be made. Management's best estimate is developed after collaboration with actuarial, underwriting, legal, and finance departments and culminates with the input of reserve committees. The objective of such a process is to determine a single estimate that the Company believes represents a better estimate than any other and which is viewed by management to be the best estimate of ultimate loss settlements.

This estimate is based on a combination of exposure and experience-based actuarial methods (described below) and other considerations such as claims reviews, reinsurance recovery assumptions and/or input from other knowledgeable parties such as underwriting. Exposure-based methods are most commonly used on relatively immature origin years (i.e., the year in which the losses were incurred — “accident year” or “report year”), while experience-based methods provide a view based on the projection of loss experience that has emerged as of the valuation date. Greater reliance is placed upon experience-based methods as the pool of emerging loss experience grows and where it is deemed sufficiently credible and reliable as the basis for the estimate. In comparing the held reserve for any given origin year to the actuarial projections, judgment is required as to the credibility, uncertainty and inherent limitations of applying actuarial techniques to historical data to project future loss experience.

Examples of factors that impact such judgments include, but are not limited to, the following:

- nature and complexity of underlying coverage provided and net limits of exposure provided;
- segmentation of data to provide sufficient homogeneity and credibility for loss projection methods;
- extent of credible internal historical loss data and reliance upon industry information as required;
- historical variability of actual loss emergence compared with expected loss emergence;
- reported and projected loss trends;
- extent of emerged loss experience relative to the remaining expected period of loss emergence;
- rate monitor information for new and renewal business;
- changes in claims handling practice;
- inflation;
- the legal environment;
- facts and circumstances of large claims;
- terms and conditions of the contracts sold by the Company's reinsured parties;
- impact of applicable reinsurance recoveries; and
- nature and extent of underlying assumptions.

The Company has an actuarial team which analyzes loss reserves (including loss expenses) and regularly projects estimates of ultimate losses and the corresponding indications of the required IBNR reserve. The data presented in this disclosure was prepared on an aggregated basis and with a focus on changes in incurred loss estimates over time as well as associated cash flows. The Company notes that data prepared on this basis may not demonstrate the full spectrum of characteristics that are evident in the more detailed level studied internally.

The Company performs an actuarial reserve review for each product line at least once a year. For most product lines, one or more standard actuarial reserving methods may be used to determine estimates of ultimate losses and loss expenses, and from these estimates, a single actuarial central estimate is selected. The actuarial central estimate is an input to the reserve committee process described above. For the few product lines that do not lend themselves to standard actuarial reserving methods, appropriate techniques are applied to produce the actuarial central estimates. Where a loss estimate is advised to the Company by a cedant and that reserve estimate is reviewed and found by the actuarial team and management to be reasonable compared to the result of standard actuarial methods then that estimate may be adopted by the Company.

(b) Standard actuarial reserving methods

The judgments involved in projecting the ultimate losses include the use and interpretation of various standard actuarial reserving methods that place reliance on the extrapolation of actual historical data, loss development patterns, industry data, and other benchmarks as appropriate.

Standard actuarial reserving methods include, but are not limited to, expected loss ratio, paid and reported loss development, and Bornhuetter-Ferguson methods. A general description of these methods is provided below. In addition to these standard methods, depending upon the product line characteristics and available data, the Company may use other recognized actuarial methods and approaches. Implicit in the standard actuarial methods that the Company generally utilizes is the need for two fundamental assumptions: first, the pattern by which losses are expected to emerge over time for each origin year, and second the expected loss ratio for each origin year.

The expected loss ratio for any particular origin year is selected after consideration of a number of factors, including historical loss ratios adjusted for rate changes, premium and loss trends, industry benchmarks, the results of policy level loss modeling at the time of underwriting, and/or other more subjective considerations for the product line (e.g., terms and conditions) and external environment as noted above. The expected loss ratio for a given origin year is initially established at the start of the origin year as part of the planning process. This analysis is performed in conjunction with underwriters and management. The expected loss ratio method arrives at an ultimate loss estimate by multiplying the expected ultimate loss ratio by the corresponding premium base. This method is most commonly used as the basis for the actuarial central estimate for immature origin periods on product lines where the actual paid or reported loss experience is not yet deemed sufficiently credible to serve as the principal basis for the selection of ultimate losses. The expected loss ratio for a given origin year may be modified over time if the underlying assumptions differ from the original assumptions (e.g., the assessment of prior year loss ratios, loss trend, rate changes, actual claims, or other information).

The Company's selected paid and reported development patterns provide a benchmark against which the actual emerging loss experience can be monitored. Where possible, development patterns are selected based on historical loss emergence by origin year. For product lines where the historical data is viewed to have low statistical credibility, the selected development patterns also reflect relevant industry benchmarks and/or experience from similar product lines written elsewhere within Chubb. This most commonly occurs for relatively new product lines that have limited historical data or for high severity/low frequency portfolios where the Company's historical experience exhibits considerable volatility and/ or lacks credibility. The paid and reported loss development methods convert the selected loss emergence pattern to a set of multiplicative factors which are then applied to actual paid or reported losses to arrive at an estimate of ultimate losses for each period. Due to their multiplicative nature, the paid and reported loss development methods will leverage differences between actual and expected loss emergence.

These methods tend to be utilized for more mature origin periods and for those portfolios where the loss emergence has been relatively consistent over time.

The Bornhuetter-Ferguson method is a combination of the expected loss ratio method and the loss development method, where the loss development method is given more weight as the origin year matures. This approach allows a logical transition between the expected loss ratio method which is generally utilized at earlier maturities and the loss development methods which are typically utilized at later maturities. The Company usually applies this method using reported loss data although paid data may also be used.

Short-tail business
Short-tail business generally describes product lines for which losses are typically known and paid shortly after the loss occurs. This would include, for example, most property, personal accident, and automobile physical damage policies that the Company writes. Due to the short reporting and development pattern for these product lines, the uncertainty associated with the Company's estimate of ultimate losses for any particular accident period diminishes relatively quickly as actual loss experience emerges. The Company typically assigns credibility to methods that incorporate actual loss emergence, such as the paid and reported loss development and Bornhuetter-Ferguson methods, sooner than would be the case for long-tail lines at a similar stage of development for a given origin year. The reserving process for short-tail losses arising from catastrophic events typically involves an assessment by the underwriting and actuarial departments, of the Company's exposure and estimated losses immediately following an event and then subsequent revisions of the estimated losses as insureds provide updated actual loss information.

Long-tail business
Long-tail business describes lines of business for which specific losses may not be known/reported for some period and for which claims can take significant time to settle/close. This includes most casualty lines such as general liability, D&O, and workers' compensation. There are various factors contributing to the uncertainty and volatility of long-tail business, including uncertain future inflationary trends, changes in future legal environments, and the potential impact of major claims, added to the uncertainty and volatility in the long-tail business. Other factors are:

- The nature and complexity of underlying coverage provided and net limits of exposure provided;
- The Company's historical loss data and experience is sometimes too immature and lacking in credibility to rely upon for reserving purposes. Where this is the case, in the reserve analysis the Company may utilize industry loss ratios or industry benchmark development patterns that are believed to reflect the nature and coverage of the underwritten business and its future development, where available. For such product lines, actual loss experience may differ from industry loss statistics as well as loss experience for previous underwriting years;

- The difficulty in estimating loss trends, claims inflation (e.g., medical and judicial) and underlying economic conditions;
- The need for professional judgment to estimate loss development patterns beyond that represented by historical data using supplemental internal or industry data, extrapolation, or a blend of both;
- The need to address shifts in business mix or volume over time when applying historical paid and reported loss development patterns from older origin years to more recent origin years. For example, changes over time in the processes and procedures for establishing case reserves can distort reported loss development patterns or changes in ceded reinsurance structures by origin year can alter the development of paid and reported losses;
- Loss reserve analyses typically require loss or other data be grouped by common characteristics in some manner. If data from two combined lines of business exhibit different characteristics, such as loss payment patterns, the credibility of the reserve estimate could be affected. Additionally, since casualty lines of business can have significant intricacies in the terms and conditions afforded to the insured, there is an inherent risk as to the homogeneity of the underlying data used in performing reserve analyses; and
- The applicability of the price change data used to estimate ultimate loss ratios for most recent origin years.

As described above, various factors are considered when determining appropriate data, assumptions, and methods used to establish the loss reserve estimates for long-tail product lines. These factors may also vary by origin year for given product lines. The derivation of loss development patterns from data and the selection of a tail factor to project ultimate losses from actual loss emergence require considerable judgment, particularly with respect to the extent to which historical loss experience is relied upon to support changes in key reserving assumptions.

