

## **Profitability of the non-life insurance industry: It is back to basics time Report by: Swiss Re**

### **Executive Summary**

This report examines the key factors and latest trends determining profitability in the major non-life insurance markets. The price or underwriting cycle and investment performance are the two most important factors shaping profitability. Currently, profits are elusive, despite a hardening market. Interest rates are low and most equity markets are in the doldrums, making profitability through investment returns challenging and highlighting the need for improved underwriting results.

The following profitability trends have been identified:

- ❑ Worldwide, non-life insurance markets are currently in a period of declining profitability. The decline reflects the soft underwriting cycle, weakening investment performance, and the high level of capital funds. Falling interest rates and robust stock markets have increased insurers' capital funds. Insurance capacity had reached historically high levels in 1999, which had led to downward pressure on premium rates. As a result, underwriting results declined in all major markets.
- ❑ The long-term return on equity for US non-life stock companies has been comparable to the return on equity (ROE) of broad market indices, once unrealized capital gains are taken into account. Also, the stock market performance of non-life insurers has been roughly comparable to broad market indices over the last 20 years. However, non-life insurers have underperformed significantly over the last few years.
- ❑ Non-life insurance markets are currently in a transition period between a severe soft market and a hard market. Commercial lines and reinsurance premium rates started to rise in 2000, and have gained momentum in 2001. Prices in the personal lines have lagged behind slightly, but are now increasing moderately. Nevertheless, reported underwriting results will be undermined for quite some time by adverse reserves development.
- ❑ Underwriting results follow a cyclical pattern, caused by external factors affecting capacity - such as catastrophic events and investment performance. In addition, internal factors - such as insurers striving for market share during times of robust investment results - contribute to the cycle. The cycles average about six years in length and are synchronized across countries and to some extent across lines of business.

Investment performance has increased in importance to insurers, with net investment results rising from about 15% of net premiums written in 1985 to about 180% in 1999 and 2000. The two factors determining the improved investment results were the strong capital market performance from 1995 to 1999 and a long-term trend towards more asset leverage. Asset leverage, the ratio of invested assets to net premiums, has increased in all the major markets primarily because of the increase in loss reserves. The reserve ratio - reserves over net premiums written (NPW) - has risen in all the major markets along with the increasing importance of liability lines of business; higher inflation for indemnified services, such as medical care; and mounting litigation costs.

- ❑ Inflation and interest rates have been falling worldwide. The monetary authorities of the major economies have become more independent and have narrowed their focus to maintaining inflation at a low level. Hence, interest rates are expected to remain low for the foreseeable future.
- ❑ In the near term, the equity markets of the major economies will remain volatile and uncertain. After a long period of robust returns, equity markets are unlikely to produce strong results in the

short run. With investment returns uncertain, insurers are increasingly striving to boost profitability through improved underwriting. After a prolonged soft market, prices are rising and the market is hardening. However, there is still a long way to go. Underwriting results must improve in the major markets by 7% to 14% of net premiums, depending on the market, in order to return to average profitability.

- ❑ Weak investment returns and a hardening market are not coincidental. Over history, underwriting and investment results have been negatively correlated .strong investment results increase capital finds, softening prices.

## Introduction

Non-life insurance markets are currently in a transition period between a severe soft market and a hard market. Profitability is low, but should be improving. During the soft market, rising insurance capacity and fierce price and market share competition led to widely available coverage and low premium rates. Underwriting results declined in all major markets. Net investment results, including realized capital gains, increased until 1998 in most major markets, bridging the gap between falling underwriting results and providing a small improvement to net income. Investment results deteriorated after 1999 as interest rates bottomed out and stock markets declined, setting the stage for a hardening of the market.

The main questions addressed in this analysis are:

- ❑ What are the main drivers of profitability?
- ❑ How does the long-term profitability of non-life insurers compare to benchmarks in other sectors?
- ❑ How important is investment activity as a driver of profit, capital finds (leverage), and volatility?
- ❑ V/hat patterns are there to the insurance cycle, in length and between countries?
- ❑ What underwriting result is necessary to achieve an average economy-wide ROE, given the current investment outlook, the level of asset leverage and the solvency ratio (capital finds as a percentage of net premiums)?

