

sigma

Raising the bar:
non-life insurance
in a higher-risk,
higher-return world

- 02 Executive summary
- 03 Key takeaways
- 05 Adjusting to the higher interest rate era
- 13 Outlook for the non-life underwriting cycle
- 21 Reinsurance to support capital efficiency
- 27 A more financially sustainable path

Executive summary

The new higher interest rate era is having a profound impact on non-life insurance.

Non-life insurance is adjusting rapidly to the higher interest rate era ushered in by the most intense monetary policy tightening since the 1980s. Almost 95% of central banks have raised policy interest rates since 2021 due to high inflation post-pandemic.¹ The end of the era of financial repression – the period of extreme low interest rates after the global financial crisis – is generating strongly higher yields on invested assets. It has also raised the cost of equity capital for the non-life industry worldwide to the highest level in more than a decade. Higher interest rates transform the economics of insurance and put insurers on a more financially sustainable long-term path, but to narrow protection gaps, industry resources need to match the growth in demand from evolving risks such as catastrophes. For example, stronger growth would be beneficial for US Property & Casualty (P&C) industry capital, which grew 5% annually on average in the past 10 years, two points less than the estimated natural catastrophe protection need at 7%. In this environment, more efficient use of capital becomes key.

The benefit of higher interest rates on investment results far outpaces the increased cost of capital.

The benefit of higher interest rates on insurers' investment results far outpaces the increased cost of capital that accompanies it. Cost of capital has increased in all major regions since the start of the tightening cycle, with European insurers seeing the largest jump in risk-free rates. Yet since the average non-life investment portfolio is generally 2.5 times net premiums earned, an additional 100 basis points (bps) of investment yield is roughly equivalent to 250bps improvement in the combined ratio. Even with a likely deterioration in combined ratio between 2021 and 2023, higher interest rates improve the profitability of new business with respect to cost of capital, incentivising stronger growth in 2023. In contrast, the low interest rate years after the global financial crisis caused profitability headwinds for insurers. Non-life insurers' returns on equity (ROE) did not meet their cost of equity capital globally in either the post-financial crisis era (2010–19) or pandemic period (2020–22).

We expect improving profitability for most non-life business in 2023.

Higher interest rates should strongly benefit the non-life sector's profitability potential. We expect a transition year of improving profitability for most non-life business in 2023, as underwriting measures adjust to claims trends and higher portfolio yields boost net investment income. In the US P&C insurance industry, for example, we estimate that higher yields on new business should improve the industry operating ratio by 630bps, far exceeding the 190bps increase in the cost of equity capital. In 2023, we estimate that P&C insurers in eight large markets will narrow the underwriting gap by six points on average from 2022, but still miss their CoC by about four points of combined ratio. While this represents a much-needed improvement, we see the global profitability level as still too low and so supportive of more rate hardening. The cautious return of investors to the Alternative Capital (AC) market, despite higher returns on catastrophe bonds, reinforces our view that hard market conditions may persist into 2024.

Non-life insurers can benefit from writing more profitable new business, but risk capital remains constrained.

Non-life insurers can benefit from writing new business at the current more profitable premium rates and investment returns. Yet available risk capital and capacity deployed remain constrained in many lines despite the stronger profitability outlook. Higher interest rates cannot be separated from the inflation surge that prompted them, as well as social inflation, shocks such as the war in Ukraine, and uncertainty around claims trends, reserves and other risks. Capacity restraints are also partly driven by model uncertainty after years of above-average natural catastrophe losses. With investors hesitant and return expectations rising, issuing new equity is also less attractive.

Reinsurance can offer a flexible and efficient capital substitute for insurers.

Reinsurance can potentially offer a flexible and efficient capital substitute to ease these pressures. Reinsurers can offer insurers access to their balance sheet at costs below insurers' capital costs because their portfolio is diversified across a broader range of geographies and risks. Reinsurance can help insurers by improving their capital efficiency (higher returns, enhanced solvency), providing certainty for legacy liabilities, and supporting the growth of new business.

¹ I. Navigating the disinflation journey, *Annual Economic Report 2023*, Bank for International Settlements, 2023.

Key takeaways

Insurers overall did not earn their cost of equity capital in the low interest rate era after the global financial crisis

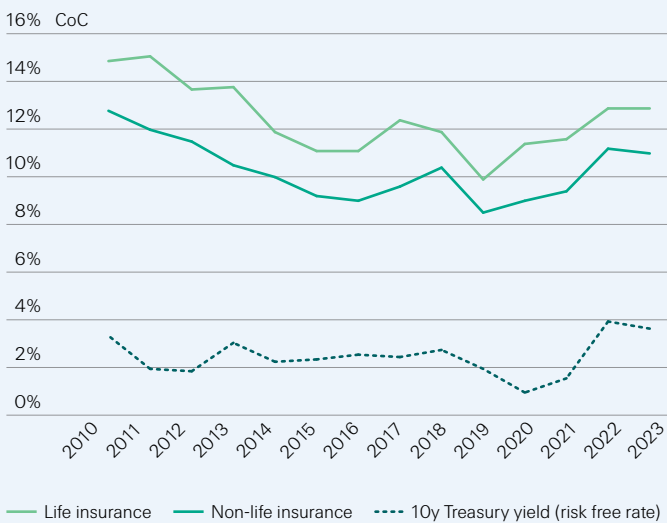
Comparison of insurance sector ROEs with cost of capital

		2020–2022 (COVID-19 period)		2010–2019 (post-financial crisis decade)	
		Life (n = 67)	Non-life (n = 81)	Life (n = 85)	Non-life (n = 99)
Average ROE	All	8.9%	9.9%	8.4%	10.0%
	North America	9.9%	10.7%	8.8%	9.9%
	Europe	7.9%	10.7%	10.7%	10.7%
	Asia Pacific	9.1%	8.6%	9.0%	9.0%
Cost of equity capital	All	12.0%	9.9%	12.6%	10.3%
	North America	11.8%	8.7%	12.4%	9.1%
	Europe	12.2%	9.4%	12.2%	10.0%
	Asia Pacific	12.5%	11.6%	12.8%	12.3%
Investor value creation (ROE – CoC)	All	-3.0%	0.1%	-4.2%	-0.4%
	North America	-1.9%	1.9%	-3.6%	0.8%
	Europe	-4.4%	1.2%	-1.5%	0.7%
	Asia Pacific	-3.4%	-3.1%	-3.9%	-3.3%

Source: S&P Capital IQ, Bloomberg, Swiss Re Institute

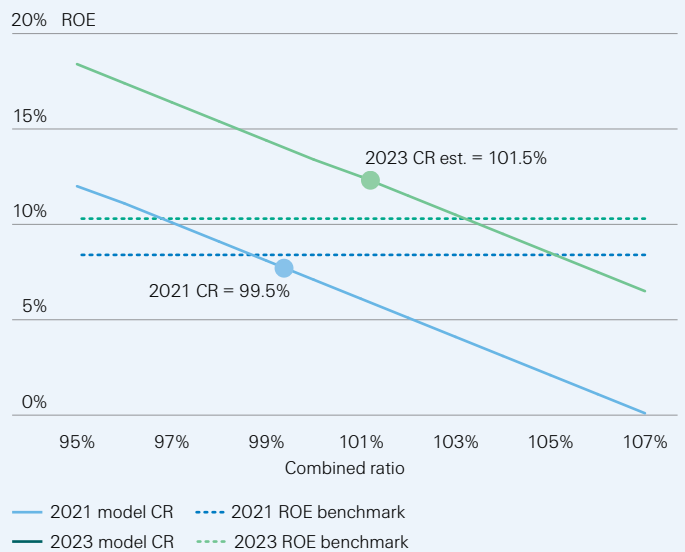
With higher yields, insurance industry cost of capital has risen to its highest in more than a decade... but P&C new business profitability benefits still more

Cost of capital estimates and 10-year US Treasury yield



Source: Bloomberg, S&P Capital IQ, Swiss Re Institute

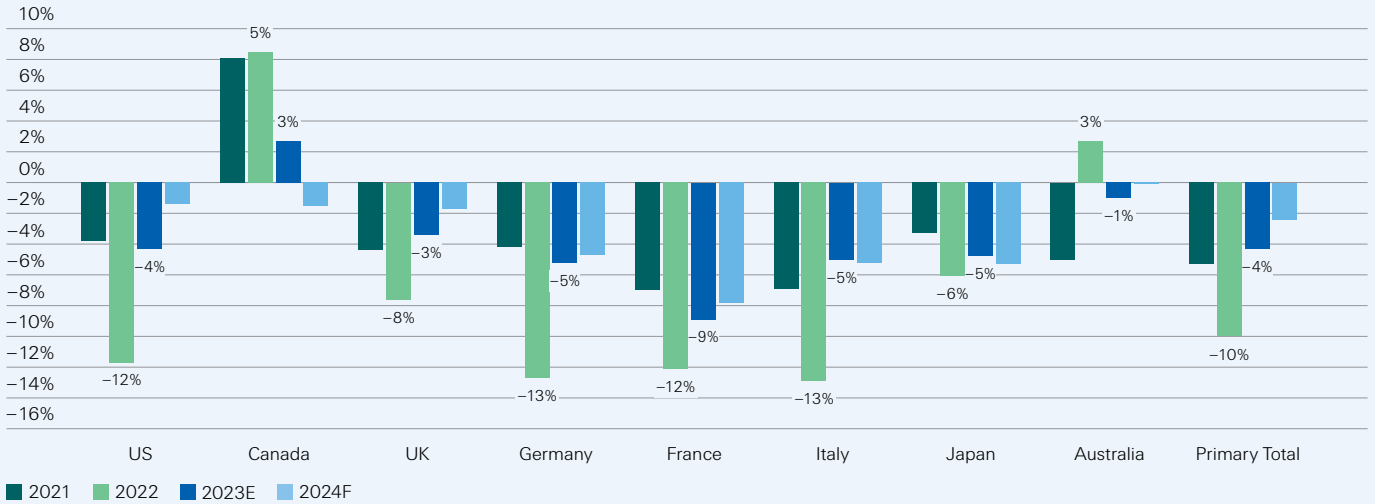
Interest rate sensitivity of US P&C insurance, 2021 and 2023



Note: estimated reinvestment yield for 2021 = 2.8%, 2023 = 5.2%. Source: SNL, Swiss Re Institute

We expect 2023 to be a transition year toward profitability for most P&C insurers. They are likely to still miss their cost of capital in most markets we analyse, but by much less than in 2022

Underwriting profitability gap (as a share of net premiums earned) in eight key markets, and their total



Source: Swiss Re Institute

Higher demand and limited capacity point to further hard market conditions in primary non-life insurance