The Company’s portfolio comprises a mix of proportional and non-proportional treaties. The proportional treaties are reported on a bulk basis and do not lend themselves to meaningful claim count data. As such, the Company does not provide claim count information.

(c) Loss Development Tables

The tables were designed to present business with similar risk characteristics which exhibit like development patterns and generally similar trends, in order to provide insight into the nature, amount, timing and uncertainty of cash flows related to the Company’s claims liabilities.

Each table follows a similar format and reflects the following:
- The incurred loss triangle includes both reported case reserves and IBNR liabilities.
- Both the incurred and paid loss triangles include allocated loss adjustment expense (i.e., defense and investigative costs particular to individual claims) but exclude unallocated loss adjustment expense (i.e., the costs associated with internal claims staff and third party administrators).
- The amounts in both triangles for the years ended December 31, 2014, to December 31, 2023, and average historical claim duration as of December 31, 2023, are presented as supplementary information.
- All data presented in the triangles is net of reinsurance recoverables.
- The IBNR reserves shown to the right of each incurred loss development exhibit reflect the net IBNR recorded as of December 31, 2023.

Historical dollar amounts are presented in this footnote on a constant-dollar basis, which is achieved by assuming constant foreign exchange rates for all periods in the loss triangles, translating prior period amounts using the same local currency exchange rates as the current year end. The impact of this conversion is to show the change between periods exclusive of the effect of fluctuations in exchange rates, which would otherwise distort the change in incurred loss and cash flow patterns shown. The change in incurred loss shown will differ from other U.S. GAAP disclosures of incurred prior period reserve development amounts, which include the effect of fluctuations in exchanges rates.

The Company provided guidance above on key assumptions that should be considered when reviewing this disclosure and information relating to how loss reserve estimates are developed. The Company believes the information provided in the “Loss Development Tables” section of the disclosure is of limited use for independent analysis or application of standard actuarial estimations.

North America

Prior to 2018, the Company mainly provided reinsurance to Chubb's North America business through quota-share arrangements. Since 2019, the Company has been mainly providing reinsurance through excess of loss arrangements.

North America P&C - Casualty - Long-tail

This product line is comprised of various long tail lines of business including Workers Compensation, Liability such as medical liability, professional liability, fidelity bonds and fiduciary liability as well as other Casualty coverages.

Net Incurred Loss and Allocated Loss Adjustment Expenses

(in thousands of U.S. dollars) Years ended December 31

Accident Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	Audited 2023	Net IBNR reserves 2023
2014	446,451	453,395	466,530	476,715	462,540	442,259	428,805	424,230	401,851	409,607	45,656
2015		483,710	492,440	517,990	548,731	553,346	538,418	538,443	535,702	524,352	64,958
2016			530,937	554,777	582,708	580,552	576,153	568,688	558,709	571,757	90,663
2017				583,118	601,535	608,273	608,666	596,986	581,509	548,785	94,343
2018					90,139	90,108	90,972	87,369	83,539	76,136	39,953
2019						219,452	138,671	106,281	98,248	82,348	28,139
2020							181,268	122,309	89,498	80,078	40,502
2021								160,486	167,402	100,293	67,698
2022									180,877	130,212	135,933
2023										191,367	191,328
Total										2,714,935	

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

(in thousands of U.S. dollars) Years ended December 31

Accident Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	Audited 2023
2014	51,089	118,026	187,283	246,921	282,346	303,859	321,607	331,240	341,387	347,263
2015		58,776	140,687	211,553	287,215	338,911	365,070	390,165	410,946	427,834
2016			63,815	154,731	233,845	303,124	348,480	381,869	407,600	427,772
2017				74,984	166,212	242,830	294,867	335,849	375,763	411,235
2018					5,810	20,558	29,916	39,615	47,666	53,751
2019						4,857	20,658	41,004	51,215	57,005
2020							5,011	10,581	16,318	22,871
2021								8,115	11,547	20,209
2022									3,598	10,026
2023										4,736
Total										1,782,702

Net Liabilities for Loss and Allocated Loss Adjustment Expenses as at December 31, 2023

(in thousands of U.S. dollars)	2023
Accident years prior to 2014	674,785
Accident years 2014 – 2023 from tables above	932,233
All Accident years	1,607,018

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as at December 31, 2023 (Unaudited)

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	10%	15%	14%	12%	8%	6%	5%	3%	3%	1%

North America P&C – Non-Casualty - Short-tail

This product line represents first party personal and commercial product lines that are short-tailed in nature, including personal lines coverage for high-net-worth individuals and families in North America including homeowners, automobile, valuable articles (including fine art), umbrella liability, and recreational marine insurance. Some years may be impacted by natural catastrophe losses.

Net Incurred Loss and Allocated Loss Adjustment Expenses

(in thousands of U.S. dollars) Years ended December 31

										Audited	Net IBNR reserves
Accident Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023
2014	345,884	339,068	332,446	332,204	330,530	330,076	328,654	328,416	339,608	331,667	(20)
2015		331,267	312,304	297,906	300,864	297,607	296,583	297,521	296,656	294,839	25
2016			260,635	258,237	246,871	240,220	242,051	241,327	243,496	227,882	20,434
2017				360,688	354,224	348,129	351,139	349,219	352,612	352,545	(1)
2018					110,826	118,990	116,996	117,718	116,713	115,687	39,953
2019						119,772	112,288	109,637	107,518	117,458	28,139
2020							160,545	123,228	118,767	103,744	40,502
2021								149,748	112,172	108,078	67,698
2022									169,770	145,889	105,039
2023										171,834	116,000
Total										1,969,623	

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

(in thousands of U.S. dollars) Years ended December 31

Accident Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 (Audited)
2014	188,765	304,876	316,128	320,757	324,882	326,325	327,803	328,234	328,298	328,345
2015		180,439	267,134	283,771	292,362	292,549	293,617	294,300	294,188	294,202
2016			121,232	206,560	225,488	235,013	242,119	244,156	245,800	246,915
2017				148,005	285,042	321,459	332,762	336,962	340,858	344,152
2018					50,831	100,425	108,246	111,620	114,101	114,916
2019						46,513	85,755	92,997	96,690	99,636
2020							62,971	98,086	96,696	98,123
2021								33,047	79,161	90,042
2022									60,026	113,038
2023										67,468
Total										1,796,837

Net Liabilities for Loss and Allocated Loss Adjustment Expenses as at December 31, 2023

(in thousands of U.S. dollars)	**2023**
Accident years prior to 2014	2,853
Accident years 2014 – 2023 from tables above	172,786
All Accident years	175,639

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as at December 31, 2023 (Unaudited)

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	49%	36%	7%	3%	2%	2%	1%	— %	— %	— %

Overseas General – Casualty - Long-tail

This product line is comprised of D&O liability, E&O liability, financial institutions (including crime/fidelity coverages), and non-U.S. general liability as well as aviation and political risk. Exposures are located around the world, including Europe, Latin America, and Asia. There is some U.S. exposure in Casualty from multinational accounts.

Net Incurred Loss and Allocated Loss Adjustment Expenses

(in thousands of U.S. dollars) Years ended December 31

Accident Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	Audited 2023	Net IBNR reserves 2023
2014	152,294	151,851	170,494	175,219	160,457	161,459	171,243	189,492	193,506	192,967	11,519
2015		160,851	143,352	147,446	157,020	214,520	185,702	231,948	227,519	232,401	9,824
2016			165,965	152,826	191,126	249,650	298,725	339,025	358,596	368,871	5,093
2017				300,517	297,591	313,676	413,651	342,029	385,128	426,244	45,416
2018					310,050	290,161	272,511	382,860	424,845	458,294	72,231
2019						369,647	320,949	293,375	378,626	403,896	69,260
2020							492,165	407,338	371,098	506,961	293,410
2021								460,670	476,886	413,910	178,785
2022									351,750	484,933	352,816
2023										470,576	400,971
Total										3,959,053	

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

(in thousands of U.S. dollars) Years ended December 31

Accident Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	Audited 2023
2014	9,610	25,698	45,857	63,675	81,256	102,966	122,897	127,766	133,223	151,477
2015		5,935	20,493	50,329	76,201	96,827	117,810	150,124	158,403	169,063
2016			17,649	39,234	95,272	111,240	156,552	191,649	236,906	255,564
2017				13,148	62,458	127,792	184,813	235,661	287,332	312,667
2018					9,834	60,173	89,872	130,592	173,945	250,685
2019						8,737	54,262	94,667	121,393	199,210
2020							16,429	53,806	98,713	123,890
2021								30,699	134,862	132,557
2022									13,881	46,178
2023										14,351
Total										1,655,642

Net Liabilities for Loss and Allocated Loss Adjustment Expenses as at December 31, 2023

(in thousands of U.S. dollars)	**2023**
Accident years prior to 2014	170,933
Accident years 2014 – 2023 from tables above	2,303,411
All Accident years	2,474,344

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as at December 31, 2023 (Unaudited)

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	4%	11%	9%	8%	13%	13%	10%	4%	5%	9%

Overseas General – Non-Casualty - Short-tail

This product line is comprised of commercial fire, marine (predominantly cargo), surety, personal automobile, personal cell phones, personal residential (including high net worth), energy and construction. In general, these lines have relatively stable payment and reporting patterns although some years may be impacted by natural catastrophes.

