

MANAGING RISK IN LIFE INSURANCE: A STUDY OF CHAGING RISK FACTORS OVER THE LAST 20 YEARS IN TAIWAN AND DRAWING LESSONS FOR ALL

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Abstract. What are insurance companies actually doing wrong, if anything, to implement risk management for themselves? Now, more than ever, it is important for the insurance industry to sit up and take a proactive approach to managing exposure. Mr. Walpole looks at the changing risk landscape, the risk positions facing the industry, and lessons learned over the last 10 years by the island's life insurance industry, whose pearls of wisdom can be distilled for the future.

Key-words: Taiwan, risk, investment, mortality, lapses, expenses

1 Introduction

Our perspective of the risk landscape is changing. Meeting the challenge of this changing landscape is what this presentation will look at. Looking at the types of risks, we can identify:

(a) Financial Institution Risk Types

The UK FSA views the generic types of risks applying to insurers in the following ways (with a comparison to banks):

- Insurance
- Market
- Credit
- Liquidity
- Operational

(b) Other Risk Types

Other general risk types include:

- Legal
- Compliance & regulatory
- Strategic
- Reputation

(c) Illustrated in this Talk

- Insurance (Mortality, lapses)
- Market (Interest rates, equities)
- Liquidity (Expenses)
- Compliance & regulatory (New regulation)
- Strategic (Pricing, new business volumes)

2 An illustration: The Last 10 years in Taiwan 10 Years ago, a policy was sold.....

A thoroughly typical policy for the Taiwanese market would comprise whole of life, with a 10-year premium payment period and "coupons" payable after five years and 10 years, and every year after 10 years. There was rising death benefit and cash values were similar to the statutory reserves, less a penalty. The Ministry of Finance regulations were such that compulsory interest and mortality dividends were payable.

The pricing basis was 8% (note reserving on 6.5%), with 90% of 89TSO. In the example, the policyholder was a 35-year-old male buying a sum assured of NT\$266,000 with an annual premium of NT\$41,333.

(1) Investment Return

The industry essentially guaranteed 8% for the lifetime of the policyholder, whilst they expected to earn 8.8% every year on average. This appeared supportable based on the industry asset mix and best estimate assumptions which you can see from the table and charts below.

	Mix	Assumption
Mortgage Loans	26%	10.5%
Cash & Bank Deposits	26%	6.5%
Real Estate	11%	13.3%
Policy Loans	9%	12.5%
Government Bonds	7%	7.3%
Equities	7%	14.3%
Others	5%	0.0%
Receivables	4%	0.0%
Short-Term Securities	4%	7.0%
Corporate Bonds	1%	9.3%
Beneficiary Certificates	1%	10.3%
	100%	8.8%

NB: Note that the reserve is calculated using 6.5%, however

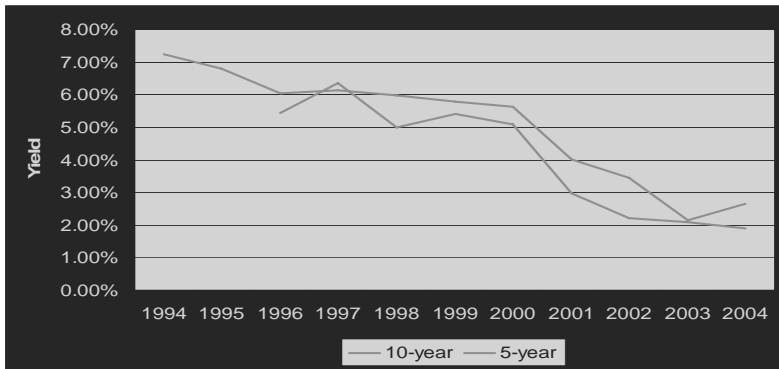
How did Things Actually Turn Out?

Referring to the charts, actual return was greater or equal to the 8% guarantee in only two of the 10 years. In many of the years the actual return was significantly lower than this. The industry faced a classic negative spread problem and saw movement into higher-yielding asset classes.