Economic drivers of the non-life insurance pricing cycle

	Current trend	Medium-term trend
Underwriting profitability of new business	Improving	Higher than recent years
Catastrophe losses	Recalibration to higher trend, model uncertainty	Global exposure growth at 5–7% real p.a.
Claims trends	Elevated: inflation surge, post-COVID-19 and war-related uncertainties	Disinflation but social inflation and model uncertainties continue
Investment yields	Up for new investments, repricing of yield curve	Reset at higher level (compared to pre-COVID-19), steepening of yield curve
Traditional balance sheet capital	19% below year-end 2021 (as of June 2023)	Recovery (partial)
Alternative capital	Muted interest from long-term investors	Continued growth of cat bonds

Source: Swiss Re Institute

In this capacity-constrained environment, reinsurance can enable insurers to write new business more efficiently

Capital management solutions for insurers

		Flexibility	Privacy	Breadth	Term
Capital	Equity	Low	Low	Broad	Long
	Hybrid equity/debt	Low	Medium	Broad	Long
	Contingent capital	Medium	High	Broad	Medium
Reinsurance	Catastrophe excess of loss	High	High	Specific	Short
	Quota share	High	High	Medium	Short
	Retrospective reinsurance	High	High	Flexible	Flexible

Source: Swiss Re Institute

Adjusting to the higher interest rate era

Financial conditions today are transformed from two years ago, with a higher hurdle for insurers' profitability but also significantly higher investment returns. In contrast, the ultra-low interest rate era that followed the global financial crisis was a time of relatively poor financial returns in non-life insurance. With an asset-to-equity leverage ratio of around 2.5x in an average non-life company, the benefit of higher interest rates on investments significantly outpaces the increased cost of capital that accompanies it. However, the gains to average portfolio yields accrue only gradually due to an average portfolio maturity of six years and the dominance of lower yields in the legacy bond portfolio.

A tectonic shift in interest rates has occurred over the past two years...

The P&C insurance industry is adjusting rapidly to the new era of higher interest rates ushered in by the most intense monetary policy tightening since the 1980s. Almost 95% of central banks raised policy interest rates between early 2021 and mid-2023 in response to high inflation,² and advanced economy central banks – except for Japan – are undoing past quantitative easing by shrinking their balance sheets. The end of the period of low interest rates and financial repression after the global financial crisis is generating materially higher investment yields for invested assets. It is also raising the cost of equity capital for companies virtually worldwide, including those in the non-life insurance industry.

...with significant implications for P&C insurers.

The insurance industry is sensitive to interest rates through the asset leverage and duration embedded in the business model. Both the low interest rates in the decade pre-COVID-19 and during the pandemic, and the current higher-rate environment, have fundamental effects on insurers' profitability and risk management. Insurers invest underwriting cashflows in a wide range of securities, particularly longer-term fixed income investments, before making claims payments, so higher interest rates substantially improve the industry's overall profitability.

We analyse the evolution of insurer profitability, from the financial repression era to the current higher-for-longer interest rate outlook.

We analyse primary insurance equity cost of capital to understand the implications of this for insurers' profitability.³ First, we assess profitability during the years of financial repression (the old baseline, post-GFC and pre-COVID-19, 2010–2019) and how the performance of life and non-life insurers compared. We compare this baseline with the COVID-19 years (2020–2022). We look at how equity CoC has risen in the last two years, and model the benefit of higher investment yields on P&C insurance profitability.

² *Annual Economic Report 2023*, p. 3, BIS, 2023. Notable exceptions were China, Japan and Turkey.

³ We focus on equity cost of capital rather than debt, given the relatively low debt leverage of the P&C industry and the fact that only equity serves the primary purpose of risk-bearing capital.

A decade of financial repression: did insurers earn their cost of capital?

Table 1
Comparison of insurance sector ROEs and costs of capital

		2020–2022 (COVID-19 period)		2010–2019 (post-financial crisis decade)	
		Life (n = 67)	Non-life (n = 81)	Life (n = 85)	Non-life (n = 99)
Average ROE	All	8.9%	9.9%	8.4%	10.0%
	North America	9.9%	10.7%	8.8%	9.9%
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Cost of equity capital	All	12.0%	9.9%	12.6%	10.3%
	North America	11.8%	8.7%	12.4%	9.1%
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Investor value creation (ROE – CoC)	All	-3.0%	0.1%	-4.2%	-0.4%
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	Asia Pacific	-3.4%	-3.1%	-3.9%	-3.3%

Source: S&P Capital IQ, Bloomberg, Swiss Re Institute

Insurers struggled to meet their cost of capital after the global financial crisis.

Using ROE as a primary performance measure, insurance companies had difficulties meeting their CoC after the global financial crisis, leading to negative value creation for some investors (see Table 1). European and American P&C insurers marginally met their CoC in both the pre-pandemic decade and the COVID-19 period. They underperformed in Asia with higher CoC. Life insurers underperformed throughout as higher betas led to higher CoC. Low yields hurt the asset side more than benefited the CoC side; this should now reverse. In addition to the better relative performance, the volatility of non-life insurers' earnings was lower compared to the life insurance sector.

We use a Bloomberg-based CAPM as our primary cost-of capital indicator...

Cost of capital methodology

The costs of equity capital for the life and non-life sectors are calculated using the Capital Asset Pricing Model (CAPM) and data from Bloomberg. The key inputs to the CAPM are 1) the risk-free rate of return, 2) the market risk premium, and 3) the beta of the equity instrument. The risk-free rate of return used is the 10-year US Treasury yield or similar for other countries. The expected return of the equity market is estimated using various valuation models, including the dividend discount and the earnings capitalisation models.⁴ The beta of a stock is its volatility relative to the overall market. A lower beta stock is less volatile; high beta implies higher volatility (therefore risk).

... and compare it to other CoC estimates.

The Bloomberg CAPM approach uses higher equity risk premia compared to some other sources. We assess the Bloomberg CoC estimates against a second dataset based on NYU-Stern models for CoC, which has lower equity risk premia⁵ and thus insurers show better performance. The CoC estimates derived from the NYU-Stern dataset show that non-life insurers' returns exceeded CoC during both the post-global financial crisis and COVID-19 eras. Life insurers also showed improved performance,

⁴ The expected market return uses forecast growth rates, earnings, dividends, pay-out ratios, and current values. The market return is calculated by taking a capital weighted average of all the members of the country's major index.

⁵ A key difference lies in the assumptions for expected dividend growth. The Bloomberg model relies on consensus forecasts from analysts for earnings and dividend growth, Damodaran uses GDP growth forecasts, which is more in line with Swiss Re Institute's own estimates of expected equity returns.

only marginally missing their benchmark between 2010–2019 and meeting it during the COVID-19 period. Like the Bloomberg-based estimates, the second set of CoC estimates also affirms the finding of relative underperformance of life insurers compared to non-life insurers.

The Bloomberg-based CAPM is widely used and provides values close to communicated CoC targets.

We use the Bloomberg-based CoC values as benchmark returns for further break-even analysis in this report. This choice is based on its widespread use and the values' proximity to the communicated CoC benchmark of many large insurers.⁶ Bloomberg also provides additional company-level data for our sample, which we use for more detailed analysis of CoC in subsequent chapters.

We also analyse public insurers' total returns, since not all value creation to shareholders is captured by ROE.

How have insurers performed against stock indices?

ROE alone is not a comprehensive value creation metric for insurers' shareholders. Insurance companies' large asset portfolios can increase in value and create unrealised capital gains that are not reflected in a company's net income. In the post-global financial crisis, pre-COVID-19 decade of falling interest rates, insurers accumulated significant unrealised capital gains.⁷

Non-life insurers outperformed a broad index in the decade pre-COVID-19 while life insurers underperformed.

To assess whether we missed substantial value creation in the ROE analysis above, we also look at insurance stock market performance. In a comparison, listed P&C insurers slightly outperformed broader stock market indices during the pre-COVID-19 decade, except for Asia. Listed life insurers on average underperformed during the same period, except for Europe. Non-life insurers' price-to-book and price-earnings ratios trended up during 2010–2019 while life insurers valuation metrics trended down suggesting different trends in the markets' assessment of underlying earnings. These findings are roughly consistent with the ROE analysis above.

Table 2

Comparison of insurance stock market returns with benchmark indices

		2020–2022 (COVID-19 period)		2010–2019 (post-financial crisis decade)	
		Life	Non-life	Life	Non-life
Market total returns (MTR)	All	6.7%	11.3%	8.7%	12.4%
	North America	13.5%	14.9%	9.3%	14.9%
	Europe	5.6%	8.5%	10.9%	13.6%
	Asia Pacific	3.1%	4.1%	6.0%	5.3%
Benchmark total returns (BTR)	All	7.9%	7.9%	10.3%	10.3%
	North America	9.9%	9.9%	14.0%	14.0%
	Europe	6.3%	6.3%	8.9%	8.9%
	Asia Pacific	6.3%	6.3%	7.8%	7.8%
Stock market outperformance (MTR – BTR)	All	-1.2%	3.4%	-1.7%	2.1%
	North America	3.6%	5.1%	-4.7%	0.9%
	Europe	-0.7%	2.2%	1.9%	4.7%
	Asia Pacific	-3.2%	-2.2%	-1.8%	-2.5%

Source: S&P Capital IQ, Bloomberg, Swiss Re Institute

⁶ Except for Japan, where we used the Damodaran-based estimates, which are a better match with historic returns and the low-growth/low-yield environment.

⁷ As unrealised capital gains increase shareholders' equity (the denominator in ROE), they have the paradoxical effect of lowering an insurer's ROE.

Insurers' cost of capital reaches its highest for a decade

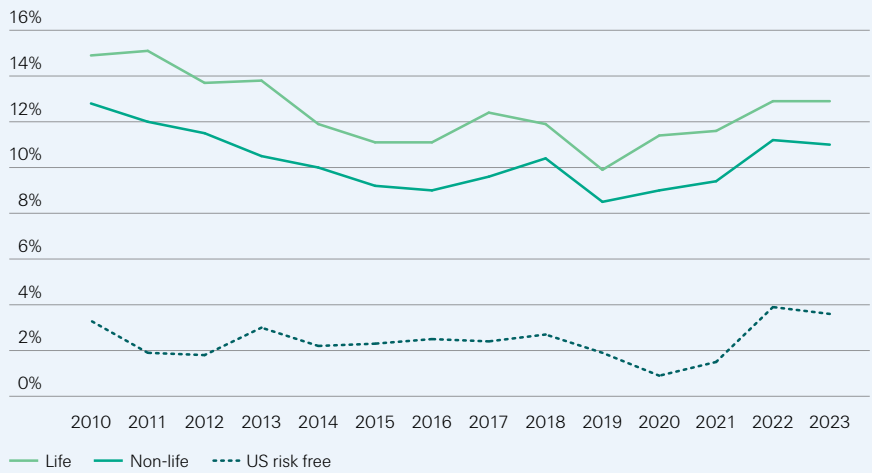
Equity risk premia have moved higher since the pandemic.