Net Incurred Loss and Allocated Loss Adjustment Expenses

(in thousands of U.S. dollars) Years ended December 31

Accident Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	Audited 2023	Net IBNR reserves 2023
2014	302,490	324,926	294,388	282,607	280,442	284,276	288,621	285,773	273,503	274,510	3,518
2015		360,828	333,233	312,800	314,226	317,559	322,518	316,944	314,460	312,252	(999)
2016			508,757	545,460	534,649	527,815	523,335	541,431	549,292	542,382	16,321
2017				726,693	693,209	688,651	677,612	719,408	718,056	690,745	(2,330)
2018					577,100	665,986	667,556	679,814	668,567	674,188	28,091
2019						635,846	671,659	625,000	639,862	630,668	2,825
2020							809,271	709,740	680,227	669,927	74,805
2021								828,248	841,330	755,112	23,456
2022									901,861	1,022,501	95,103
2023										1,023,505	312,994
Total										6,595,790	

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

(in thousands of U.S. dollars) Years ended December 31

Accident Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	Audited 2023
2014	71,506	206,645	261,494	268,594	270,283	272,120	273,956	276,296	274,970	275,291
2015		95,503	222,786	293,673	319,836	325,183	331,986	336,900	339,280	337,932
2016			212,686	405,011	482,170	503,682	509,207	519,899	516,538	519,222
2017				255,870	514,453	613,336	634,377	670,448	710,821	682,809
2018					242,385	473,665	556,495	586,182	606,022	612,846
2019						270,363	481,878	552,834	583,501	580,753
2020							269,147	425,380	470,068	532,673
2021								276,988	473,394	593,376
2022									376,237	656,944
2023										319,078
Total										5,110,924

Net Liabilities for Loss and Allocated Loss Adjustment Expenses as at December 31, 2023

(in thousands of U.S. dollars)	**2023**
Accident years prior to 2014	52,820
Accident years 2014 – 2023 from tables above	1,484,866
All Accident years	1,537,686

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as at December 31, 2023 (Unaudited)

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	36 %	32 %	13 %	5 %	2 %	3 %	(1)%	1 %	— %	— %

Global Reinsurance

Global reinsurance analyzes its business on a treaty year basis rather than on an accident year basis. Treaty year data was converted to an accident year basis for the purposes of this disclosure. Mix shifts are an important consideration in these product line groupings. As proportional business and excess of loss business have different earning and loss reporting and payment patterns, this change in mix will affect the cash flow patterns across the accident years. In addition, the shift from excess to proportional business over time will make the cash flow patterns of older and more recent years difficult to compare. In general, the proportional business will pay out more quickly than the excess of loss business, as such, using older years development patterns may overstate the ultimate loss estimates in more recent years.

Global Reinsurance – Casualty - Long-tail

This product line includes proportional and excess coverages in general liability, automobile liability, professional liability, and medical malpractice, with exposures located around the world. In general, reinsurance exhibits less stable development patterns than primary business. In particular, general casualty reinsurance and excess coverages are long-tailed and can be very volatile.

Net Incurred Loss and Allocated Loss Adjustment Expenses

(in thousands of U.S. dollars) Years ended December 31

Accident Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	Audited 2023	Net IBNR reserves 2023
2014	64,437	59,198	58,880	61,239	59,181	56,412	53,771	54,204	53,422	54,184	751
2015		67,050	65,384	66,650	72,813	72,378	72,000	73,417	73,164	73,112	3,055
2016			78,450	81,495	79,191	85,000	83,515	84,635	83,111	86,474	5,253
2017				88,135	84,821	89,971	86,099	87,902	86,007	89,908	3,508
2018					69,714	70,319	71,877	71,045	73,029	78,558	3,433
2019						39,310	41,491	37,490	37,002	36,971	1,800
2020							22,364	27,271	26,303	25,887	5,535
2021								28,068	31,429	32,088	8,440
2022									13,938	14,437	1,922
2023										4,235	3,015
Total										495,854	

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

(in thousands of U.S. dollars) Years ended December 31

										Audited
Accident Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
2014	9,322	17,585	23,281	28,515	32,947	36,343	39,743	42,895	44,311	46,579
2015		12,082	19,418	27,187	31,464	36,849	42,252	51,198	55,366	58,896
2016			13,631	27,863	35,790	40,553	46,542	55,169	63,395	68,406
2017				15,467	31,213	37,881	44,451	53,627	64,142	70,354
2018					11,625	16,923	21,635	30,068	37,883	51,329
2019						265	951	2,183	6,360	12,840
2020							328	620	2,297	4,725
2021								288	1,039	2,103
2022									279	692
2023										195
Total										316,119

Net Liabilities for Loss and Allocated Loss Adjustment Expenses as at December 31, 2023

(in thousands of U.S. dollars)	**2023**
Accident years prior to 2014	154,052
Accident years 2014 – 2023 from tables above	179,735
All Accident years	333,787

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as at December 31, 2023 (Unaudited)

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	13%	11%	8%	8%	9%	11%	9%	6%	4%	4%

Global Reinsurance – Non-Casualty - Short-tail

This product line includes property, property catastrophe, marine, credit/surety, A&H and energy. Development patterns in some years may be impacted by large natural catastrophes events.

Net Incurred Loss and Allocated Loss Adjustment Expenses

(in thousands of U.S. dollars) Years ended December 31

										Audited	Net IBNR reserves
Accident Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2023
2014	57,677	58,810	61,102	62,589	62,134	60,738	60,610	60,113	59,762	59,555	1,878
2015		43,637	42,469	45,128	47,282	44,380	44,508	43,434	43,631	43,686	253
2016			102,945	100,170	102,549	100,501	98,312	97,207	97,082	97,210	867
2017				299,923	327,621	363,721	360,932	365,829	368,050	366,378	6,639
2018					197,607	199,821	201,782	198,752	204,098	198,946	2,057
2019						37,730	39,780	36,533	28,958	25,864	328
2020							98,426	141,473	166,295	167,539	16,939
2021								221,963	231,168	233,419	3,802
2022									193,710	171,265	38,147
2023										9,825	5,166
Total										1,373,687	

Net Cumulative Paid Loss and Allocated Loss Adjustment Expenses

(in thousands of U.S. dollars) Years ended December 31

										Audited
Accident Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
2014	17,166	37,255	47,634	53,060	55,895	56,625	57,241	57,568	57,369	57,458
2015		12,032	26,459	35,063	38,975	40,146	41,318	41,726	42,290	42,357
2016			22,358	65,174	83,908	89,688	92,035	93,990	94,545	95,155
2017				159,171	256,425	324,503	331,429	342,236	347,696	352,748
2018					64,327	179,727	187,303	187,525	190,302	191,632
2019						4,314	16,676	21,851	24,045	24,322
2020							31,301	103,736	129,151	138,216
2021								130,813	208,039	220,364
2022									41,463	116,980
2023										2,458
Total										1,241,690

Net Liabilities for Loss and Allocated Loss Adjustment Expenses as at December 31, 2023

(in thousands of U.S. dollars)	**2023**
Accident years prior to 2014	4,207
Accident years 2014 – 2023 from tables above	131,997
All Accident years	136,204

Supplementary Information: Average Annual Percentage Payout of Net Incurred Claims by Age, as at December 31, 2023
(Unaudited)

Age in Years	1	2	3	4	5	6	7	8	9	10
Percentage	35 %	39 %	13 %	3 %	3 %	1 %	1 %	1 %	— %	— %

7. *Future policy benefits*

The following tables present a roll-forward of the liability for future policy benefits:

Present Value of Expected Net Premiums	**For the Year Ended December 31, 2023**
(in thousands of U.S. dollars)	Term Life and Other
Balance – beginning of period	134,197
Beginning balance at original discount rate	153,550
Effect of changes in cash flow assumptions	742
Effect of actual variances from expected experience	4,300
Adjusted beginning of period balance	158,592
Issuances	15,831
Interest accrual	3,626
Net premiums collected (1)	(17,022)
Other (including foreign exchange)	3,031
Ending balance at original discount rate	164,058
Effect of changes in discount rate assumptions	(11,043)
Balance – end of period	153,015

1. Net premiums collected represent the portion of gross premiums collected from policyholders that is used to fund expected benefit.