## What are the profitability drivers?

To analyze the drivers of profitability, it is useful to decompose ROE into its main components, Profits are determined first by underwriting performance (losses and expenses, which are affected by product pricing, risk selection, claims management, and marketing and administrative expenses); and, second, by investment performance, which is a function of asset allocation and asset management as well as asset leverage. Capital efficiency (ROE) is additionally affected by tax strategies and solvency.

## Cross-country comparison of profitability

The benefit of this type of decomposition is to separate the various factors affecting profitability, isolating them for further analysis. Though they will be analyzed separately, they are interrelated through the decision-making processes of insurers. Table 1 compares five-year average performance ratios of the major non-life markets, based on statutory data.

Table 1  
Profitability decomposition of major non-life markets  
Five years averages in % of net premiums unless marked with +

	Years	US	Canada	UK	German	France	Italy
	Japan	1996-00	1996-00	1996-99	1995-99	1995-99	1995-99
	95-99						
Loss ratio	77.5	73.4	75.4	70.5	84.5	85.7	56.7
Expense ratio	27.4	32.0	32.5	25.3	22.5	27.1	35.7

Underwriting result	-6.5	-5.7	-7.9	1.5	-8.3	-14.1	3.3
Investment yield +	7.0	8.3	9.0	7.2	5.8	7.8	2.9
Asset Leverage	268.0	199.4	273.3	217.3	265.3	202.0	435.1
Net Investment result	18.8	16.5	24.6	15.7	15.4	15.8	12.4
Other expenses/ earnings	-0.1	0.9	-2.7	-6.6	-1.5	1.9	-11.8
Profit margin (pre tax)	12.2	11.7	14.0	10.5	5.7	3.1	3.9
Tax rate +	21.2	29.4	24.0	60.3	41.6	87.6	69.9
Profit margin (after tax)	9.6	7.9	10.7	4.1	3.4	0.8	1.0
Solvency	106.1	84.9	102.7	145.4	111.5	n.a	n.a
ROE+	9.1	9.4	10.1	2.9	3.2	n.a	n.a

The table shows that loss plus expenses exceed premiums resulting in combined ratios over 100% and negative underwriting results in all countries.

## Long Term Profitability trends

### Is non-life insurance a profitable business in the long-run?

Many analysts believe that the non-life insurance industry underperforms other industries on profitability. This arises, for example in the US, from a comparison of the average ROE figures of the US non-life industry with the S&P 500 companies. The 20-year average for the insurance industry is 10.1%, while the S&P ROE has averaged 13.4% over the same period.

Given this apparent long-term under performance on ROE for the insurance industry, it is puzzling that capital keeps flowing into the insurance sector. From 1980 to 2000, fresh capital and ongoing profit retention resulted in an average surplus growth of 9.5%. While the decision to retain profits may be biased by management interests diverging from shareholders interests (agency conflict), there is no bias in the investors decisions to supply fresh capital. The annual average of paid-in fresh capital from 1980 through 2000 equaled 2.8% of surplus. This accumulation of additional capital suggests investor confidence in the industry, despite the low ROE.

The past three years have been more difficult for insurance stocks. Valuations dropped dramatically at the end of the last decade when investment returns sagged and the underwriting conditions hit the bottom line. Non-life stocks under performed the S&P 500 by more than 50% percent between the fourth quarter of 1997 and the first quarter of 1999.

Another reason for the relative under performance of insurance stocks during the 1990s was the technology stock market boom, which contributed to the strong S&P 500 performance.

As mentioned above, the low ROE arises from two factors: a low profit margin and a strong increase in surplus (average annual increase of 9.5%). The increase in surplus is actually good news, since it is mostly determined by unrealized capital gains that are not included in profits. Unrealized capital gains do not flow through the income statement, but are credited directly to capital finds in statutory accounting. Insurance companies benefited from bullish stock markets, resulting in strong asset valuation gains.

### What are the long-term profitability trends?

The first important long-term trend is the increasing importance of investment returns for non-life insurers. Net investment results rose relative to premium volume from 1975 to 1990 and increased in most markets in the second half of the 1990s. The main reason for the increasing importance of the investment result is the trend to a higher asset leverage, which makes more assets per premium available for investments.