We hold equity risk premia in our model constant at the pre-pandemic ten-year average for consistency.

Equity risk premia have risen sharply since the 2020 pandemic recession, when investors became more risk-averse and stock markets fell. The insurance sector equity risk premium has remained elevated since. In contrast, in the prolonged period of low interest rates before 2020, investors generally accepted much lower equity risk premia. The cost of insurers' equity capital has risen strongly since 2021 as monetary policy tightening pushed up risk-free rates. The current expectations for higher industry ROE must be set against these elevated hurdle rates.

For consistency, in our CoC calculations for 2020 onward we hold equity risk premia and stock betas constant at the average of the pre-COVID-19 decade. Extreme volatility of equity markets during the pandemic years distorted the metrics that we use to model long-term investors' expectations. Data for 2023 was too sparse to use comprehensively. Holding the metrics constant enables us to better isolate the effect of higher interest rates.

Figure 1
Global shareholder equity-weighted CoC estimates and US risk-free interest rate (10Y Treasury yield); 2010–2023



Source: Bloomberg, S&P Capital IQ, Swiss Re Institute

Europe saw the strongest increases in insurance sector CoC, Asian markets the least.

The increase in insurance CoC from higher risk-free interest rates (see Table 3) through year-end 2023 is expected to have been strongest in Europe, up by 310 to 380bps, other than in Switzerland, in which the rate rose by only 180bps. Risk-free rates in North America are expected to have increased by 270bps in the US and 210bps in Canada through year-end 2023. Asian risk-free rates rose most in Australia, up by 250bps, where monetary policy was tightened in a similar way to other large Western economies. In Japan, where monetary policy only tightened slightly since inflationary pressures have been moderate, risk-free rates rose only moderately, up by 60bps. China experienced no inflation shock and thus had little change to its monetary policy since 2021. Its risk-free rate declined by 30bps.

Table 3
CoC estimates, Swiss Re Institute risk-free rates
by country and sector, 2020 and 2023E

	Non-life CoC		Life CoC		SRI risk-free		Delta
	2020	2023E	2020	2023E	2020	2023E	
US	7.5%	10.2%	10.9%	13.5%	0.9%	3.6%	2.7%
Canada	7.4%	9.5%	10.4%	12.5%	0.9%	3.0%	2.1%
UK	7.8%	11.7%	10.8%	14.7%	0.3%	4.1%	3.8%
Germany	9.5%	12.6%	4.8%	7.9%	-0.6%	2.5%	3.1%
Italy	11.4%	14.7%	11.3%	14.6%	0.5%	4.1%	3.6%
Switzerland	7.0%	8.9%	7.9%	9.7%	-0.5%	1.3%	1.8%
Japan	7.0%	7.9%	6.2%	7.1%	0.0%	0.6%	0.6%
Australia	8.3%	10.8%	9.0%	11.6%	1.0%	3.5%	2.5%
South Korea	9.9%	11.4%	11.8%	13.4%	1.7%	3.3%	1.6%
China	12.1%	11.7%	13.7%	13.4%	3.1%	2.8%	-0.3%

Source: Bloomberg for equity risk premia and betas, Swiss Re Institute for risk-free rates

Higher rates can boost new business profitability

We use a model to illustrate the interest-rate sensitivity of non-life insurance.

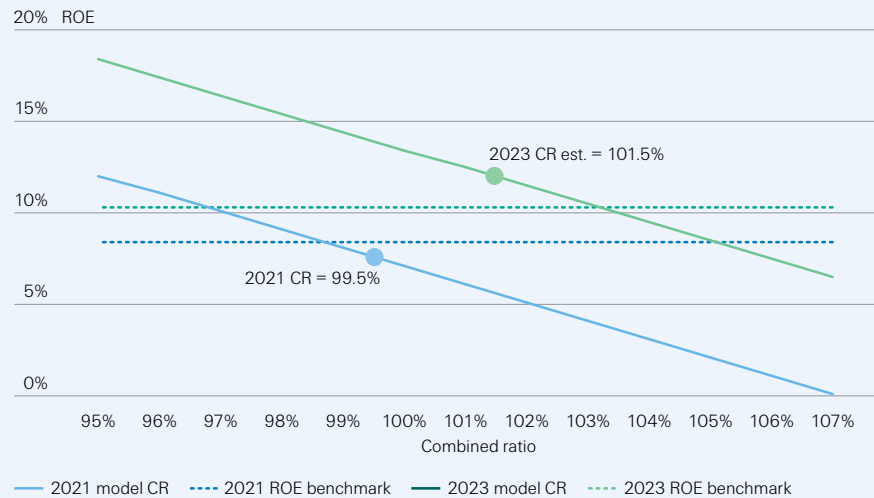
Non-life insurance companies benefit from higher interest rates through higher asset returns on invested underwriting cashflows and technical provisions. We illustrate the sensitivity of P&C insurance to interest rates with a model that holds all other variables constant, to isolate the relationship and show that the profitability benefits for new business far outweigh the higher cost of capital. Based on 2021 asset leverage, solvency ratio, and average effective tax rate for the US P&C industry, Figure 2 shows the relationship between the new business combined ratio and ROE at the substantially different reinvestment yields in 2021 and 2023 (forecast).⁸

New business profitability improves with respect to CoC even given an anticipated decline in combined ratios in 2021-23.

Even with an expected deterioration in combined ratio between 2021 and 2023, the impact of interest rates improves the profitability of new business with respect to cost of capital, incentivising stronger growth in 2023. We show US figures, but these mechanics are typical for all major markets. By focusing on new business, however, this comparison does not consider the implications of the inflation surge on reserves adequacy and other factors impacting calendar year profitability. We present a comprehensive profitability analysis driven by a wider range of factors in Chapter 2.

⁸ We use 2021 industry reported results for tax rate, expense and policyholder dividend ratios, premiums written, invested assets and policyholder surplus. We maintain the same ratios for 2023 to show simply the interest rate impact.

Figure 2
Interest rate sensitivity of US P&C insurance
2021 vs 2023F



Note: estimated reinvestment yield for 2021 = 2.8%, 2023 = 5.2%. Source: SNL, Swiss Re Institute

The benefit of higher investment yields far outweighs the higher cost of capital.

In 2021, at a combined ratio of 99.5% and an average estimated *reinvestment* yield of 2.8%,⁹ P&C industry new business ROE is calculated at 7.6% (blue diagonal line). With a cost of equity capital at 8.4% (blue dotted line, based on the Bloomberg CAPM), new business was nearly 100bps below break-even. In 2023, if the reinvestment yield averages 5.2% as expected, and keeping leverage assumptions constant, the same combined ratio would imply an ROE of 13.9% (green line). At the expected 2023 combined ratio of 101.5%, ROE is 12.0%, still exceeding the 10.2% cost of equity capital (green dotted line). Despite being partially offset by a higher combined ratio, higher yields contribute 630bps of improvement to the P&C industry operating ratio – well in excess of the 190bps increase in cost of equity capital.

The recent rise in reinvestment yields offsets roughly 600bps of combined ratio.

Without the benefit of higher interest rates, higher ROE benchmarks require an almost equivalent improvement in the combined ratio, because the overall ratio of earned premiums to surplus is typically close to 1 (and is generally stable). But when we consider investment income, interest rates have a leveraged impact because of the industry’s solvency and leverage parameters. Since the investment portfolio is generally 2.5 times surplus, 240bps additional investment yield between 2021 and 2023 would be roughly equivalent to 600bps improvement in the combined ratio for the average non-life business.

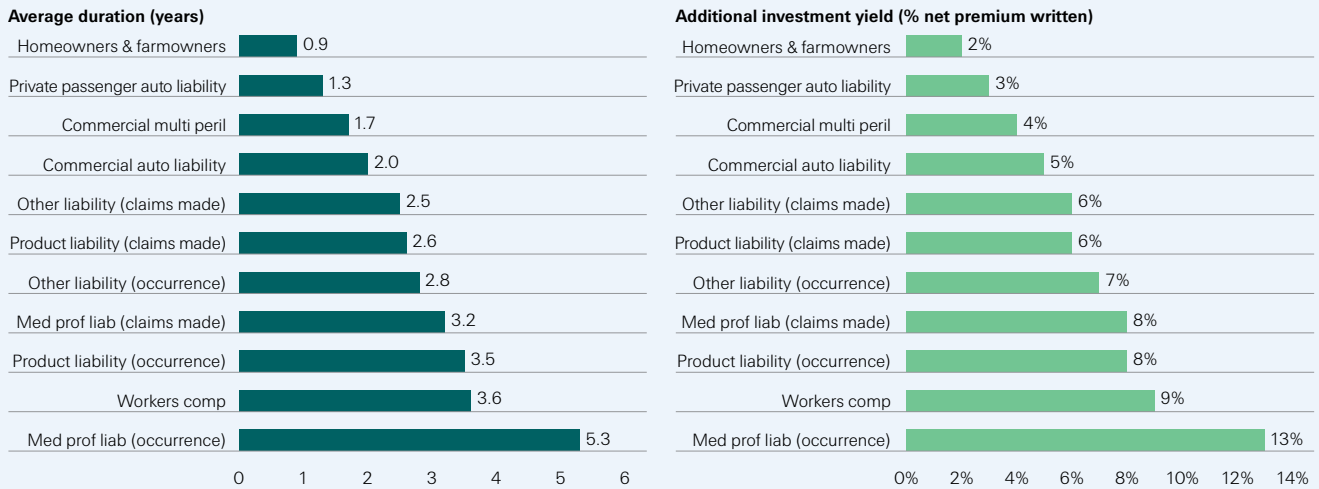
Long-tail lines of business benefit from a boost in investment income equivalent to up to 13% of premiums.

The actual impact of interest rates on profitability varies by line of business depending on duration and reserves/asset leverage. Lines with the longest investment period before claims are paid benefit the most from higher interest rates. Using US data, we see average duration of lines ranging from one (homeowners) to five years (medical professional liability), as measured by technical reserves ratios.¹⁰ The recent rise in reinvestment yields from 2.8% in 2021 to 5.2% in 2023 boosts expected/allocated investment income at the time of underwriting by 2–13% of net premiums written. The higher asset leverage and investment income of long-tail lines partly offsets the lower premium rate rises achieved in the last two years compared to property lines.