Present Value of Expected Future Policy Benefits	**For the Year Ended December 31, 2023**
(in thousands of U.S. dollars)	Term Life and Other
Balance – beginning of period	281,447
Beginning balance at original discount rate	321,286
Effect of changes in cash flow assumptions	(25)
Effect of actual variances from expected experience	4,850
Adjusted beginning of period balance	326,111
Issuances	15,831
Interest accrual	6,071
Benefits payments	(19,370)
Other (including foreign exchange)	5,715
Ending balance at original discount rate	334,358
Effect of changes in discount rate assumptions	(23,767)
Balance – end of period	310,591

Liability for Future Policy Benefits, Life Insurance	**For the Year Ended December 31, 2023**
(in thousands of U.S. dollars)	Term Life and Other
Net liability for future policy benefits, before reinsurance recoverable	157,576
Less: Reinsurance recoverable on future policy benefits	1,470
Net liability for future policy benefits, after reinsurance recoverable	159,046

Present Value of Expected Net Premiums	**For the Year Ended December 31, 2022**
(in thousands of U.S. dollars)	Term Life and Other
Balance – beginning of period	158,556
Balance beginning at original discount rate	144,672
Effect of changes in cash flow assumptions	3,700
Effect of actual variances from expected experience	1,400
Adjusted beginning of period balance	149,772
Issuances	23,643
Interest accrual	2,881
Net premiums collected [1]	(15,142)
Other (including foreign exchange)	(8,673)
Ending balance at original discount rate	152,481
Effect of changes in discount rate assumptions	(18,284)
Balance – end of period	134,197

Present Value of Expected Future Policy Benefits	**For the Year Ended December 31, 2022**
(in thousands of U.S. dollars)	Term Life and Other
Balance – beginning of period	362,702
Beginning balance at original discount rate	320,886
Effect of changes in cash flow assumptions	4,469
Effect of actual variances from expected experience	2,051
Adjusted beginning of period balance	327,406
Issuances	23,643
Interest accrual	5,209
Benefits payments	(15,996)
Other (including foreign exchange)	(20,969)
Ending balance at original discount rate	319,293
Effect of changes in discount rate assumptions	(37,848)
Balance – end of period	281,445

Liability for Future Policy Benefits, Life Insurance	**For the Year Ended December 31, 2022**
(in thousands of U.S. dollars)	Term Life and Other
Net liability for future policy benefits, before reinsurance recoverable	147,249
Less: Reinsurance recoverable on future policy benefits	3,352
Net liability for future policy benefits, after reinsurance recoverable	150,601

The weighted-average current discount rate used in calculating the reserves are 4.5% at December 31, 2023 and 5.1% at December 2022.

The weighted-average duration of the liability is 9 and 8.4 years for December 31, 2023 and 2022, respectively.

The following table presents a reconciliation of the roll-forwards above to the Future policy benefits liability presented in the Consolidated balance sheets.

(in thousands of U.S. dollars)	**December 31 2023**	**December 31 2022**
Net liability for future policy benefits	157,576	147,249
Other [(1)]	267,638	275,201
Liability for future policy benefits, per consolidated balance sheet	425,214	422,450

[(1)] Other business principally comprises certain International A&H policies and certain Chubb Tempest Life Re business.

Undiscounted and Discounted Expected Future Benefit Payments and Expected Future Gross Premiums

(in thousands of U.S. dollars)	**December 31 2023**	**December 31 2022**
Term Life and Other		
Undiscounted expected future benefit payments	422,955	370,260
Undiscounted expected future gross premiums	292,842	265,985
Discounted expected future benefit payments	310,593	281,445
Discounted expected future gross premiums	245,300	225,501

Life Insurance Revenue and Interest

	Gross Premiums or Assessments		**Interest Accretion**	
	For the Years Ended December 31		For the Years Ended December 31	
(in thousands of U.S. dollars)	**2023**	**2022**	**2023**	**2022**
Term Life	26,597	25,342	2,445	2,328
Other	3,897	3,008	—	—
Total	30,494	28,350	2,445	2,328

8. *Market Risk Benefits*

The Company's reinsurance programs covering variable annuity guarantees, comprising guaranteed living benefits (GLB) and guaranteed minimum death benefits (GMDB), meet the definition of Market risk benefits (MRB). The following table presents a roll-forward of MRB:

	For the Years Ended December 31	
(in thousands of U.S. dollars)	**2023**	**2022**
Balance – beginning of period	800,320	812,319
Balance, beginning of period, before effect of changes in the instrument-specific credit risk	777,011	755,559
Interest rate changes	26,384	(567,865)
Effect of changes in equity markets	(195,187)	512,998
Effect of changes in volatilities	19,510	27,243
Actual policyholder behavior different from expected behavior	17,575	(13,069)
Effect of changes in future expected policyholder behavior	88,693	39,746
Effect of timing and all other	15,091	22,399
Balance, end of period, before effect of changes in the instrument-specific credit risk	749,077	777,011
Effect of changes in the instrument-specific credit risk	21,711	23,310
Balance – end of period	770,788	800,320
Weighted-average age of policyholders (years)	74	73
Net amount at risk [1]	1,871,950	2,508,006

[1] The net amount at risk is defined as the present value of future claim payments assuming policy account values and guaranteed values are fixed at the valuation date, and reinsurance coverage ends at the earlier of the maturity of the underlying variable annuity policy or the reinsurance treaty. No withdrawals, lapses, and mortality improvements are assumed in the projection. GLB-related risks contain conservative mortality and annuitization assumptions.

Excluded from the table above are MRB gains (losses) of $(334) million and $106 million for the years ended December 31, 2023, and 2022 respectively, reported in the Consolidated statements of operations, relating to the market risk benefits economic hedge and other net cash flows. There is no reinsurance recoverable associated with the Company's liability for MRB.

In the third quarter of 2023, the Company completed a review of policyholder behavior related to annuitizations, partial withdrawals, lapses, and mortality for its variable annuity reinsurance business.

- As annuitization and partial withdrawal experience continued to emerge, the Company refined its assumptions for an additional year of data. The annuitization assumption updates included treaty-based and age-based behavior, as well as a refresh of the Company's annuitization rates which depend on the value of the guarantees. These refinements resulted in a net increase of approximately $92 million to the MRB fair value, recognized as a Market risk benefits loss.
- The Company also refined its lapse and mortality assumptions based on additional emerging experience. The changes had an insignificant impact on the MRB fair value.

For MRB, the Company estimates fair value using an internal valuation model which includes a number of factors including interest rates, equity markets, credit risk, current account value, market volatility, expected annuitization rates and other policyholder behavior, and changes in policyholder mortality. All reinsurance treaties contain claim limits, which are also factored into the valuation model.

	Valuation Technique	Significant Unobservable Inputs	December 31, 2023		December 31, 2022	
			Ranges	**Weighted Average[1]**	**Ranges**	**Weighted Average[1]**
MRB [1]	**Actuarial model**	**Lapse rate**	0.5% – 30.0%	4.0%	0.5% – 30.4%	3.5%
		Annuitization rate	0% – 100%	4.5%	0% – 100%	4.4%

The most significant policyholder behavior assumptions include lapse rates for MRBs, and GLB annuitization rates. Assumptions regarding lapse rates and GLB annuitization rates differ by treaty, but the underlying methodologies to determine rates applied to each treaty are comparable.

A lapse rate is the percentage of in-force policies surrendered in a given calendar year. All else equal, as lapse rates increase, ultimate claim payments will decrease. In general, the base lapse function assumes low lapse rates during the surrender charge period, followed by a "spike" lapse rate in the year immediately following the surrender charge period, and then reverting to an ultimate lapse rate, typically over a 2-year period. This base rate is adjusted downward for policies with more valuable guarantees (policies with guaranteed values far in excess of their account values). Partial withdrawals and the impact of older policyholders with tax-qualified contracts (due to required minimum distributions) are also reflected in the Company's modeling.