There are two main sources for assets to invest: (1) technical reserves that are being generated out of

underwriting activity, and (2) shareholders funds, which are kept as risk capital.

Of the two capital sources, technical reserves are particularly important. Premiums are received before losses are paid, creating a period during which the funds can generate investment returns for the insurance company. The length of that interval varies with the type of insurance business and can extend over many years for long-tail lines, such as liability insurance.

Reserve ratios have been increasing steadily in most major markets since 1975.

The reasons for the increase of reserve ratios are the growing importance of liability lines of business.

Both, insurers capital funds and technical reserves are sources for investments in financial assets. Insurance companies solvency in Europe and the US has risen sharply in recent years, as a result of booming stock markets and relatively good technical results in the mid-1990s.

A major driver of investment income generation is asset leverage. This key ratio indicates the volume of investment activities in relation to underwriting activities, measured by net premiums. Asset leverage has increased in all major markets since 1975, contributing to the increasing importance of investment returns for non-life insurers. The increase in asset leverage was driven by the upward trend in both reserve and solvency ratios.

Another long-term trend with significant importance for non-life insurers profitability is the decline of inflation in the western economies.

Falling inflation has had a positive impact on both underwriting results and investment results. As inflation fell, incurred but not realized losses also fell, improving underwriting results. On the investment side, insurers benefited from the lower inflation causing lower interest rates, which systematically created capital gains on bond portfolios and contributed to the rise of equity markets.

The benefits of e-technology are also unlikely to improve insurers profitability. The new e-business capabilities bring significant potential for efficiency improvements in distribution, administration and claims settlement. But the new technology also lowers market entry barriers and increases market transparency, intensifying competition and forcing prices down. Tougher competition between insurers will again benefit clients via lower prices.

There are three things that affect total investment returns - bond yields, dividend income and capital gains. Since most insurers invest heavily in bonds, interest rates are most important in determining insurers investment returns, On occasion, capital gains can be very important, particularly to smooth investment returns when interest rates are low.

After a long period of good performance, non-life insurers investment yields are declining but still reached 6 - 8 % in 1999 in all the countries examined except Japan.

Looking forward, strong investment results are no longer assured - equity markets are weak and interest rates are low. To sustain profitability, insurers will need to maintain investment returns or improve underwriting results. Maintaining investment results will be very difficult because asset leverage cannot simply be increased at the will of the insurer. To boost asset leverage, insurers would need to increase reserves or raise equity. However, bolstering loss reserves would need to reflect increased underwriting losses, so this will only change slowly as the mix of lines of business shifts. Also, raising equity to finance investments is not an economical option, since the cost of capital is higher than the after-tax investment yield. Hence, the main task for insurers must be to improve underwriting results.

## **Underwriting results show a strong cyclical pattern**

A review of the evidence on underwriting cycles indicates that they exist in all major markets and that their average length is about six years. These cycles are increasingly correlated among the major markets. However, though there is some correlation of the cycles between lines of business, there is no evidence that the business line cycles are becoming increasingly correlated.

Non-life insurance is characterized by periods of high premium rates (hard markets) and low premium rates (soft markets). A cyclical pattern can be detected over the past century. One usual indicator for the cycle is the underwriting margin (underwriting result in percent of net premiums).

### Statistical Evidence for underwriting cycle

A more comprehensive analysis of the major non- life markets shows the existence of underwriting cycles for all countries in this analysis. Using advanced statistical techniques, we tested for cyclicity and determined the average length of the cycle to be between 5.6 and 7.3 years in the seven countries.

Table 3  
Empirical evidence for cyclicity for major insurance markets.

	Period	Cycle length
US	1953-2000	6.2
Canada	1950-2000	5.6
UK	1969-2000	6.1
German	1975-1999	6.6
France	1975-1999	7.3
Italy	1979-1999	7.1
Japan	1970-1999	6.3

### Explanations for the underwriting cycles

The cycle is best explained by a combination of two hypotheses - the (rational markets with imperfect foresight) and the (capital constraint hypotheses.)