⁹ The average time to maturity of the industry portfolio is roughly six years, limiting the impact of the reinvestment yield in any given year on the overall portfolio yield.

¹⁰ We include reserves for losses, loss adjustment expenses, and unearned premiums. We exclude USD 13 billion of commercial lines legacy Asbestos and Environmental reserves from “other liability occurrence” and “product liability occurrence” lines as our analysis is forward looking. *Asbestos & Environmental Loss Reserves Continue Their Decline*, A.M. Best, 10 November 2022.

Figure 3
Reserve duration and interest rate impact by US line of business

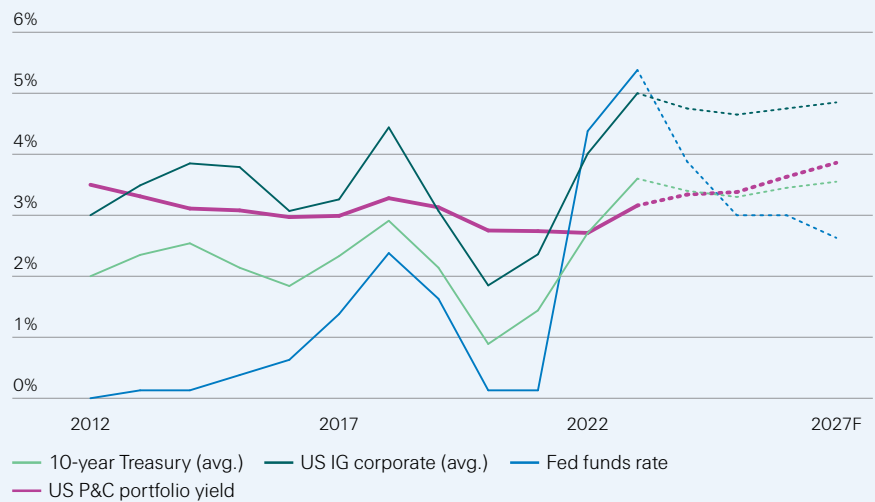


Note: this illustrates impact on new business based on the change in investment yield from 2021 to 2023. Source: S&P Capital IQ, Macrobond, Swiss Re Institute

US P&C portfolio yields should rise steadily in the coming years.

We consider the impact on new business from improved investment results and higher net income due to higher market yields. However, the overall profitability impact accrues gradually due to the relative size of legacy liabilities and a six-year weighted average time to maturity in the typical fixed income portfolio. For US P&C insurers, we project that the portfolio yield (excluding realised capital gains) will rise from 2.7% in 2022 to 3.2% in 2023, and anticipate a steady uptick to 2027 (see Figure 4), based on our baseline forecasts in which reinvestment rates remain above portfolio yields.

Figure 4
US P&C portfolio yields and interest rate forecasts



Source: S&P Global Capital IQ Pro, Macrobond, Swiss Re Institute

Alternative scenarios suggest worse outcomes are possible

We consider alternative scenarios too, given the uncertainty inherent in forecasts.

Two of our pessimistic alternative economic scenarios see more negative interest rate developments.

Our baseline forecast is for the reinvestment yield to decline to 4.0% in 2024.

There is uncertainty about the long-term level of interest rates.

All forecasts are subject to uncertainty, and so we consider alternative scenarios in our industry outlooks. For example, we consider the effects of interest rates in different scenarios. Two downside scenarios we monitor are a 1970s style structural stagflation (scenario 1) and a deflationary episode (scenario 2) induced by severe global recession.

The first scenario envisages the key US policy interest rate, the Federal Funds Rate, peaking at above 7% in 2024 and corporate bond spreads rising compared to our baseline expectation for 2024. However, the impact of a renewed inflation surge on non-life insurers' claims costs would offset the benefits of higher investment returns. The second scenario, of severe global recession, envisages the Federal Reserve cutting rates to approach the zero bound once more next year. Corporate bond spreads also widen in this scenario, but not by enough to offset a sharp decline in long-term Treasury rates to 1.2% by the end of next year. Given the lack of an inflationary boost to new business premiums and higher investment returns offsetting the impact of inflation on in-force business, the severe global recession is likely to be worse for the industry.

Our baseline forecast is for the reinvestment yield to decline to 4.0% in 2024, driven by a lower short end of the yield curve, but remain above the current portfolio yield. However, in scenario 1 the reinvestment yield averages 7.9%, while in scenario 2 it drops to 1.4%. Higher nominal yields in scenario 1 would be eroded by high inflation, while in scenario 2 the benefit of lower inflation on claims costs would be offset by lower investment returns, lower growth, and higher loss adjustment expense costs.

Beyond the current cycle, the long-term level of interest rates is also uncertain. A long-term downward trend in rates since the late 1980s is often debated as a guide to the medium- to long-term, with three possible causes identified. These are:¹¹ 1) the evolution of factors that underpin the balance between savings and investment – in particular, ageing demographics, weak demand for capital, a rising propensity to save and a global preference for safe assets. 2) Factors driving prolonged slow economic growth (e.g. the “secular stagnation” theory), such as low productivity growth, demographic trends with lower workforce growth, and rising inequality. 3) Shifts in monetary policy that impact real interest rates, eg, asymmetric policy responses to crises over the past three decades as central banks prioritise macroeconomic stabilisation over the build-up of financial imbalances, by cutting interest rates more promptly during crises than raising them afterwards. It remains to be seen how long the recent inflation episode may tilt future policy trade-offs towards price stability.

¹¹ See C. Borio et. al., *Why so low for so long? A long-term view of real interest rates*, BIS, 19 December 2017.

Outlook for the non-life underwriting cycle

Non-life insurers' profitability potential is set to improve strongly in the coming years as higher interest rates and rate hardening more than offset higher claims costs from still-persistent inflation. Market valuations, consensus earnings forecasts and our own modelling all point towards better profitability in 2023. Consensus expectations for US P&C insurer ROE rose to 13% in May 2023 from 10% in January 2022, while European P&C consensus ROE forecasts increased to 16% from 13% in the same period. Our analysis suggests that P&C insurers will on average reduce the underwriting gap by about six points in 2023 compared with 2022, but still miss their CoC by about four points of combined ratio as rate rises lag elevated loss costs in the near term. Despite the stronger outlook, non-life industry capacity is still constrained due to economic conditions, elevated uncertainty around claims trends and the effect of higher interest rates on industry assets and capital, including in the AC market.

Higher interest rates improve non-life profitability potential but are a response to risks.

Higher interest rates improve the profitability potential of non-life insurance significantly. However, the outlook is more complex than this benefit alone, since interest rates are rising in response to persistent elevated inflation that is driving up claims costs (see Figure 5). While assessments of insurers' market valuations and analyst consensus views, and our own modelling of the implications of claims inflation, premium rates and higher rates, indicate an improving profitability outlook for non-life insurance, further improvement is needed to turn the underwriting cycle sufficiently to address the capital constraints seen in certain lines of business.¹²

Figure 5

US policy interest rate and US headline CPI inflation



Source: BLS, Federal Reserve Bank of New York, Macrobond, Swiss Re Institute

¹² Despite improved prospects today, knowledge of the difficulty in generating underwriting profit can be traced back at least to Adam Smith, who wrote in *The Wealth of Nations* "That the chance of loss is frequently undervalued, and scarce ever valued more than it is worth, we may learn from the very moderate profit of insurers."

Market valuations indicate a stronger earnings outlook

The recent surge in non-life price-to-book valuations was mostly driven by book value declines.

Investors tend to look through mark-to-market impacts and focus on earnings potential.

Non-life insurers' price-to-book ratios rose to 2.3x in June 2023, from 1.6x in January 2022. However, not all was due to additional value creation for shareholders. The strong increase was largely a result of the interest-rate-driven erosion of the book value of insurers' equity. Between January 2022 and June 2023, our composite global non-life insurer book value fell by 19%, but the market capitalisation for a sample of P&C insurers increased by just 4%.¹³

Investors tend to look through the distortions of GAAP-style accounting – which generally recognises interest rate impacts on assets but not liabilities – and consider the balancing effects of interest rates on both sides of mostly duration-matched balance sheets. Against a backdrop of an 8% decline of global equity markets over the same time, P&C insurance stocks outperformed. This likely reflects the stronger future earnings potential from fixed-income asset returns, as well as rate hardening.

Analyst and consensus views of insurers' ROE improve

Analysts' expectations for insurers' ROE in 2023 improved strongly.

We compare our modelled, normalised P&C profitability forecasts with those of external industry analysts. Consensus expectations for insurer profitability¹⁴ also forecast a strong improvement in 2023 (see Table 4) and are considerably higher than ours. This is typically because large primary insurance stock companies have historically generated about 3–4% higher ROE than the total market average, which includes mutuals and smaller players. Consensus ROE expectations for US P&C insurers rose to about 13% in May 2023 from 10% in January 2022. Analysts' average consensus forecasts for European P&C insurers increased to 16% in May 2023 from 13% in January 2022. Consensus estimates were lowest in Asia Pacific (10% in May 2023). P&C rate hardening has not been as strong in much of Asia and interest rates did not rise as much as in other markets, due to generally lower inflation rates.

Table 4
Consensus estimates for insurers' profitability (ROE) in 2023

	n	Jan 2022	May 2023		Change	CoC		Gap
Americas	12	10.2%	12.7%		2.4%	10.1%		2.5%
Europe	10	12.9%	16.2%		3.4%	11.0%		5.2%
APAC	8	9.3%	10.2%		0.9%	12.6%		-2.4%

Note: n refers to number of insurance companies included in estimates. Source: Bloomberg, Swiss Re Institute

We also review P/E ratios in recognition that P/B ratios can be distorted by interest rate impacts.

ROE estimates for public insurance companies received a paradoxical boost from interest-driven declines in asset valuations and capital and impacts from IFRS. Higher ROEs due to (unrealised) asset losses do not represent higher economic values for investors. So, though we recognise the analysis of consensus earnings as valuable for indicating directional trends, we do not interpret the full suggested magnitude of improved profitability as economic value creation. To address this, we also check price-to-earnings ratios for P&C insurers. The average price-earnings ratio increased to 22.5 from 16.3 from January 2022 to June 2023, supporting the narrative of investors recognising the improved earnings potential.

¹³ Based on book values for a global sample of 84 public non-life insurers. Source: Bloomberg and Swiss Re Institute.

¹⁴ Consensus forecasts from Bloomberg. The sample has a bias toward large public companies.

While new business is attractive, a profitability gap remains.

P&C insurance valuations have improved on both an absolute and relative basis, but investors are not exuberant. Some new business is very attractive and is expected to (eventually) attract new/more competition, for example, in property catastrophe despite the impacts of high inflation and model uncertainty. However, lines such as motor, financial lines, and liability continue to struggle. Overall, the industry faces a profitability gap despite the benefit of higher interest rates.