The GLB annuitization rate is the percentage of policies for which the policyholder will elect to annuitize using the guaranteed benefit provided under the GLB. All else equal, as GLB annuitization rates increase, ultimate claim payments will increase, subject to treaty claim limits. All GLB reinsurance treaties include claim limits to protect Chubb in the event that actual annuitization behavior is significantly higher than expected. In general, Chubb assumes that GLB annuitization rates will be higher for policies with more valuable guarantees (policies with guaranteed values far in excess of their account values). Chubb also assumes that GLB annuitization rates increase as policyholders get older. In addition, it is also assumed that GLB annuitization rates are higher in the first year immediately following the waiting period (the first year the policies are eligible to annuitize using the GLB) in comparison to all subsequent years. Chubb does not yet have fully credible annuitization experience for all clients.

The effect of changes in key market factors on assumed lapse and annuitization rates reflect emerging trends using data available from cedants. For treaties with limited experience, rates are established by blending the experience with data received from other ceding companies. The model and related assumptions are regularly re-evaluated by management and enhanced, as appropriate, based upon additional experience obtained related to policyholder behavior and availability of updated information such as market conditions, market participant assumptions, and demographics of in-force annuities.

9. Reinsurance

a) Consolidated reinsurance

The Company purchases reinsurance to manage various exposures including catastrophe risks. Although reinsurance agreements contractually obligate the Company's reinsurers to reimburse it for the agreed upon portion of its gross paid losses, they do not discharge the primary liability of the Company. Throughout the normal course of business, the Company enters into a number of reinsurance transactions with other Chubb affiliates and related parties which impact the assumed amounts referenced below. Refer to Note 10 for additional information.

The amounts for net premiums written and net premiums earned in the Consolidated statements of operations are net of reinsurance.

The following table presents assumed and ceded premiums for the years ended December 31, 2023 and 2022.

(in thousands of U.S. dollars)	**2023**	**2022**
Premiums written		
Assumed	5,419,639	4,963,049
Ceded	(667,753)	(707,931)
Net	4,751,886	4,255,118
Premiums earned		
Assumed	5,318,882	4,829,002
Ceded	(661,451)	(684,859)
Net	4,657,431	4,144,143

The following table presents the composition of the Company's reinsurance recoverable at December 31, 2023 and 2022.

b) Reinsurance recoverable on ceded reinsurance

(in thousands of U.S. dollars)	2023	2022
Reinsurance recoverable on paid losses and loss expenses, net of valuation allowance for uncollectible reinsurance	157,251	203,622
Reinsurance recoverable on unpaid losses and loss expenses, net of valuation allowance for uncollectible reinsurance	1,139,239	1,134,174
Reinsurance recoverable on future policy benefits	8,326	7,965
Net reinsurance recoverable	1,304,816	1,345,761

At December 31, 2023 and 2022 , the Company carried a valuation allowance for uncollectible reinsurance of $21.3 million and $21.4 million, respectively.

The following tables present a listing, at December 31, 2023 and2022, of the categories of the Company's reinsurers. The first category, largest reinsurers, represents all groups of reinsurers where the gross recoverable exceeds one percent of the Company's total shareholder's equity. All rated reinsurers are those that were not included in the largest reinsurer category. The provision for uncollectible reinsurance is principally based on an analysis of the credit quality of the reinsurer and collateral balances.

(in thousands of U.S. dollars)	2023	2022
Largest reinsurers	524,519	725,773
Other reinsurers balances rated A- or better	545,050	520,484
Other reinsurers with ratings lower than A-	235,247	99,503
Total	1,304,816	1,345,760

Largest Reinsurers

ABR Reinsurance Capital Holdings Ltd.

HDI Group (Hannover Re)

Swiss Re Group

10. Related party business

As part of its normal course of business, the Company reinsures a number of related parties around the world on an excess of loss or quota share basis, including a stop loss arrangement covering U.S. related party companies and, through a reinsurance contract with affiliate ACE Life Insurance Company, reinsures traditional life risks. Also, the Company retrocedes or has retroceded certain business to related parties.

The related statement of operations and balance sheet account balances for the years ended December 31, 2023 and 2022 have been affected by these reinsurance agreements as follows:

(in thousands of U.S. dollars)	2023	2022
Gross premiums written	5,156,201	4,484,350
Reinsurance premiums ceded	(156,055)	(179,514)
Net premiums earned	4,918,394	4,224,937
Losses and loss expenses	2,526,236	1,914,679
Future policy benefits	150,475	109,394
Policy acquisition costs	1,070,738	968,187
Reinsurance balances receivable	1,013,427	833,006
Prepaid reinsurance premiums	78,711	72,642
Reinsurance recoverables	256,457	237,092
Deferred policy acquisition costs	475,475	413,549
Value of reinsurance business assumed	87,536	94,175
Unpaid losses and loss expenses	7,553,822	6,857,641
Future policy benefits	211,924	212,982
Unearned premiums	1,374,337	1,214,874
Reinsurance balances payable	3,675,571	2,664,858

There are amounts due from related parties of $56.0 million and $133.4 million and due to related parties of $19.4 million and $76.8 million as at December 31, 2023 and 2022, respectively. The non-controlling interest in Oasis Investments is held by a related party. Further, the Company has entered into an interest rate swap and a foreign currency forward contract with a related party. The aggregate balance of the asset (liability) related to these instruments at December 31, 2023 and 2022 was $49.5 million and $45.7 million, respectively. Refer to Note 11.

Refer to Note 11 (g) for a discussion on security arrangement with related party.

11. Commitments, contingencies and guarantees

(a) Derivative Instruments

The Company maintains positions in derivative instruments such as futures, swaps, and foreign currency forward contracts for which the primary purposes are to manage duration and foreign currency exposure, yield enhancement, or to obtain an exposure to a particular financial market. The Company also maintains positions in exchange-traded equity futures contracts on equity market indices to limit exposure in the MRB book of business. Investment derivative instrument and futures contracts on equities are recorded in either Other assets (OA) or Accounts payable, accrued expenses, and other liabilities (AP) in the Consolidated balance sheets. These are the most numerous and frequent derivative transactions.

All derivative instruments are carried at fair value with changes in fair value recorded in Net realized gains (losses) in the Consolidated statements of operations or, for futures contracts on equities related to the MRB book of business, in Market risk benefits gains (losses) in the Consolidated statements of operations. None of the derivative instruments are designated as hedges for accounting purposes.

The following table presents the balance sheet locations, fair values of derivative instruments in an asset or (liability) position, and notional values/payment provisions of the Company's derivative instruments at December 31, 2023 and 2022.

(in thousands of U.S. dollars)	2023				2022			
	Consolidated Balance sheet Location [1]	Fair Value Derivative Asset	Fair Value Derivative (Liability)	Notional Value / Payment Provision	Consolidated Balance sheet Location [1]	Fair Value Derivative Asset	Fair Value Derivative (Liability)	Notional Value / Payment Provision
Investment and derivative instruments								
Foreign currency forward contracts	OA/(AP)	418	(1,844)	283,322	OA/(AP)	4,506	(10,256)	644,201
Futures contracts on notes and bonds	OA/(AP)	4,658	(2,420)	320,907	OA/(AP)	3,215	(2,790)	120,278
		5,076	(4,264)	604,229		7,721	(13,046)	764,479
Other derivative instruments								
Future contracts on equities[2]	AP	–	(37,367)	1,156,788	OA	33,283	–	938,688
Interest rate swap	AP	49,496	–	650,000	OA	45,657	–	650,000
		49,496	(37,367)	1,806,788		78,940	–	1,588,688

(1) Other assets (OA) and Accounts payable (AP)
(2) Related to MRB book of business.

At December 31, 2023 and 2022, net derivative assets (liabilities) of $(36.6) million and $28.0 million, respectively, included in the table above were subject to a master netting agreement. The remaining derivatives included in the table above were not subject to a master netting agreement.

The following table presents net realized gains (losses) related to derivative instrument activity in the Consolidated statements of operations:

(in thousands of U.S. dollars)	2023	2022
Investment and derivative instruments		
Foreign currency forward contracts	(2,668)	(4,160)
Future contracts on notes and bonds	(1,293)	(3,608)
Total investment and derivative instruments	(3,961)	(7,768)
Other derivative instruments		
Futures contracts on equities[1]	(189,459)	187,349
Interest rate swaps	3,839	59,858
Total other derivative instruments	(185,620)	247,207
	(189,581)	239,439

(1) Related to MRB book of business.