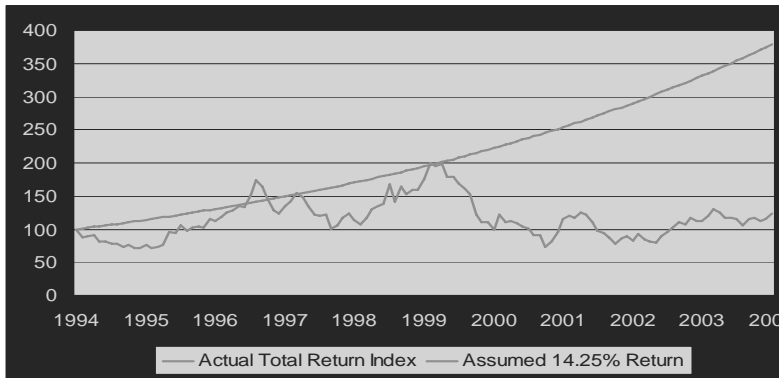
The free asset ratio was also significantly reduced during this period. We believe that unrealised capital gains were used up as well. On the positive side, no interest dividends were paid, but overall, this was a very bad result over the 10 years.

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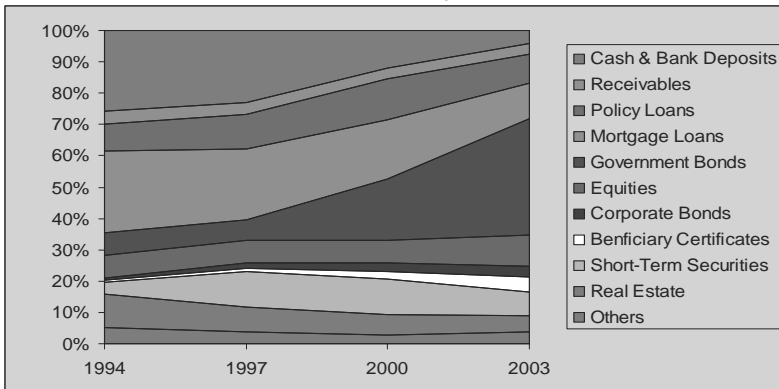
Taiwan Government Bond Yields



TAIEX Total Return Index

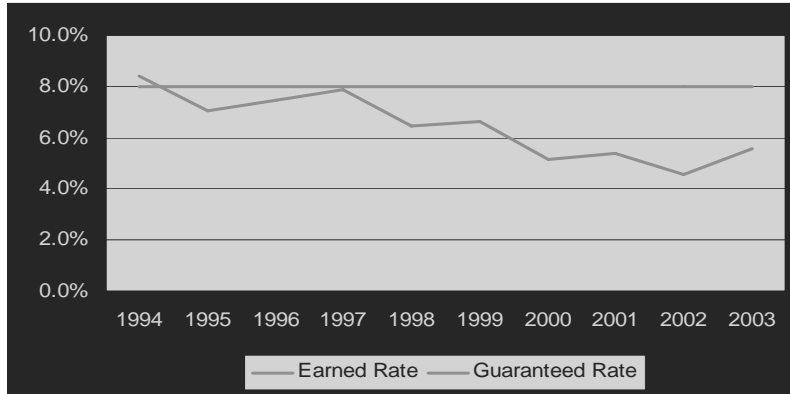


Taiwan Life Industry Asset Mix

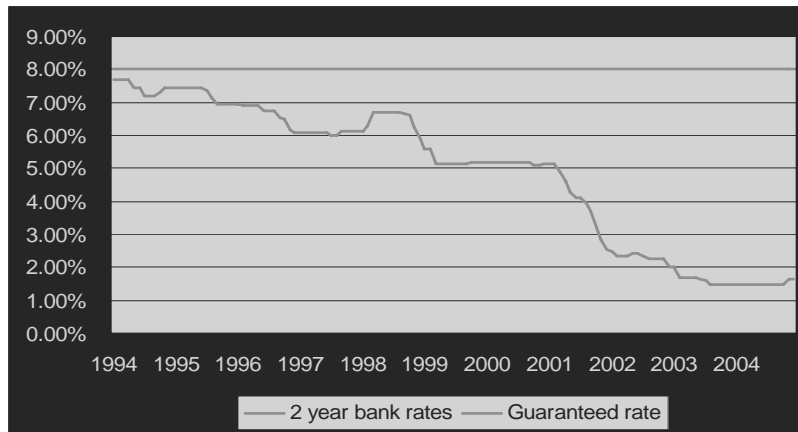


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Average Life Industry Return vs Guarantee