Profitability gap expected to narrow but not close in 2023

Underlying profitability is expected to increase strongly in 2023.

We expect a transition year of improving profitability for most non-life business in 2023, as underwriting measures adjust to claims trends and higher portfolio yields boost net investment income. With an asset / equity leverage ratio of 2.7x as of year-end 2022, the benefit of a higher interest rate on the investment side outpaces the increased cost of capital that accompanies it. Our analysis suggests that insurers will catch up and miss their CoC by four points of combined ratio in 2023. While this represents a much-needed improvement from 2022, when rate hardening was needed due to significant underwriting gaps, the global profitability level can still be seen as too low and therefore supportive of more rate hardening. For example, lines such as motor in the US and Europe are facing strong inflationary effects affecting both new and legacy business. Inadequate pricing or reserving for these lines could have a material adverse impact on industry profitability over the next couple of years.

We illustrate this improvement with an accounting scenario for eight of the largest insurance markets...

We present an accounting scenario for the largest markets in Table 5. The following assumptions are key in shaping our view of the medium-term outlook:

- As the basis for the underwriting gap assessment, we use recurring portfolio yields excluding realised and unrealised capital gains/losses, since we intend to reflect a typical expected profit contribution from investment.
- Solvency and asset leverage are shown at actual (estimated) levels for 2023.
- Tax rates reflect the average effective tax rates of the last 10 years, excluding years with negative pre-tax income or negative tax bills.
- ROE benchmarks in our model are set to the Bloomberg-based CoC estimates except for Japan, where we used the lower Damodaran estimates.¹⁵

...adjusted for reserve development and normalised catastrophe losses.

Financial accounting data present two distortions with respect to assessing the underlying profitability of non-life business written. These relate to reserve development and normalised catastrophe losses. In Table 5 we correct for these weaknesses as far as available data allows:

- Strengthening or releasing claims reserves for previous underwriting years distorts the assessment of the current business. We adjust for the deviation of normal reserving patterns (due to inflation and other factors) to estimate the reserves cycles.¹⁶
- Catastrophe losses are random and therefore create changes in loss ratios that do not reflect actual changes in pricing or loss trends. We subtract the actual cat losses for each country and add an expected value to correct for the influence of event risk.¹⁷

¹⁵ The Damodaran-based estimate (8.4%) is a better match with historic returns and the low-growth/low-yield environment.

¹⁶ Reserve development has been favourable overall in recent years. We could not make these adjustments for Japan due to lack of data disclosure.

¹⁷ We use trends rather than averages for our estimate of "normal" catastrophe losses, measured as a percentage of premiums.

The benchmark ROE corresponds to a breakeven underwriting result.

Given actual investment yields, average tax rates and the current solvency ratio, the benchmark ROE (based on the P&C industry's CoC as discussed above) translates into a breakeven underwriting result for each country. The difference to the current underwriting result illustrates and quantifies the need to improve premium rates.

Table 5

Estimation of the primary insurance underwriting profitability gap, 2023

	US	Canada	UK	Germany	France	Italy	Japan	Australia	Total
ROE benchmark	10%	9%	12%	13%	11%	15%	8%	11%	10%
Solvency ratio (average) (% of NPE)	100%	94%	111%	90%	92%	100%	118%	68%	99%
Target after-tax profit margin (% of NPE)	10%	8%	12%	12%	10%	15%	11%	7%	10%
Corporate tax rate	16%	21%	19%	25%	30%	19%	25%	25%	19%
Breakeven pre-tax profit margin (% of NPE)	12%	11%	15%	16%	15%	18%	14%	10%	13%
Investment yield (ex cap gains)	3%	3%	3%	2%	3%	4%	2%	3%	3%
Asset leverage (average) (% of NPE)	246%	196%	285%	301%	261%	274%	330%	190%	254%
Current investment result (% of NPE)	8%	5%	8%	7%	8%	11%	7%	6%	8%
Other income/charges (% of NPE)	0%	0%	0%	0%	-1%	-5%	0%	2%	0%
Breakeven underwriting result (% of NPE)	4%	5%	7%	9%	8%	12%	8%	2%	5%
Actual underwriting result (% of NPE)	-2%	8%	4%	3%	0%	7%	3%	3%	0%
Cat surprise (% of NPE)	2%	0%	0%	0%	-1%	0%	0%	-2%	1%
Reserve development (% of NPE)	0%	0%	0%	1%	0%	0%	0%	0%	0%
Adjusted u/w result (% of NPE)	0%	8%	4%	4%	-1%	7%	3%	1%	1%
Underwriting gap (% of NPE)	-4%	3%	-3%	-5%	-9%	-5%	-5%	-1%	-4%

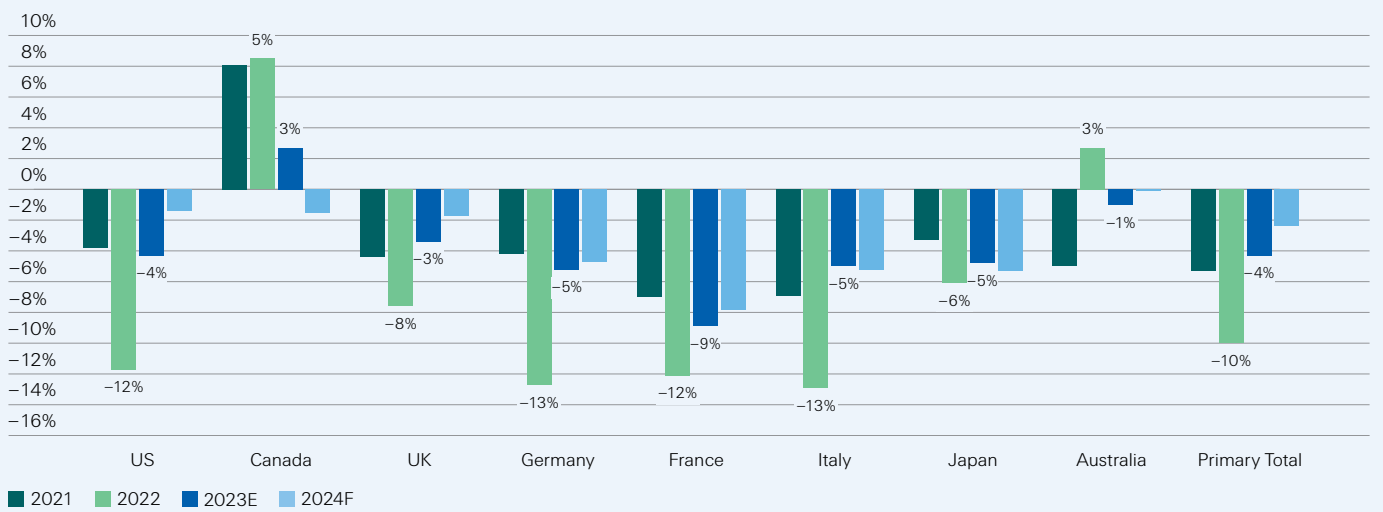
Note: cat surprise: + equals above average nat cat losses, - is below average. Reserve development: + reserve strengthening, - reserve release (relative to average reserve release for countries with systematic over-reserving).

Source: Swiss Re Institute

We expect 2023 to show significant improvement in underwriting and investment results, but still be slightly below target.

In 2022, most major P&C insurance markets did not earn their cost of capital, with an average underwriting gap of 10% of net premium earned (NPE). We expect the underwriting gap in the eight key primary markets globally for which we estimate profitability to improve to -4% in 2023. While this 2023 forecast is equivalent to an ROE of 6.5%, missing the 10.5% benchmark, the gap is closing significantly. It should continue doing so in 2024. Canada and Australia were the only two countries that exceeded their ROE benchmarks in 2022. We expect reversion toward benchmark in those countries, while the US, the UK, Germany, France and Italy are expected to improve significantly.

Figure 6
Evolution of the underwriting profitability gap, 2021–2024, in % of net premiums earned



Source: Swiss Re Institute

Underwriting is expected to see big improvements as inflation subsides.

Underwriting is anticipated to play a large role in the immediate improvement in results, as higher premium rates, disinflation and improved terms and conditions increasingly mitigate the effects of inflation on claims costs. Across the largest markets, the underwriting result was -1.4% in 2022 and is forecast at 0.1% in 2023 – a 150bps improvement. Germany and Italy should see the biggest improvement, both swinging from an underwriting profitability gap of 13% of NPE in 2022 to around 5% in 2023. The US will likely experience similar improvement – from a gap of 12% to 4% – but only after adjusting for above-average natural catastrophe losses in 1H23.

A potential shift to adverse reserve development may affect some countries' results.

In Germany, we adjust our expectation for normalised underwriting results to account for a possible slowdown in favourable reserve development in 2023. Adverse reserve development typically provides impetus for rate increases. In contrast, in the US and the other key insurance markets we analyse, we assume no adverse development for 2023. Despite estimates that carried reserves are deficient in certain liability lines such as commercial auto and other liability (occurrence), most analysts judge overall US industry reserves to be more than adequate,¹⁸ largely due to workers' compensation as payroll increases in excess of medical and indemnity claims trends have contributed to several years of favourable reserve development.

Investment income is a significant component of overall return, and higher reinvestment yields are accruing.

Investment returns are a significant contributor to overall net income, and gains from higher reinvestment yields are beginning to accrue in average portfolio yields after a long period of decline. In 2022 the contribution of investment returns to profitability reached 6.7% of NPE,¹⁹ and we forecast an increase to 7.6% this year and remain elevated thereafter. By country, investment contributions to 2023 operating earnings range from a low of 5% in Canada up to 11% in Italy, affected primarily by asset leverage and asset mix. In most key countries, investment results are expected to be a major component of industry returns and are likely to expand their contribution further beyond 2023, depending on the path of interest rates.

¹⁸ See, eg, *Year-End 2022 Reserve Study: Disrupted Diagonals Manifesting*, Assured Research 16 March 2023.

¹⁹ Investment yield of 2.5% multiplied by a 2.7 asset leverage ratio.

Higher demand and limited capacity likely to sustain hard market conditions

New business underwriting may be constrained due to shifts in demand and supply.

Despite the stronger profitability outlook, we expect disequilibrium in demand and supply of non-life insurance to continue the hard market conditions in certain lines, especially in property catastrophe. Demand for insurance coverage has risen since 2017, with two key drivers: increased natural catastrophe activity, and inflation and higher replacement values raising exposures and losses. These factors have especially affected property lines, and contributed to a hard market in property catastrophe reinsurance as well. Profitability in long-tail lines may come under pressure too, given additional evidence of social inflation and a shift in inflation pressure to services and wages (see Table 6).²⁰ Insurers are also facing heightened model/parameter uncertainty and investor concerns that the industry is not accurately quantifying loss trends. Successive years of above-average catastrophe losses have crystallised those concerns.