The first view of cycles is that the market is basically competitive and that participants make rational decisions. However, the market is susceptible to the influence of external events and industry institutional features which, even if participants act rationally, can lead to cycles. Important external features and events which can provide a shock to the industry or which can delay a response to a shock include:

- Entry and/or exit costs,
- Regulatory constraints,
- Accounting characteristics including data and information lags,
- Catastrophic events,
- Unexpected changes in claim costs or loss distributions, and
- Unexpected changes in interest rates and equity values.

Under this hypothesis, delays in information or the stickiness (or political constraints) of the regulatory process in establishing the correct price will exacerbate market swings. Thus, insurance pricing and rate making, by virtue of their backward-looking nature, cannot immediately respond to changing market conditions. This institutional feature is especially problematic when there are significant changes in risk exposures, loss distributions, interest rates, or when insurers balance sheets have become (unbalanced) from low premiums. Thus, after a sharp change in the market, insurers and/or regulators are unable to adjust prices rapidly. The lagged response to market conditions naturally creates a cycle because there is a tendency to (overshoot) the price necessary to equilibrate the market. The overshooting is later followed by undershooting, creating a price cycle until the next major shock.

The capacity constraint model implies that cycles are caused by impediments to capital flows, creating alternating periods of excessive and insufficient capital. Exogenous shocks to the capital funds of insurers result in a capacity shortage, causing price increases. Shocks to the capital funds can arise either from the asset side or from the liability side (loss shocks).

The capital constraint hypothesis provides a very plausible explanation to the most recent significant hard markets of 1969/70, 1975/76, and 1985/86 in the US, and 1990/91 in the UK.

**Underwriting cycles are increasingly correlated among the major markets.**

**Profitability drivers are highly interdependent**

The investment and underwriting results of non-life insurers are closely linked. Good investment returns allow insurers to post losses on underwriting without risking overall losses. One reason for this link is that both pricing decisions and investment results are directly affected by interest rates. In addition, there is an indirect effect of investment performance on pricing decisions - a strong performance tends to lower pricing and underwriting results as insurers strive for market share.

As investment income rises sharply, there is a tendency for the underwriting results to deteriorate. This happens to a certain extent directly. To the extent that insurers use regular updates of forecasted interest rates in their pricing decisions, the premium rates fall when interest rates rise. Equilibrium premium rates are supposed to reflect the present value of expected future loss payments, plus some loading for expenses and capital costs. The higher the interest rates the stronger the discount effect and the lower the premium rate.

Aggressive pricing during periods of high investment returns is commonly called (cash - flow underwriting). Good investment returns allow insurers to aggressively price new business - hence incurring higher underwriting losses - without risking overall losses. This is probably the strongest link between improved investment performance and weak underwriting results.

The negative correlation between investment and technical results can be observed in most markets, but it can be disturbed by unforeseeable developments in claims.

There is also a negative correlation between realized capital gains & underwriting results. This indicates the use of capital gains to smooth earnings.

Realized capital gains helped to compensate for the extreme underwriting losses.

This resulted in fierce competition at insufficient levels.

**Sensitivity of ROE to investment yield and combined ratio:-**

How do investment yield and the combined ratio affect ROE? While it is difficult to predict future investment returns and returns on equity, near-term performance can be reviewed under several scenarios.

At a combined ratio of 110.3 and an investment yield of 7.2%, the market ROE is a low 5.8%. every decrease / increase of one point in the combined ratio results in an increase / decrease of about 0.7 percentage points in the ROE. So, to achieve a ROE of 10% under the listed assumptions, a 7.2% investment yield requires a combined ratio of 104.4, which is about six points better than the current underwriting margin.

If future investment yields are not as high as they were in 2000 or 1998, which seems to be a reasonable assumption, the picture becomes even bleaker. For every percentage point increase / decrease in the investment yield, the ROE is increased / decreased by about two percentage points. For example, an investment yield of 6% requires a combined ratio of about 108, with every thing else constant, just to achieve the disappointing ROE of 5.8%. while it is quite likely that solvency will reduce to compensate for lower profit margins, these things change slowly and the near-term profitability picture does not look strong.