(b) Derivative instrument objectives

(i) Foreign currency exposure management

A foreign currency forward contract (forward) is an agreement between participants to exchange specific currencies at a future date. The Company uses forwards to minimize the effect of fluctuating foreign currencies.

(ii) Duration management and market exposure

Futures

Futures contracts give the holder the right and obligation to participate in market movements, determined by the index or underlying security on which the futures contract is based. Settlement is made daily in cash by an amount equal to the change in value of the futures contract times a multiplier that scales the size of the contract. Investments in futures contracts may be made only to the extent that there are assets under management not otherwise committed.

Exchange-traded equity futures contracts are used to limit exposure to a severe equity market decline, which would cause an increase in expected claims and therefore, an increase in the market risk benefit reserves.

(iii) Futures contracts on equities

Under the MRB program, as the assuming entity, the Company is obligated to provide coverage until the expiration or maturity of the underlying deferred annuity contracts or the expiry of the reinsurance treaty. The Company may recognize a loss for changes in fair value due to adverse changes in the capital markets (e.g., declining interest rates and/or declining U.S. and/or international equity markets). To mitigate adverse changes in the capital markets, the Company maintains positions in exchange-traded equity futures contracts, as noted under section "(ii) Futures" above. These futures increase in fair value when the S&P 500 index decreases (and decrease in fair value when the S&P 500 index increases). The net impact of gains or losses related to changes in fair value of the MRB liability and the exchange-traded equity futures are included in Market risk benefits gains (losses) in the Consolidated statements of operations.

(iv) Interest rate swaps

The Company has entered into an interest rate swap for the purpose of minimizing the effect of fluctuation interest rates.

(c) Securities lending and secured borrowings

The Company participates in a securities lending program operated by a third-party banking institution whereby certain assets are loaned to qualified borrowers and from which the Company earns an incremental return. The securities lending collateral can only be drawn down by the Company in the event that the institution borrowing the securities is in default under the lending agreement. An indemnification agreement with the lending agent protects the Company in the event a borrower becomes insolvent or fails to return any of the securities on loan. The collateral is recorded in Securities lending collateral and the liability is recorded in Securities lending payable in the Consolidated balance sheets.

The following table presents the carrying value of collateral held under securities lending agreements by investment category and remaining contractual maturity date of the underlying agreements:

	Remaining contractual maturity	
	Overnight and Continuous	
(in thousands of U.S. dollars)	December 31 2023	December 31 2022
Collateral held under securities lending agreements:		
Cash	96,888	212,408
U.S. Treasury and agency	4,668	—
	101,556	212,408
Gross amount of recognized liabilities for securities lending payable	101,571	212,423
Difference(1)	(15)	(15)

(1) The carrying value of the securities lending collateral held is lower than the securities lending payable due to accrued interest recorded in the securities lending payable

At December 31, 2023 and 2022, the Company's repurchase agreement obligations of $100.6 million and $100.2 million, respectively were fully collateralized. In contrast to securities lending programs, the use of cash received is not restricted for the repurchase obligations. The fair value of the underlying securities sold remains in Fixed maturities available-for-sale and the repurchase agreement obligation is recorded in Repurchase agreements in the Consolidated balance sheets.

The following table presents the carrying value of collateral pledged under repurchase agreements by investment category and remaining contractual maturity of the underlying agreements as at December 31, 2023 and 2022:

	2023			
(in thousands of U.S. dollars)	Remaining contractual maturity			
Collateral pledged under repurchase agreements	Up to 30 days	30 – 90 days	Greater than 90 days	Total
U.S. Treasury and agency	–	104,806	–	104,806
Gross amount of recognized liabilities for repurchase agreements				100,648
Difference[(1)]				4,158

1. Per the repurchase agreements, the amount of collateral posted is required to exceed the amount of gross liability.

	2022			
(in thousands of U.S. dollars)	Remaining contractual maturity			
Collateral pledged under repurchase agreements	Up to 30 days	30 – 90 days	Greater than 90 days	Total
U.S. Treasury and agency	–	101,473	–	101,473
Gross amount of recognized liabilities for repurchase agreements				100,157
Difference[(1)]				1,316

(1) Per the repurchase agreements, the amount of collateral posted is required to exceed the amount of gross liability.

Potential risks exist in the Company's secured borrowing transactions due to market conditions and counterparty exposure. With collateral that the Company pledges, there is a risk that the collateral may not be returned at the expiration of the agreement. If the counterparty fails to return the collateral, the Company will have free use of the borrowed funds until the collateral is returned. In addition, the Company may encounter the risk that it may not be able to renew outstanding borrowings with a new term or with an existing counterparty due to market conditions including a decrease in demand as well as more restrictive terms from banks due to increased regulatory and capital constraints. Should this condition occur, the Company may seek alternative borrowing sources or reduce borrowings. Additionally, increased margins and collateral requirements due to market conditions would increase restricted assets as the Company is required to provide additional collateral to support the transaction.

(d) Concentrations of credit risk

The Company's investment portfolio is managed following prudent standards of diversification. Specific provisions limit the allowable holdings of a single issue and issuer. The Company believes that there are no significant concentrations of credit risk associated with the investment portfolio. The Company's three largest exposures by issuer at December 31, 2023, were JPMorgan Chase & Co, Wells Fargo & Co and Bank of America Corp. The Company's largest exposure by industry at December 31, 2023 was financial services.

(e) Other investments

At December 31, 2023, included in Other investments are policy loans and other investments.

(f) Private equities

Private equities in the Consolidated balance sheets include investments in limited partnerships and partially-owned investment companies with a carrying value of $9.5 billion. In connection with these investments, the Company has commitments that may require funding of up to $4.7 billion over the next several years. At December 31, 2022, these investments had a carrying value of $8.1 billion with commitments that may have required funding of up to $5.9 billion.

(g) Letters of credit

The Company has access to credit facilities with letter of credit capacity of $3.9 billion with a sub-limit of $3.0 billion of which can be used for revolving credit. The existing credit facilities have remaining terms expiring through October 2027. Chubb's LOC usage on these facilities was $0.9 billion and $1.2 billion at December 31, 2023 and 2022, respectively.

(h) Guarantee

In 2011, the Company entered into a funds withheld security arrangement with Chubb Insurance Limited (Chubb Australia), under which the Company agreed to provide collateral to support reinsurance balances recoverable that Chubb Australia carries in connection with business reinsured from CTR and other Chubb affiliates. The agreement requires collateral to be provided in connection with reinsurance balances recoverable from events that occurred at least two years prior. At December 31, 2023 the funds withheld balance totaled AUD $1.0 billion ($681.4 million) of which a maximum of AUD$64.1 million ($42.7 million) could be used to support affiliate balances. At December 31, 2022 the funds withheld balance totaled AUD$933.1 million ($639.6 million) of which a maximum of AUD$79.7 million ($54.7 million) could be used to support other Chubb affiliate balances.

In 2021, each of CTR and BlackRock agreed to provide a limited guaranty, on a several and not joint basis, of certain obligations owed by ABR Re to certain financial institutions pursuant to a term-loan credit agreement. CTR receives an annual fee, recorded in Other income in the Consolidated statements of operations, as consideration for the limited guaranty.

(i) Floating Charge

In addition, the Company also utilizes a floating charge over certain assets for the benefit of a affiliated ceding company. Under the agreement, the Company would be required to secure assets in a trust for the benefit of the ceding company upon certain triggering events, such as a rating downgrade below "A" by Standard and Poor's. Although there had been no triggering events, in 2015 the Company elected to fund a trust for the benefit of the ceding company with a balance at December 31, 2023 and 2022 of $808.2 million and $741.1 million, respectively. There have been no triggering events in 2023 or 2022.

(j) Claims and Other Litigation

The Company may be subject to claims litigation involving disputed interpretations of treaty coverages. These lawsuits, involving claims on treaties issued by the Company's subsidiaries which are typical to the reinsurance industry in general and in the normal course of business, are considered in the loss and loss expense reserves. In addition to claims litigation, the Company is 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. This category of business litigation typically involves, among other things, regulatory activity or disputes arising from the Company's business ventures. In the opinion of management, the ultimate liability for these matters could be, but the Company believes is not likely to be, material to the consolidated financial condition and results of operations.

12. Shareholder's equity

The Company's authorized and issued share capital is $370,000 consisting of 370,000 Common Shares of $1 par value.