Table 6
Economic drivers of the non-life pricing cycle

Component	Current trend	Medium-term trend
Underwriting profitability of new business	Improving	Higher than recent years
Catastrophe losses	Recalibration to higher trend, model uncertainty	Global exposure growth at 5–7% real terms per annum.
Claims trends	Elevated: inflation surge, post-COVID-19 and war-related uncertainties	Disinflation but social inflation and model uncertainties continue
Investment yields	Up for new investments, repricing of yield curve	Reset at higher level (than pre-COVID-19), steepening of yield curve
Traditional balance sheet capital	19% below year-end 2021 (as of June 2023)	Recovery (partial)
Alternative capital	Muted interest from long-term investors	Continued growth of cat bonds

Source: Swiss Re Institute

Inflation caused a surge in exposures and is transitioning from goods to services...

Inflation has raised exposures and demand, with its impacts evident from a surge in claims costs in 2022 for property and motor lines of business. The impact of inflation on claims growth should ease slightly in 2023 from the highs of 2022 but remain elevated as specific sectors see further price rises. For example, we forecast that construction costs in the US, relevant for property insurance, will rise by 10% in 2023 following a 17.5% increase in 2022.²¹ The transition from goods inflation to services inflation is likely to be a key story for 2023 and 2024 for many lines of business. It should see motor and property results improve while putting earnings in liability and accident lines under renewed pressure (see Table 7).

...adding to concerns about reserve adequacy.

Liability lines comprise the majority of P&C industry reserves, and the adequacy of reserves after the inflation surge is emerging as a key risk that might extend the hard market. Reserves for lines such as commercial motor and certain general liability categories are already viewed as deficient. Other lines are subject to a wider range of uncertainty due to court closures and other factors since 2020 that have disrupted claims development patterns. Reserves uncertainty also arises from factors including social inflation and residual COVID-19 business interruption (BI) losses,²² and contributes to reduced risk appetite.

²⁰ *The course of true disinflation never did run smooth*, Swiss Re Institute, 8 June 2023.

²¹ Based on the US producer price inflation metric for residential construction.

²² *Reserving: higher uncertainty puts adequacy in the spotlight*, Swiss Re Institute, 26 June 2023.

Model uncertainty is also contributing to reduced risk appetite by insurers.

Capacity restraints are also driven in part by model uncertainty after successive years of above-average catastrophe losses. Risk accumulation and underestimation of loss trends are key risks to industry profitability: uncertainty is higher and probability distributions increasingly skewed towards extreme events (fatter tails). In addition to the risk of severe primary catastrophe events, the sharp rise in incidence of rainfall-related floods, wildfires globally and severe convective storm activity in the US in 1H23 is indicative of the rising risk that secondary perils pose for insurers and societies. There is a need for greater discipline in monitoring these exposures and improving understanding of associated risks. The rapid rate of change of related socioeconomic variables, such as asset value accumulations in higher risk locations, rising replacement values and vulnerabilities of green technology (eg, more solar panels on rooftops increasing hail and wind exposures) requires quicker update cycles of data and models.²³

Table 7
Impact of inflationary shock by line of P&C business

	Current state	Persistence	Reason
Property	●	●	High construction prices, downward trend
Motor, physical damage	●	●	High prices for used and new cars, bodywork. Some components now easing
Motor, bodily injury	●	●	High healthcare spending, social inflation, rising wages
Accidents	●	●	High healthcare spending, social inflation, rising wages
Liability	●	●	High healthcare spending, social inflation (with high weight), rising wages

Note: red: most impact; yellow : medium impact. Colours derived from current data and forecasts for price categories relevant for each line (eg, construction prices for property). Source: Swiss Re Institute

The catastrophe bond market has repriced strongly upward.

Alternative capital may not turn the underwriting cycle yet

The AC market consists of investment vehicles such as catastrophe (cat) bonds or collateralised reinsurance that enable third-party capital to invest directly into insurance risks. It has become the main source of swing capacity in the property cat re/insurance market. The market has seen a re-pricing of risk similar to the wider P&C reinsurance sector. Returns offered today are significantly higher than in 2012–17, when the hunt for yield in the low interest rate years encouraged large inflows of institutional investment into the market. The average cat bond spread (the coupon minus expected loss) was 7% as of 27 July 2023, compared to 3% in 2017.²⁴

Investors remain reluctant: capital flows into the sector have been weak since 2018.

Despite the higher returns, investor sentiment is lagging and there have not been significant investment inflows so far into this hard market. This is partly because investors in lower-layer indemnity-based AC structures (ie collateralised reinsurance), have suffered unanticipated (and unmodeled) loss exposures since 2017, and loss creep for certain large natural catastrophe events. Some investors have exceeded their target allocation to insurance-linked securities (ILS) due to the outperformance of cat bonds relative to other fixed income assets, and must now reduce their holdings.²⁵ Aside from cat bonds, AC capacity has declined since a peak in 2018, and adjusted for inflation, capacity in 2022 was the same as in 2015. In the medium term, we expect incumbent investors to increase ILS holdings in line with assets under management.

²³ sigma 2/2022 – Natural catastrophes in 2021: the floodgates are open”, Swiss Re Institute, 30 March 2022.

²⁴ Average catastrophe bond & ILS issuance expected loss, coupon, spread by year, Artemis.bm.

²⁵ PGGM to reduce ILS investments as target allocation exceeded – Artemis.bm. By mid-2022 PGGM invested 3.4% of its investments in insurance linked securities, well above the 2.5% target allocation.

Institutional investors will not come back this year, but the sector will grow amid rising cat exposures.

We expect the AC market to bifurcate as investors exit underperforming segments and more capital rotates into cat bonds. Cat bonds have a solid track record despite recent high catastrophe losses. Based on floating rate collateral, they were not exposed to valuation losses from rising interest rates. We see long-term growth in the cat bond market, providing capacity for peak layers where the business model is attractive. Cat bond capacity has grown at about 3% annually for the past seven years, adjusted for inflation. This fell short of the global growth of natural catastrophe exposures and thus did not gain market share in the global property cat re/insurance market.²⁶ We can expect investors to favour this segment.

Capital efficiency is key for supporting an expansion of capacity to meet demand.

Overall, we see capital and capacity returning to the market in both traditional and certain alternative forms, but investment has been relatively opportunistic to take advantage of dislocations, rather than a broad-based surge. We expect these conditions to continue into 2024 given the remaining underwriting gap in most major economies.

²⁶ We estimate insured natural catastrophe losses are growing at a real annual rate of 5–7% globally. *sigma* 1/2023 – A perfect storm: Natural catastrophes and inflation in 2022, Swiss Re Institute, 22 March 2023.

Reinsurance to support capital efficiency

Non-life insurers today face both higher capital needs and capital constraints. Insurers are incentivised to write more profitable new business, but available risk capital is limited by higher interest rates through mark-to-market losses, higher claims and reserving requirements, and reduced risk appetite and capacity. Insurers can raise capital by issuing new equity, but at the new, higher cost of capital this becomes less attractive. With investors hesitant in a time of elevated risks, and their return expectations increasing, more efficient use of capital becomes key. Reinsurance can function as a flexible and efficient capital substitute to ease these pressures. Reinsurers can offer insurers access to their balance sheet at costs below insurers’ capital costs because their portfolio is diversified across a broader range of geographies and risks. Reinsurance can potentially help insurers benefit from current market conditions by improving capital efficiency (higher returns and enhanced solvency), providing certainty for legacy liabilities, and supporting the growth of new business.

Reinsurance can support insurers when capital needs are high and capital supply is restrained.

An insurance company’s capital base is its buffer against unexpected claims and/or financial losses. With more attractive new business opportunities in the current environment and the higher cost of capital increasing pressures to better remunerate shareholders, insurers face competing pressure on capital use. Volatility and risks also increase their capital needs. For example, elevated economic and social inflation raise the capital need for both new and legacy business. Concerns about reserve adequacy and capital trapped in run-off portfolios can weaken insurers’ market valuations and restrain their operations. The uncertain impact of prior years’ claims development on profitability, and the material capital requirements of legacy portfolios, can prevent insurers from growing new business and entering new markets. Regulatory and credit rating considerations are also constraints in this trade-off. With demand for capital high and supply constrained, insurers are motivated to use capital more efficiently.

Reinsurance can enable insurers to hold less capital while maintaining solvency.

Insurers have several options to maintain a strong solvency position. One is adding capital to the balance sheet, but this has become less attractive given the additional cost of capital; a second is to reduce capital need by downsizing new business written, but this implies the opportunity cost of missing out on the improved profitability of new business; and third is to de-risk the balance sheet by transferring part of their insurance liabilities. The most common way to do so is using reinsurance, which functions as a substitute for traditional capital.²⁷

Figure 7
Capital management solutions for insurers

		Flexibility	Privacy	Breadth	Term
Capital	Equity	Low	Low	Broad	Long
	Hybrid equity/debt	Low	Medium	Broad	Long
	Contingent capital	Medium	High	Broad	Medium
Reinsurance	Catastrophe excess of loss	High	High	Specific	Short
	Quota share	High	High	Medium	Short
	Retrospective reinsurance	High	High	Flexible	Flexible

Source: Swiss Re Institute

²⁷ We do not show AC as a separate category here since it usually uses reinsurance contracts to link the insured to the AC vehicle.

Reinsurance solutions can be more targeted, flexible and private than traditional capital.

Traditional insurance risk-bearing capital (eg, equity or hybrid) bears all types of a company's risks, while reinsurance can target specific underwriting risks. The term of traditional capital is usually long, to benefit regulatory and rating agency requirements. Reinsurance cover is usually short term and offers more flexibility. Contingent capital sits in between these broad categories and is off-balance sheet until a triggering event occurs.²⁸ Raising capital in public markets is a complicated and expensive process. In contrast, reinsurance is more flexible and brings the added benefit of privacy.

Insurers have improved decision-making by considering the opportunity cost of capital.

Reinsurers can provide access to their capital at costs below insurers' capital costs because their portfolio is more diversified across a broader range of risks and geographic regions. Also, reinsurance does not assume all risk positions as equity capital does. For example, it excludes asset risk and operational risk, meaning that the draw on capital costs can be lower. The remainder of this chapter covers several categories of reinsurance transactions that are driven by those themes, illustrated by real-life case studies.²⁹

Reinsurance can reduce risks that consume capital

Reinsurance can lower the COC and boost ROE.