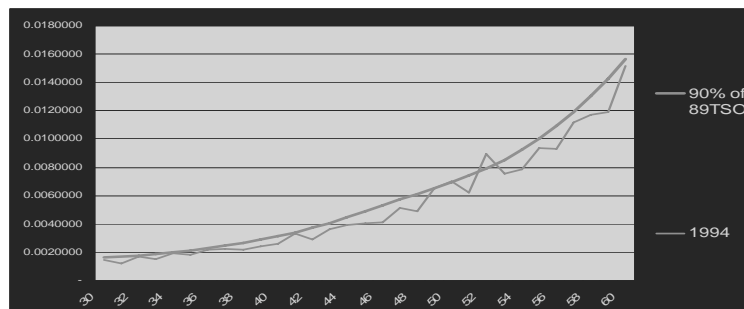


Zero Interest Dividends Paid



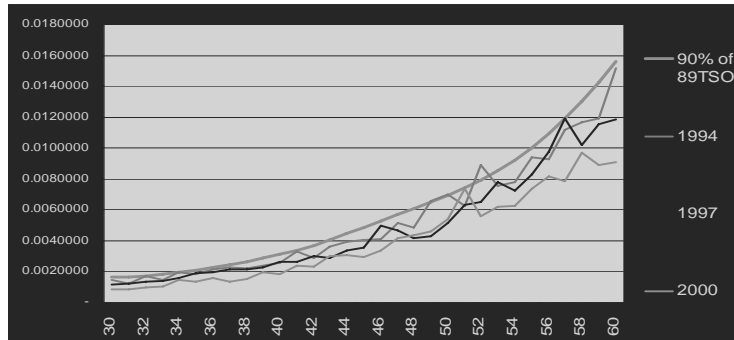
(2) Mortality

The industry had also guaranteed 90% of 89TSO for the lifetime of the policyholder. This appeared supportable based on actual 1994 raw mortality rates in Taiwan.

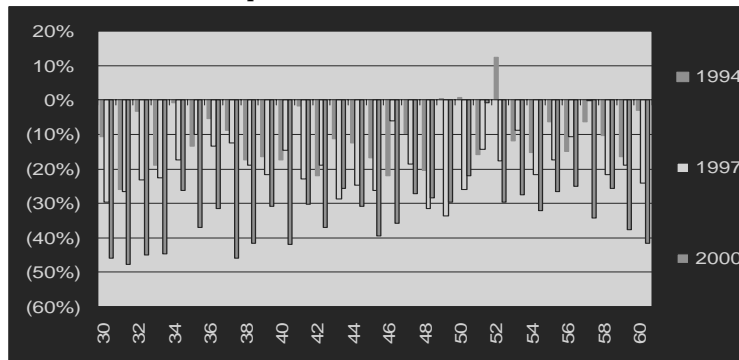


How did Things Actually Turn Out?

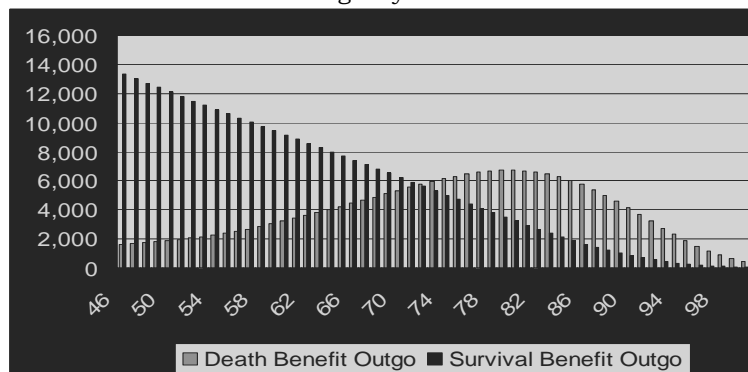
Taiwan Industry Crude Mortality: Males Aged 30 - 60



Comparison with 90% of 89TSO



Longevity Risk?



Actual mortality improved at practically every age, although there were plenty of "blips" away from the average, illustrating the need for reinsurance. However, mortality dividends were paid back to policyholders in line with average industry mortality of the previous five years, removing much of the mortality profit for

insurers. There is also evidence of potential longevity risks. In all, this was an almost neutral result for the 10 years shown.