**Solvency & profitability**

Insurance companies solvency in Europe and the US has risen sharply in recent years, as a result of booming stock markets and relatively good technical results in the mid-1990s. The inflow of fresh capital dried up in the late 1990s.

**Underwriting results must improve substantially to provide widespread profitability**

Non-life insurance market is currently in a transition period between a severe soft market and a hard market. Commercial lines and reinsurance premium rates started to rise in 2000, and gained momentum in 2001. Prices in the personal lines have lagged behind slightly, but are now increasing moderately. But how much improvement in the underwriting results is necessary? How

will underwriting and investment results interact in the future? To illustrate the main findings of this study, an accounting scenario is compared for five large markets in Table 5. The following assumptions are key to the results and form a substantial part of the medium- term outlook:

- ❑ Investment yields will essentially follow long-term interest rates. The magnitude of realized capital gains of the last five years is unlikely to be repeated.
- ❑ Difference in investment yield between countries reflect differences in long-term interest rates, the asset mix, and accounting principles.
- ❑ Solvency and asset leverage have exceeded their medium-term peak, a return to the average levels of the last five years is assumed.
- ❑ Tax rates reflect the averages of the last five years. For Germany the proposed reduction of corporate tax rates to 40% is assumed.
- ❑ Target ROEs are set to approximate long-term average returns, adjusted for inflationary effects. They refer to market ROEs including mutuals. Stock companies enjoy on average higher ROEs, but all players have to be considered for a comprehensive market scenario.

Given our investment yield forecasts, the target underwriting results for each country are calculated. Target ROEs are linked to profit margins via the solvency ratio. The difference to the current underwriting result shows the trough of the soft market and emphasizes the need to improve premium rates.

Table 5  
Profitability outlook

In % of net premiums unless marketed with +	US	Canada	UK	German	France
Target ROE+	10.0	10.0	10.0	9.0	9.0
Solvency ratio	106.1	84.9	102.7	145.4	111.5
Profit margin (After tax)	10.6	8.5	10.3	13.1	10.0
Corporate tax rate +	21.2	29.4	24.0	40.0	41.6
Profit margin (pre tax)	13.5	12.6	13.4	18.3	14.2
Investment yield +	6.2	6.4	5.8	5.7	5.1
Asset leverage	268.0	199.4	273.3	217.3	265.3
Net investment result	16.6	12.8	15.9	12.4	13.4
Other expenses / earnings	-0.1	0.9	-2.7	-6.6	-1.5
Target underwriting result	-3.0	-1.1	0.2	12.6	2.3
Latest underwriting result	-10.4	-8.1	-12.4	-1.6	-10.0
Gap	7.4	-7.0	-12.6	-14.2	-12.3

The table indicates that non-life insurers in most major markets must improve their underwriting performance from 7 to 14 percentage points, depending on the market, to achieve a reasonable return on equity. It is important to note that the actual degree of underpricing is larger than shown as insurers already smooth underwriting results via reserve policy and reinsurance. The shortfall of premium rates is also larger if more aggressive target ROEs are expected by investors. This could particularly be the case in the UK, where past results of insurers have been extremely volatile. Reducing expenses and managing claims will help, but will not be sufficient to meet the goal. A substantial improvement in prices and underwriting activity will be necessary.

Will industry capitalization further decline, supporting the hardening of the market, or will fresh capital flow into the insurance market, stopping the upswing of premium rates? Will the alternative market absorb the potential for future rate increases? Given the current state of insurance-industry profitability and the weak capital markets, it is unlikely that the current movement to a harder market will be restrained in the short-run. One reason for the decline of market capacity is the low level of profitability, which has disappointed investors and led to divestments from the industry. For fresh capital to flow into the market, profitability must first improve, restoring investors confidence. This will take time since there will be more adverse reserves developments undermining reported profitability.

Another reason for the decline in capacity is the weak performance of capital markets, which has reduced the value of insurers assets. The present uncertainty regarding the world economy and capital markets makes it difficult to raise new capital and, also, causes corporate insurance clients to retain insurance contracts, rather than seek new ways to self-insure. This delay of an increase in global insurance capacity is a typical result of the interaction between insurance-industry profitability and capital markets. It is also one reason the industry will continue to experience price cycles for the foreseeable