During the years ended December 31, 2023 and 2022 dividends amounting to $(1.5) billion and $(4.9) billion respectively, were declared and paid.

13. *Fair value measurements*

(a) Fair value hierarchy

Fair value of financial assets and financial liabilities is estimated based on the framework established in the fair value accounting guidance. The guidance defines fair value as the price to sell an asset or transfer a liability (an exit price) in an orderly transaction between market participants and establishes a three-level valuation hierarchy based on the reliability of the inputs. The fair value hierarchy gives the highest priority to quoted prices in active markets and the lowest priority to unobservable data.

The three levels of the hierarchy are as follows:

Level 1 – Unadjusted quoted prices for identical assets or liabilities in active markets;

Level 2 – Includes, among other items, inputs other than quoted prices that are observable for the asset or liability such as interest rates and yield curves, quoted prices for similar assets and liabilities in active markets, and quoted prices for identical or similar assets and liabilities in markets that are not active; and

Level 3 – Inputs that are unobservable and reflect management's judgments about assumptions that market participants would use in pricing an asset or liability.

The Company categorizes financial instruments within the valuation hierarchy at the balance sheet date based upon the lowest level of inputs that are significant to the fair value measurement.

The Company uses pricing services to obtain fair value measurements for the majority of the Company's investment securities. Based on management's understanding of the methodologies used, these pricing services only produce an estimate of fair value if there is observable market information that would allow them to make a fair value estimate. Based on the Company's understanding of the market inputs used by the pricing services, all applicable investments have been valued in accordance with U.S. GAAP. The Company does not adjust prices obtained from pricing services. The following is a description of the valuation techniques and inputs used to determine fair values for financial instruments carried at fair value, as well as the general classification of such financial instruments pursuant to the valuation hierarchy.

(i) Fixed maturities

The Company uses pricing services to estimate fair value measurements for the majority of the Company's fixed maturities. The pricing services use market quotations for fixed maturities that have quoted prices in active markets; such securities are classified within Level 1. For fixed maturities other than U.S. Treasury securities that generally do not trade on a daily basis, the pricing services prepare estimates of fair value measurements using their pricing applications, or pricing models, which include available relevant market information, benchmark curves, benchmarking of like securities, sector groupings, and matrix pricing. Additional valuation factors that can be taken into account are nominal spreads, dollar basis, and liquidity adjustments. The pricing services evaluate each asset class based on relevant market and credit information, perceived market movements, and sector news. The market inputs used in the pricing evaluation, listed in the approximate order of priority include: benchmark yields, reported trades, broker/dealer quotes, issuer spreads, two-sided markets, benchmark securities, bids, offers, reference data, and industry and economic events. The extent of the use of each input is dependent on the asset class and the market conditions. Given the asset class, the priority of the use of inputs may change or some market inputs may not be relevant. Additionally, fixed maturities valuation is more subjective when markets are less liquid due to the lack of market based inputs (i.e., stale pricing), and may require the use of models to be priced. The lack of market based inputs may increase the potential that an investment's estimated fair value is not reflective of the price at which an actual transaction would occur. The overwhelming majority of fixed maturities are classified within Level 2 because the most significant inputs used in the pricing techniques are observable. For a small number of fixed maturities, the Company obtains a single broker quote (typically from a market maker). Due to the disclaimers on the quotes that indicate that the price is indicative only, the Company include these fair value estimates in Level 3.

(ii) Equity securities

Equity securities with active markets are classified within Level 1 as fair values are based on quoted market prices. For equity securities in markets which are less active, fair values are based on market valuations and are classified within Level 2. Equity securities for which pricing is unobservable are classified within Level 3.

(iii) Short-term investments

Short-term investments, which comprise securities due to mature within one year of the date of purchase that are traded in active markets, are classified within Level 1 as fair values are based on quoted market prices. Securities such as commercial paper and discount notes are classified within Level 2 because these securities are typically not actively traded due to their approaching maturity and, as such, their cost approximates fair value. Short-term investments for which pricing is unobservable are classified within Level 3.

(iv) Private equities

Fair values for the majority of Private equities including investments in partially-owned investment companies, investment funds, and limited partnerships are based on their respective NAV and are excluded from the fair value hierarchy table below.

(v) Securities lending collateral

The underlying assets included in Securities lending collateral in the Consolidated balance sheets are fixed maturities which are classified in the valuation hierarchy on the same basis as other fixed maturities. Excluded from the valuation hierarchy is the corresponding liability related to the Company's obligation to return the collateral plus interest as it is reported at contract value and not fair value in the Consolidated balance sheets.

(vi) Investment derivative instruments not designated as hedging instruments

Actively traded investment derivative instruments, including futures and exchange-traded forward contracts, are classified within Level 1 as fair values are based on quoted market prices. The fair value of cross-currency swaps and interest rate swaps is based on market valuations and is classified within Level 2. Investment derivative instruments are recorded in either Other assets or Accounts payable, accrued expenses, and other liabilities in the Consolidated balance sheets.

(vii) Other derivative instruments

We maintain positions in exchange-traded equity futures contracts designed to limit exposure to a severe equity market decline, which would cause an increase in expected market risk benefits (MRB) claims and, therefore, an increase in MRB reserves. The Company's positions in exchange-traded equity futures contracts are classified within Level 1. Further, the Company's positions in the interest rate swap and foreign currency forward contract are valued based on significant observable inputs and are therefore classified within Level 2. Other derivative instruments are recorded in either Other assets or Accounts payable, accrued expenses, and other liabilities in the Consolidated balance sheets.

(viii) Guaranteed living benefits

The GLB arises from life reinsurance programs covering living benefit guarantees whereby the Company assumes the risk of GMIB associated with variable annuity contracts. GLB's are recorded in Accounts payable, accrued expenses, and other liabilities in the Consolidated balance sheets. For GLB reinsurance, the Company estimates fair value using an internal valuation model which includes current market information and estimates of policyholder behavior. All of the treaties contain claim limits, which are factored into the valuation model. The fair value depends on a number of factors, including interest rates, equity markets, credit risk, current account value, market volatility, expected annuitization rates and other policyholder behavior, and changes in policyholder mortality. Because of the significant use of unobservable inputs including policyholder behavior, GLB reinsurance is classified within Level 3.

The following tables present, by valuation hierarchy, the financial instruments measured at fair value on a recurring basis at December 31, 2023 and 2022.

(in thousands of U.S. dollars)	2023			
	Level 1	Level 2	Level 3	Total
Assets:				
Fixed maturities available-for-sale				
U.S. Treasury / Agency	301,901	45,556	–	347,457
Non-U.S.	–	3,562,882	23,270	3,586,152
Corporate and asset-backed securities	–	2,851,008	3,873	2,854,881
Mortgage-backed securities	–	1,661,761	3,982	1,665,743
Municipal	–	140,266	–	140,266
	301,901	8,261,473	31,125	8,594,499
Equity securities	81,466	–	471	81,937
Short-term investments	206,103	66,544	–	272,647
Investment derivative instruments	5,076	–	–	5,076
Other investments	5,009	–	–	5,009
Other derivative instruments	–	49,496	–	49,496
Securities lending collateral	–	101,556	–	101,556
Total assets measured at fair value[1]	599,555	8,479,069	31,596	9,110,220
Liabilities:				
Investment derivative instruments	4,264	–	–	4,264
Other derivative instruments	37,367	–	–	37,367
Market risk benefits[2]	–	–	770,788	770,788
Total liabilities measured at fair value	41,631	–	770,788	812,419

(1) Excluded from the table above are private equities of $9.7 billion at December 31, 2023 measured using NAV as a practical expedient.
(2) Refer to Note 8 for additional information on Market risk benefits.

(in thousands of U.S. dollars)	2022			
	Level 1	Level 2	Level 3	Total
Assets:				
Fixed maturities available-for-sale				
U.S. Treasury and agency	340,382	23,589	–	363,971
Foreign	–	3,112,519	15,591	3,128,110
Corporate securities	–	3,239,230	2,166	3,241,396
Mortgage-backed securities	–	1,329,330	8,175	1,337,505
States, municipalities, and political subdivisions	–	128,791	–	128,791
	340,382	7,833,459	25,932	8,199,773
Equity securities	30,060	–	338	30,398
Short-term investments	241,555	105,951	–	347,506
Investment derivative instruments	7,721	–	–	7,721
Other investments	4,040	–	–	4,040
Other derivative instruments	33,283	45,657	–	78,940
Securities lending collateral	–	212,408	–	212,408
Total assets measured at fair value(1)	657,041	8,197,475	26,270	8,880,786
Liabilities:				
Investment derivative instruments	13,046	–	–	13,046
Market risk benefits(2)	–	–	800,320	800,320
Total liabilities measured at fair value	13,046	–	800,320	813,366

(1) Excluded from the table above are private equities of $8.5 billion at December 31, 2022 measured using NAV as a practical expedient

(2) Refer to Note 8 for additional information on Market risk benefits.