(3) Lapses

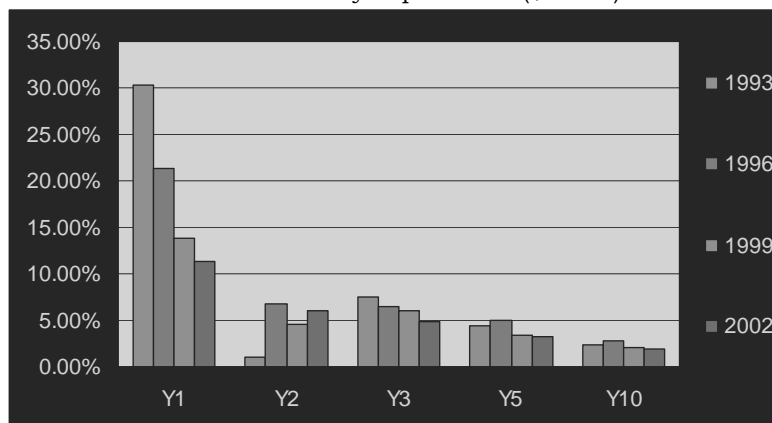
Premiums were calculated without any allowance for lapses. Cash values were also set to deduct a penalty from the reserve. Best estimate lapse assumptions would have been close to the following (based on averages taken from the previous two years' actual experience):

Lapse Assumptions

Year 1	25%
Year 2	10%
Year 3	8%
Year 4	6%
Year 5	4%
Year 6+	3%

How did Things Actually Turn Out?

Taiwan Industry Lapse Rates (\$ basis)

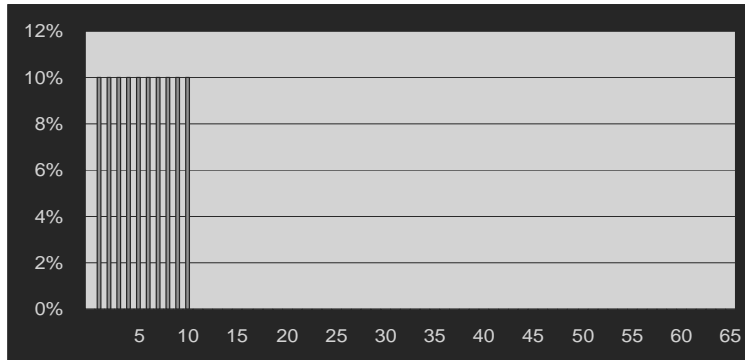


Lapse rates have generally been lower than 10 years ago. This has effectively been in line with falls in interest rates. We know that policyholders with high guarantees are less likely to lapse. While the difference at first sight is not large (2% vs. 3%), the impact when compounded over many years can be significant. Overall, this was an almost neutral result for the 10 years shown.

(4) Expenses

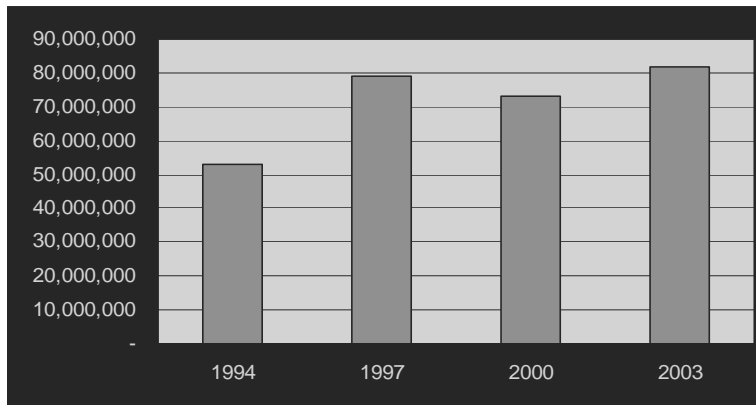
Expenses and commission were priced by allowing for a margin in each premium of 18%. Contractual and override commission took about 8% of this margin. This left a margin for expenses of 10% of each premium.

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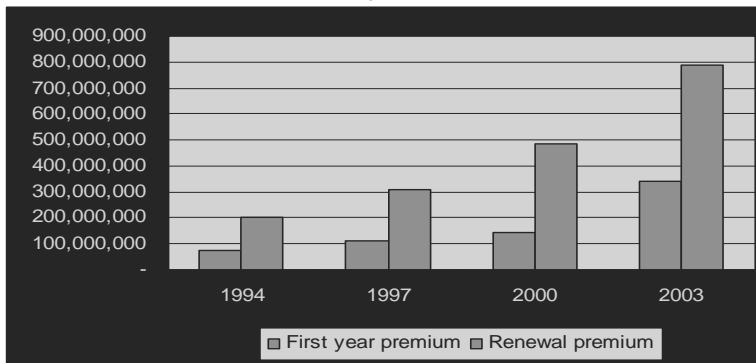


How did Things Actually Turn Out?