An insurer's cost of capital is a combination of the risk-free rate, equity risk premium and the stock's beta, which reflects the insurer's idiosyncratic risk. By reducing the risks to an insurer's earnings, reinsurance can lower the beta and so the company's cost of capital. This is a critical link between capital and risk management. Risks that are especially volatile or concentrated generally carry heavier capital charges. Examples where reinsurance can help include the transfer of tail risks (e.g. property cat reinsurance), and enhancing geographic and/or line-of-business diversification. Reinsurance can also offset small insurers' diseconomies of scale in diversification and capital requirements. Another aspect of optimising capital structure that has gained relevance for global insurers relates to their ability to upstream sufficient cashflow and excess capital to the holding company level to fund shareholder dividends and share buybacks. As investors' return expectations (i.e. CoC) rise, this aspect has gained importance.

The re/insurance industry

The value of unprotected risk exposure has risen steadily in the past five years. We estimate the global protection gap at USD 1.8 trillion in premium equivalent terms for 2022. However, in terms of global GDP, the share of risk which was unprotected by insurance and other assets declined to 43% in 2022, from 46% a decade ago.³⁰

Both the primary insurance and reinsurance industries have contributed to the long-term improvement in insurance resilience. The role of reinsurance as a provider of peak capacity to the primary insurance sector has increased over the last decade. This is confirmed by premium income of reinsurance outpacing that of primary insurance, with average annual growth of 4.2% and 2.8% respectively in real terms over the past decade, *sigma* data indicates. In terms of property re/insurance – the line under which the largest part of natural catastrophes is covered³¹ – the respective growth rates were 5.9% for reinsurance premium income and 4.3% for primary insurance premiums.

Solvency regulation drives capital needs, including from asset risks.

Strategic use of reinsurance to transfer risks can also help to relieve pressure on capital from regulatory requirements. Led by the EU Solvency II framework that took effect in 2016, momentum has grown for economic, risk-based solvency regulation with a focus on identification, measurement and management of risks. Previously, insurers did not have to hold capital against market risk and credit risk, so for many this means more comprehensive capital requirements and a re-assessment of regulatory capital costs for various asset classes and lines of business. Risk-based capital requirements have

²⁸ Contingent capital is a financial instrument that allows an insurer to raise equity or debt capital at pre-determined terms upon the triggering of pre-agreed events (eg, natural catastrophe, solvency margin, stock market index).

²⁹ *sigma* 5/2016 – Strategic reinsurance and insurance, Swiss Re Institute, 13 September 2016.

³⁰ *sigma* 2/2023: "Restoring resilience: the need to reload shock-absorbing capacity".

³¹ Other lines include motor casco, marine and other own damage insurances.

significantly improved the capital efficiency of regulation in many countries by more closely matching capital to risk. Solvency ratios are a key metric used to determine whether insurers hold sufficient capital funds to meet their long-term obligations, comparing liabilities with funds available to pay. For example, under Solvency II, the ratio is a market-consistent calculation, dividing eligible capital funds by the Solvency Capital Requirement, with a ratio above 100% indicating compliance with capital requirements.

An insurer can leverage reinsurance to enhance its capital efficiency.

Improving capital efficiency for a non-life insurer

Context. A non-life insurer seeks to leverage reinsurance to reduce its capital requirements and enhance the ROE of its net (of reinsurance) retained portfolio.

Insurer objectives. (1) Capital relief; (2) embedded ceded ROE for reinsurance less than investors' ROE expectations; and (3) thus enhance capital efficiency.

Reinsurance proposition. (1) Tailored reinsurance cover with effective capital relief under Solvency II. In this case, the parties designed high excess non-proportional reinsurance on the insurer's net retention. This reduces the capital requirements under the scenario-based non-life underwriting risk module in the standard model. The relief of total capital requirements for the insurer is slightly reduced due to diversification effects of other risk factors. However, the leveraged effect of solvency ratios greater than 100% translate the reduction in required capital to a materially higher reduction in capital (own funds), which does not need to be kept available.

(2) The parties designed additional structural features to further reduce ceded ROE to the reinsurer and therefore enhancing capital efficiency. Multi-year covers with an appropriate limit over the lifetime of the cover provide sufficient protection for the insurer while stripping out unlikely tail scenarios for the reinsurer, hence reducing return expectations for the reinsurer.

Outcome. First, the reinsurance cover provides capital relief and an improved solvency ratio. Second, the reinsurance cover enhances the net ROE of the insurer. The ceded ROE (as introduced above) for the reinsurance cover is lower than the ROE expectations of the investors; this is amplified further by the fact that reinsurance costs reduce the insurer's tax liability, whereas return expectations of investors are after tax. Third, in addition to the ROE uplift, reinsurance protects against actual materialisation of downside scenarios.

An insurer used reinsurance to enhance its solvency ratio, enable growth and higher natural catastrophe retentions.

Supporting an insurer's solvency ratio

Context. An insurer's growth has been driven both by new business and inflation-induced growth in exposures. Increased capital requirements have been amplified by (much) higher retentions in natural catastrophes, which lead to higher capital consumption to support the net risk position. To ensure it has the financial capital flexibility to support further attractive growth opportunities and higher natural catastrophes retentions, the insurer is seeking an additional strategic reinsurance cover.

Insurer objectives. (1) Keep solvency ratio within target range to support growth in an attractive market environment; (2) flexibility to reduce cession as the insurer strengthens its capital base, and (3) maintaining an attractive net ROE throughout.

Reinsurance proposition. Existing reinsurance programmes are designed to bring volatility sustainably into the desired range. The parties designed an additional reinsurance cover in the insurer's net retention to address the specific strategic context and objectives. The start point is a proportional risk transfer with a quota share for the net retention. The insurer is comfortable with the "base volatility", therefore the parties designed structural features which do not transfer this "base volatility" to the reinsurer, which in turn keep the costs for reinsurance lower; at the same time the structured net quota share provides protection in scenarios which would attract risk capital requirements under solvency and rating agency models. With a similar rationale as in the previous example, the ceded ROE is lower than the ROE expectations of investors (capital efficiency).

Outcome. Capital relief and improved solvency ratio. In comparison to other means of capital, such as equity instruments or subordinated debt, the parties have the annual

flexibility to adjust cession rate of the quota share in line with the business performance and dynamic growth trajectory; hence the reinsurance solution provides more flexibility than a regular capital instrument. As an additional benefit, the strategic reinsurance cover also unlocked other collaborations between insurer and reinsurer in the areas of portfolio analytics and product development.

Retrospective re: capital relief for legacy liabilities

Inflation has increased the uncertainty surrounding legacy liabilities.

Retrospective reinsurance is used to transfer the economic risk of portfolios of loss reserves that have already occurred, whether the losses have fully emerged or not. The most common are *loss portfolio transfers (LPTs)* and *adverse development covers (ADCs)*. For both, the reinsurer provides protection against losses that may exceed an insurer's claims reserves, in return for a fixed premium. Retrospective covers such as these become valuable in times when events such as an inflation shock increase the magnitude and variability of loss reserves. For example, medical, wage and social inflation impact the long-tail (typically liability) lines that account for most non-life insurance reserves. Delayed settlements can also be a bigger challenge in periods of high inflation as this can push up jury verdicts and claim settlements. Loss reserves are a main absorber of P&C insurers' capital in order to buffer the risk that losses exceed the reserved amounts when settled (i.e. reserves risk capital).

Loss portfolio transfers enable an insurer to cede claims reserves in exchange for a fixed reinsurance premium.

In *loss portfolio transfer* transactions, an insurer cedes to the reinsurer liability for all remaining unpaid losses associated with a previously incurred insurance liability. The transfer may include known and unknown claims reserves (*incurred but not enough reported, IBNER*, and *incurred but not yet reported, IBNR*). The transferred *reserve risk* usually involves the timing of claims payments and their amounts up to the policy limit. The original policy issuer remains responsible to policyholders should the reinsurer fail to honor its obligations.³²

LPTs reduce capital requirements for reserve risk and increase cedents' statutory surplus.

The LPT cedent typically pays a premium that reflects the net present value of reserves it has set aside to cover the transferred liability, plus compensation for the risk and capital requirements associated with the transferred liability. The motivations for a cedent can include ring-fencing legacy risks to improve market valuations, the reduction of capital requirements (regulatory and/or rating agency) for reserve risk, and freeing up resources tied to the administration and analytics of non-core operations. Another benefit, under statutory accounting regimes, is that the cedent's surplus increases in the long run by the difference between the premium and the amount that had been reserved, improving solvency. The accounting economics of these solutions are more attractive in a high interest rate environment.

ADCs reduce reserve risk without ceding reserves.

In *adverse development cover*, the reinsurer indemnifies the ceding company for a portion of a loss on a previously incurred liability that exceeds an agreed retention level (excess-of-loss reinsurance). There is typically no cession of the liabilities or the associated reserves. As a result, ADCs do not reduce net reserves to the same extent as LPTs. Instead, the reinsurer agrees to reimburse the insurer if claims on the designated insurance portfolio exceed the *attachment point* to a defined limit.

Retrospective reinsurance allows insurers to focus resources on ongoing business.

Retrospective covers can be used to manage legacy liability issues. LPT or ADC solutions are customised to the needs of an insurer, reduce capital requirements and can bring finality to their exposure. LPTs can also be used to extract value from run-off liabilities and enable freeing up of capital.

An insurer transferred liabilities to free up locally "trapped" capital.

Ringfencing claims liabilities for strategic redeployment of trapped capital

Context. An insurance group reviewed blocks of business to identify segments that were not strategic or at scale. This identified a mid-size unit in the group that tied up significant amounts of capital via reserves risk. There are opportunities for redeployment of capital in other attractive, more strategic segments.

³² This contrasts with a novation agreement whereby legal responsibility to policyholders is transferred to a third party, which could also be a reinsurer.

An insurer transferred reserve risks to free up required capital under Solvency II.

Insurer objectives. (1) Limit the downside risk to adverse reserves development and upstream “trapped” capital (strategic redeployment of capital); (2) strike a better balance of operational efficiency (unit did not have sufficient scale and growth outlook); and (3) focus management attention on desired growth areas.

Reinsurance proposition. Combined LPT and ADC to reduce capital requirements for the in-force portfolio; new business has been ceased. In contrast to “traditional” legacy solutions this also covered unexpired risks from the unearned premium block.

Outcome. Freeing up locally trapped capital. The capital was partly upstreamed (by paying out substantial excess capital as dividends), and partly downstreamed into other units in the group with more strategic focus.