(b) Level 3 financial instruments

The following tables present a reconciliation of the beginning and ending balances of financial instruments measured at fair value using significant unobservable inputs (Level 3). Excluded from the following tables is the reconciliation of Market risk benefits, refer to Note 8 for additional information:

(in thousands of U.S. dollars)	*Year ended December 31, 2023*			
	Assets			
	Available-for-sale debt securities			
	Foreign	*Corporate and asset backed securities*	*MBS*	*Equity securities*
Balance - Beginning of year	15,591	2,166	8,175	338
Transfers into Level 3	2,584	1,262	–	–
Transfers out of Level 3	–	(1,294)	–	–
Change in Net Unrealized Gains (Losses) included in OCI	145	61	–	–
Net Realized Gains/Losses	–	2	–	133
Purchases	4,909	1,880	–	–
Sales	–	–	–	–
Settlements	41	(204)	(4,193)	–
Balance-End of year	23,270	3,873	3,982	471
Net Realized Gains/Losses Attributable to Changes in Fair Value at the Balance Sheet Date	–	(16)	–	133
Change in Net Unrealized Gains/Losses included in OCI at the Balance Sheet Date	145	79	–	–

(in thousands of U.S. dollars)	*Year ended December 31, 2022*			
	Assets			
	Available-for-sale debt securities			
	Foreign	*Corporate securities*	*MBS*	*Equity securities*
Balance - Beginning of year	6,374	16,501	18,320	–
Transfers into Level 3	19,582	11,921	–	164
Transfers out of Level 3	(6,374)	(15,170)	(72)	–
Change in Net Unrealized Gains (Losses) included in OCI	(1,794)	(237)	–	–
Net Realized Gains/Losses	(115)	(409)	–	174
Purchases	–	525	–	–
Sales	(2,119)	(9,923)	–	–
Settlements	37	(1,042)	(10,073)	–
Balance-End of year	15,591	2,166	8,175	338
Net Realized Gains/Losses Attributable to Changes in Fair Value at the Balance Sheet Date	–	(44)	–	174
Change in Net Unrealized Gains/Losses included in OCI at the Balance Sheet Date	(1,828)	(171)	–	–

(c) Financial instruments disclosed, but not measured, at fair value

The Company uses various financial instruments in the normal course of its business. The Company's reinsurance contracts are excluded from fair value of financial instruments accounting guidance and, therefore, are not included in the amounts discussed below.

The carrying values of cash, other assets, other liabilities, and other financial instruments not included below approximated their fair values.

Investments in partially-owned insurance companies

Fair values for investments in partially-owned insurance companies are based on the share of the Company's net assets based on the financial statements provided by those companies and are excluded from the valuation hierarchy tables below.

Repurchase agreements

Where practical, fair values of repurchase agreements are estimated using discounted cash flow calculations based principally on observable inputs including incremental borrowing rates, which reflect the Company's credit rating, for similar types of borrowings with maturities consistent with those remaining for the debt being valued.

The following tables present fair value, by valuation hierarchy, and carrying value of the financial instruments not measured at fair value:

December 31, 2023	Fair Value				Net Carrying
(in thousands of U.S. dollars)	Level 1	Level 2	Level 3	Total	Value
Liabilities:					
Repurchase agreements	–	100,648	–	100,648	100,648

December 31, 2022	Fair Value				Net Carrying
(in thousands of U.S. dollars)	Level 1	Level 2	Level 3	Total	Value
Assets:					
Fixed Maturities held to maturity:					
Corporate securities	–	104	–	104	91
Mortgage-backed securities	–	2,337	–	2,337	2,362
Total assets	–	2,441	–	2,441	2,453
Liabilities:					
Repurchase agreements	–	100,157	–	100,157	100,157

14. *Other income and expense*

Other income and expense includes equity in net income of partially-owned entities, which includes the Company's share of net income or loss, both underlying operating income and mark-to-market movement, related to partially-owned investment companies (private equity) where the Company owns more than three percent and partially-owned insurance companies. This line item includes mark-to-market gains (losses) on private equities totaling $568.4 million and $(336.2) million for the years ended December 31, 2023 and 2022 respectively. This line item also includes net income of $18.0 million and $13.9 million attributable to the Company's investments in Huatai for the years ended December 31, 2023 and 2022, respectively.

15. *Taxation*

Under Bermuda law, Chubb's Bermuda subsidiaries are not required to pay any taxes on income or capital gains. However, on December 27, 2023, the Government of Bermuda enacted the Corporate Income Tax Act 2023 (The Act) which established a 15 percent income tax on net taxable income of applicable Bermuda entities effective January 1, 2025. Transition provisions included within The Act led to recording of a one-time deferred tax benefit of $832 million in the fourth quarter of 2023, primarily related to intangible assets. The Company and its Bermuda subsidiaries will pay taxes on their income beginning in 2025.

The Company is not considered to be engaged in trade or business in the United States and, accordingly, does not expect to be subject to United States taxation. The Company does conduct business through non-US branches and subsidiaries domiciled in taxable jurisdictions.

There can be no assurance that there will not be changes in applicable laws, regulations, or treaties which might require the Company to change the way it operates or become subject to taxation.

The Company incurs excise and non-resident withholding taxes related to certain reinsurance premiums from various countries currently reflected within acquisition costs.

There is no valuation allowance at December 31, 2023 nor 2022, respectively, reflecting management's assessment, based on available information, that it is more likely than not that all of the deferred tax assets will be realized.

16. Statutory financial information

The Company is registered under The Insurance Act 1978 (Bermuda), amendments thereto and related regulations (the Act) as a Class E insurer. Under Bermuda's Solvency II equivalent regime, the Company calculates statutory capital using the Bermuda Statutory Capital Requirement (BSCR) model. The BSCR is a risk-based capital model that measures risk to determine an enhanced capital requirement and target capital level (defined as 120 percent of the enhanced capital requirement (ECR)) for Class E insurers.

Statutory capital and surplus of the Company was $9.5 billion and $8.8 billion at December 31, 2023 and 2022, respectively. For the years ended December 31, 2023 and 2022, the ECR was $6.4 billion and $5.7 billion, respectively. The minimum solvency margin required at December 31, 2023 was met by the Company.

CTR, as a wholly-owned subsidiary of the Company, is registered under the Act as a Class 4 insurer. The Act requires CTR to meet a minimum solvency margin and a minimum liquidity ratio. CTR has satisfied these requirements for 2023 and 2022. For Class 4 insurers, the target capital level as calculated by the BSCR is defined as 120 percent of the ECR. For the year ended December 31, 2023 the Company had statutory economic capital and surplus of $9.6 billion (2022: $8.7 billion) which exceeded the ECR of $6.2 billion (2022: $5.5 billion).

A Class 4 insurer is prohibited from declaring or paying a dividend if in breach of its ECR, solvency margin or minimum liquidity ratio or if the declaration or payment of such dividend would cause such a breach. Where an insurer fails to meet its solvency margin or minimum liquidity ratio on the last day of any financial year, it is prohibited from declaring or paying any dividends during the next financial year without the approval of the Bermuda Monetary Authority (the Authority). Further, a Class 4 insurer is prohibited from declaring or paying in any financial year dividends of more than 25 percent of its total statutory capital and surplus (as shown on its previous financial year’s statutory balance sheet) unless it files (at least seven days before payment of such dividends) with the Authority an affidavit signed by at least two directors and the insurer’s principal representative stating that the declaration of such dividends has not caused the insurer to fail to meet its solvency margin or minimum liquidity ratio. Class 4 insurers must obtain the Authority’s prior approval for a reduction by 15 percent or more of the total statutory capital as set forth in its previous year’s statutory financial statements.

17. Subsequent events

The Company has performed an evaluation of subsequent events through April 29, 2024, which is the date that the financial statements were issued.

The Company completed a portfolio transfer of its United Arab Emirates (UAE) branch to Oman Insurance Company P.S.C. (Sukoon), effective from February 26, 2024. The transaction had no material effect.

No other significant subsequent events requiring disclosure were identified.