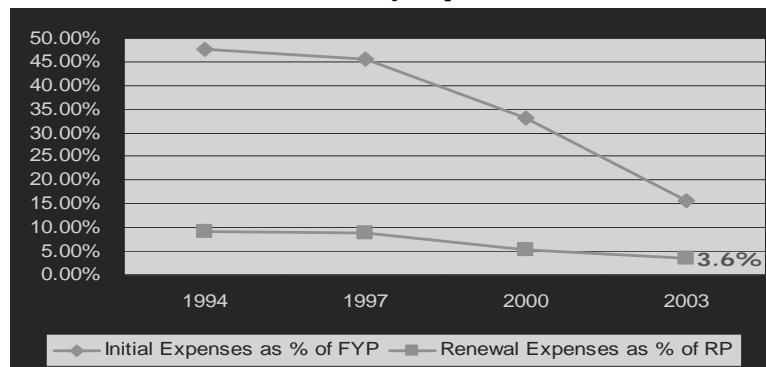
Taiwan Industry Total Business & Admin Expenses



Taiwan Industry Premium Income



Taiwan Industry Expense Ratio



Actual total business and administration expenses fell from about 9% of renewal premiums in 1994 to 3.6% of renewal premiums in 2003. Zero expense dividends were payable – shareholders took all of this profit margin. This was therefore a very good result for the 10 years shown. However, these expense profits were at least partially required to pay for expenses during the premium-free term as there was no reserve for these expenses. Furthermore, a lot of money is now being spent on ALM – studies essentially brought about as a result of selling high-guarantee policies such as these – so arguably the high expense profits of the past were a little premature.

(5) Regulatory

Companies in 1994 essentially assumed that nothing would change in the regulations applying to them.

How did Things Actually Turn Out?

Regulatory changes included RBC (risk-based capital) regulations introduced in 2004. The ongoing minimum solvency requirement and reserves were thereby effectively increased by about 3% of reserves – a one-off hit on capital, and negative impact on capital availability.

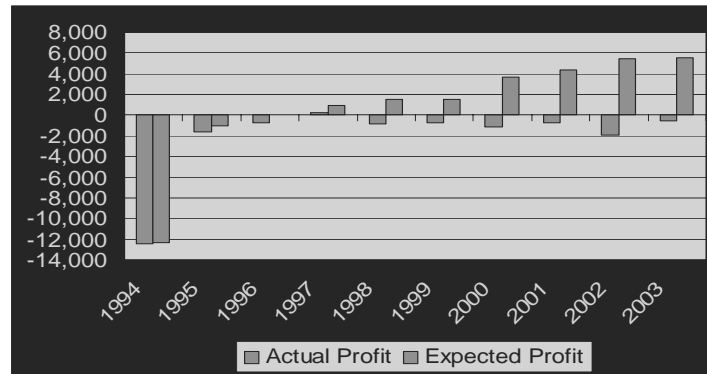
In the same year of 2004, Appointed Actuary regulations debuted. Gross premium valuations had to be divulged to the regulator; ALM projections will be required from 2006 (similar to New York 7); again, this has a negative impact on capital availability.

2004 also saw the offsetting of positive mortality dividends against negative interest spread, but offset amounts had to be held in a reserve until maturity of policies. The reserve could also only be used to cover RBC, and there was positive impact on capital availability, possibly on profits in the future.

The industry was also given the ability to invest in (higher-yielding) overseas assets which had a positive impact, but came with increased risks.

(6) Profit

How did Things Actually Turn Out?



In a word, badly. The industry saw small profits in only one in 10 years. Expense profits were not enough to cover negative spread losses. As a double whammy, losses incurred in the first 10 years are compounded by a shortfall in reserves (on current best estimate assumptions):

Statutory reserve (excluding RBC)	US\$261,000
Gross premium valuation reserve	US\$304,000
Shortfall	US\$ 43,000

3 Lessons: What the Past 10 Years Tell Us

In summing up the lessons of the past decade, here's what we learned:

- (i) Investment Return: Interest rates behaved very differently from expected. Additionally there was a significant downside to offering high guarantees.
- (ii) Mortality: Mortality improved significantly over the last 10 years. This was often good news - but not always.
- (iii) Lapses: Lapse rates dropped significantly as interest rates fell. This had a gearing effect – loss-making policies stayed longer.
- (iv) Expenses: Expense ratios dropped enormously. It was possible to improve profitability by increasing volume.
- (v) Regulatory: Regulators had to react when things went wrong, such as more gearing. However, experience has shown that it is also possible to lobby for some beneficial changes.