Structured retrospective reinsurance for capital relief and efficiency

Context. An insurer leverages a partial internal model under Solvency II for the insurance risks. With the uncertainty on the asset side and increased capital requirements, it sought a fast and efficient way to accomplish capital relief and ensure that the solvency ratio stays well in the target range.

Insurer objectives. (1) Capital relief for reserve risk; (2) highest capital efficiency; (3) non-permanent capital tool with non-permanent costs (unlike issuing shares or subordinated debt instruments).

Reinsurance proposition. The parties designed a retrospective cover to protect against potential material adverse development of reserves for the in-force portfolio (adverse development cover). As the insurer has been comfortable with its reserving quality, there was no need to cover “base volatility” of adverse development in reserves – focus is on material threat scenarios which attract solvency capital requirement. The ADC has been structured in three tranches or layers: (1) an in-the-money portion (where the deductible of the tranche is below the current reserve level) reduces volume-based reserve risk capital; (2) a loss corridor, which allows the insurer to retain the “base volatility” of reserves and avoid costs for reinsurance of risks that do not need to be ceded; and (3) a high excess out-of-the-money portion (reserves are far below the deductible) to provide protection and capital relief for stress scenarios. A funds-withheld structure³³ avoids divesting assets in an uncertain economic environment. Strong incentives for early commutation³⁴ reduce latency³⁵ for the reinsurer and thus the embedded capital cost of the reinsurance solution.

Outcome. Immediate relief of reserve risk capital under Solvency II. Structure allows for high capital efficiency, as the costs of the reinsurance are materially lower than those of other capital instruments. Reinsurance also offers the benefit of potential for early commutation as soon as the insurer’s capital adequacy allows.

³³ Funds withheld refers to a provision in a reinsurance treaty under which some or all of the premium due to the reinsurer is not paid but rather is withheld by the ceding company or deposited in an escrow account.

³⁴ Commutation is an agreement between the ceding insurer and the reinsurer that terminates all obligations between the parties under reinsurance contract.

³⁵ Latency refers to the risk of late manifestation and/or reporting of claims.

Reinsurance to support future growth

Most forms of reinsurance solutions also support growth.

Each of the solutions described above for improving capital efficiency, minimising legacy liabilities and mitigating regulatory changes can also support growth plans. There are variations to the key parameters that can make reinsurance particularly well-suited for supporting growth. Limitations to growth are typical challenges for high-growth markets and startup ventures but gained recent broader relevance in high-inflation environments.

Reinsurance can provide flexible capital support.

Growth of new business implies commensurate backing by regulatory and rating agency capital, which is especially relevant in the more capital-intensive non-life sector. Reinsurance can be used as a flexible tool to provide capital as required by the actual growth of the new portfolio. After the initial phase, where more risk transfer is needed due to the diseconomies of a small portfolio, the cedent has the option to scale down if desired, as opposed to other capital sources where exit options are often less flexible. This effect can be achieved very effectively through multi-year quota shares with a scheduled decline of the percentage of business ceded. The schedule can be time based or directly tied to the business volume. This means that reinsurance can provide tailored and efficient capital support.

Structured reinsurance can be used to fund high upfront expenses.

Insurance companies looking to expand into new markets or launch new products also require upfront funding for commissions, marketing and acquisition costs, especially for long-term life business. A similar need can arise on the P&C side, for example when launching a telematics-based motor product with high upfront investments and an initially small portfolio. Reinsurers can offer insurers means to pre-fund new business by establishing multi-year structured contracts that assume higher marketing and distribution costs in the early years of a product launch, and participate in the earnings flow in later years.

Reinsurers can also provide underwriting expertise to generate stakeholder confidence in the move into a new market.

In addition to funding, with strategic collaboration an insurer can benefit from a reinsurer's experience and underwriting expertise when launching a new product or entering a new market. Additionally, balance sheet and actuarial support from an experienced reinsurer may give stakeholders (customers, shareholders, regulators and rating agencies) more confidence in a new product. These solutions are supported by long-term strategic partnerships between insurer and reinsurer.

A more financially sustainable path

The reset of interest rates over the past two years has been needed to put the non-life sector on a more financially sustainable footing. The gains from higher investment yields should outstrip the higher cost of capital and elevated risk, creating positive outcomes for all stakeholders and making the industry more resilient for the long term. Beyond the current underwriting cycle, improved long-term profitability is funded by stronger investment returns. This ensures a long-term balance between the industry’s financial stability and risks that grow in line with economic development, asset accumulation, climate change, and social inflation, among others. Narrowing protection gaps requires insurance industry resources to grow more strongly than the evolving risks, such as losses from natural catastrophes. For example, stronger growth would be beneficial for US P&C industry capital, which grew 5% annually on average in the past 10 years, two points less than the estimated natural catastrophe protection need at 7%.³⁸

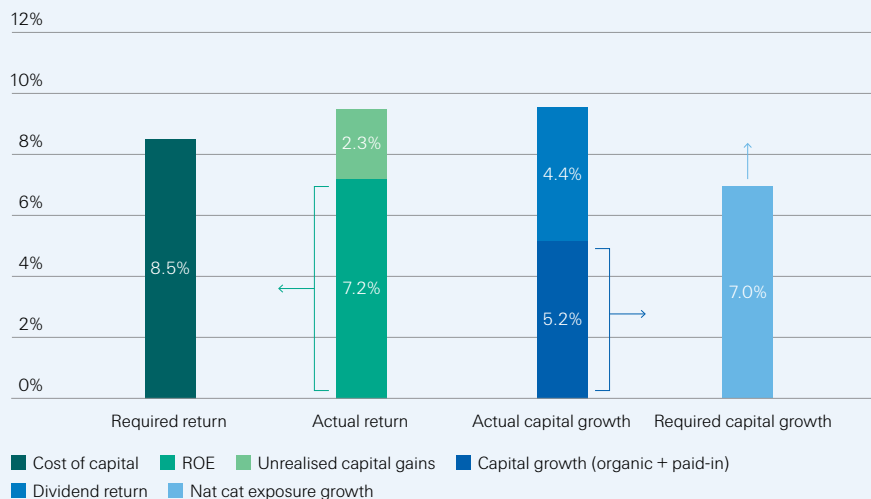
The monetary tightening cycle increases the industry’s financial sustainability, to benefit all stakeholders.

Organic earnings of the past decade were not sufficient to fund shareholder returns and growth.

The benefits of higher investment yields for non-life insurers have the potential to outweigh the higher cost of capital for the sector and the higher risks accompanying this monetary tightening cycle. This should have the effect of building resilience in insurance companies and giving the industry a stronger financial foundation for the long term. This would be positive for stakeholders throughout the value chain, from customers to investors. It would reinforce economic resilience more broadly by dampening the impact of shocks on businesses and consumers. If stronger investment returns can fund improved (potential) long-term profitability, insurers are more likely to have the ability to (1) offer more competitive products for all types of insurance, (2) thus attract more demand and (3) support more organic long-term capital growth for the industry via retained earnings.

The reset of interest rates over the past two years has been needed to put the insurance industry on a more financially robust footing, and as such support economic resilience by lowering protection gaps. Stronger investment returns are needed for the industry, so it can grow organically in line with demand. A mature non-life insurance industry is only financially sustainable if it can compensate the factors of production (including cost of capital) and grow its capacity to meet the need of future demand. This ensures a long-term balance between the industry’s financial stability and risks that grow in line with economic development, asset accumulation, climate change, and social inflation, among others. For example, US P&C industry organic earnings in the last decade were only sufficient to fund value creation to shareholders in the form of dividends and net asset value growth enough to meet cost of capital by relying heavily on unrealised capital gains (see Figure 8). This level of capital gains was fuelled by falling interest rates and so cannot be expected in the future.

Figure 8
US insurers’ cost of capital vs value creation to shareholders



Source: Standard & Poor’s Capital IQ, Swiss Re Institute

³⁸ Source: Standard & Poor’s Capital IQ and Swiss Re Institute.

Robust growth of industry resources is needed to match future demand for P&C risks.

We estimate that US P&C capital has grown by 5% annually on average for the last 10 years: two points less than the US natural catastrophe protection need at about 7% annually on average.³⁷ Narrowing the protection gap requires stronger capacity (capital) growth. Furthermore, liability exposures grow stronger than economic activity, in part due to social inflation.³⁸ For example, US liability claims grew at an average 9.7% over the last decade, drawing additionally on the industry's risk capital. While disrupted during the COVID-19 years, we expect the underlying factors of social inflation to persist for the foreseeable future.³⁹

The industry must manage risks carefully to contribute to the resilience of the economy.

The rise in yields is a tailwind for greater capital accumulation but must be managed carefully for the industry to fulfil its potential to improve economic resilience. For P&C insurers, the risks are weighted toward unexpected increases in liabilities from legacy and current business. Financial stability and interest rate risks remain elevated in the current economic environment. Reinsurance transactions are one piece of the solution, enabling sustainable growth in the evolving risk landscape.

Globally, insurers need to grow resources faster than the growth in natural catastrophe insured losses.

The insurance industry needs to grow its resources at a significant pace to match the growing global demand from evolving risks. Our analysis indicates that just to narrow the global natural catastrophe protection gap,⁴⁰ non-life insurance capital needs to outgrow natural catastrophe losses, which are increasing at a growth rate globally of 5 to 7% per year in real terms since 1992.⁴¹ We project that insured losses will continue to grow strongly, irrespective of year-on-year volatility and even when current cyclical factors such as high inflation subside. Development and asset accumulation in high-risk areas are key factors for exposure growth. Changes in construction costs are a further factor, as ageing infrastructure vulnerabilities and inflationary pressures have boosted repair costs in recent years. Finally, hazard intensification will likely also play a bigger contributory role to rising losses in the coming decade as the world warms. Findings from scientific research infer that climate change effects on loss frequency and severity will intensify.

³⁷ Source: Standard & Poor's Capital IQ and Swiss Re Institute.

³⁸ The Geneva Association, "Social Inflation: Navigating the Evolving Claims Environment", 2020.

³⁹ Swiss Re, "Inflation impacts: short-term claims spike in US property insurance, longer running headwinds for casualty", Economic Insights 15/2021.

⁴⁰ For our latest discussion of protection gaps, see *sigma* 2/2023 - Restoring resilience: the need to reload shock-absorbing capacity, Swiss Re Institute, 21 June 2023.

⁴¹ *sigma* 1/2023 – A perfect storm – Natural catastrophes and inflation in 2022, Swiss Re Institute, 22 March 2023.

Published by:

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The editorial deadline for this study was 10 August 2023.

sigma is available in English (original language) and Chinese.

sigma is available on Swiss Re's website: www.swissre.com/sigma

The internet version may contain slightly updated information.

Graphic design:

Corporate Real Estate & Services / Media Production, Zurich

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