Applying the Lessons in the Future

Here are a few ideas to applying those lessons learned in the near future:

- ALM: Deal with the problems of the past by addressing the returns on the asset side.

- Back to basics: Reduce mortality/morbidity by better underwriting and claims control. Manage expenses.
- Manage new businesses better: This helps shape your long-term exposure to risk, including from negative interest spread. It also helps you decide the difficulty and frequency of future management decisions. You can do this in a few ways - by changing the focus of marketing, new business volumes, product design. I will elaborate further.

(a) Marketing Focus

A question to ask is why do policyholders buy insurance from your company? It could be that you have great sales representatives that are persuasive, tend to be at the right place at the right time, or practise effective targeting. It could be that your customers have a need and they like your reputation and trust you, your adverts caught their eye, or someone recommended you. It could also be that you give great service. Or that you are cheap.

Low premiums and high guarantees are not the only way to sell insurance. It's tough, but a "premium brand" approach with higher premiums will dramatically reduce your exposure to future negative interest spread risk.

(b) New Business Volumes

Higher volumes clearly improve expense efficiency, bringing significant additional profits. New business helps solve the problems of the past – "sell yourself out of trouble". You can dilute the current high guarantees by selling high volumes with low guarantees.

However, "selling yourself out of trouble" is only really possible as long as interest rates are about as low as they can possibly go, the risk profiles of new businesses are safe, the market allows this approach, and the initial capital requirements of new businesses are low.

(c) Product Design

Product design is crucial to managing risk, in particular the level of guarantees. If guarantees cannot be hedged, then avoid them. Also take heed of the number and extent of options available to policyholders. Be aware of the true effect and cost of options. Another point of note is the volatility of these guarantees and options, as interest rate guarantees are typically very volatile.

The following are three illustrations.

(I) The Move to Low-Risk Unit-Linked Products in Australia and the UK

New business sales for savings-type products in Australia are now exclusively investment-linked. The product design has almost entirely removed the negative spread problem from all new business.

The new business sales in the UK are also moving the same way. Over the last three to five years, 80% of all par funds in the UK were closed to new business. Non-par immediate annuities remain important (these can be matched by very long bonds).

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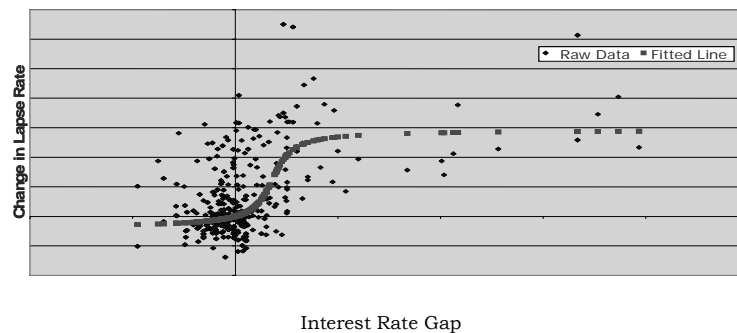
In both cases, companies became impatient with low or volatile profits and stretched capital. Companies had too little control over the risks and their effects. By passing the investment risk to policyholders, companies could concentrate on the "core" business of insurance.

(II) Lapse Risk

Non-par policies are interest-sensitive in both directions. Falling interest rates cut into the interest spread immediately. For instance, a policy priced at 3% when interest rates are 4% becomes very unprofitable if interest rates fall to 1%. Similarly, rising interest rates create high lapse risk. As interest rates rise, companies have to re-price their non-par business in order to reduce premiums. Policyholders will start to notice that their premiums are very high compared with premiums on a new policy. They will inevitably surrender their old policy and buy a new one.

At the same time, asset market values fall, in particularly for bonds which are normally used to cover non-par business. This is a problem when policyholders leave your company. Not only are all previous marketing efforts simply lost, but policyholders also take their cash values at the worst possible moment, crystallising unrealised capital losses. For policyholders who stay with your company, by buying a new policy with lower premiums, they have effectively taken a one-way option – and increased the level of their guarantee. They will also probably need to be offered special terms, hopefully without additional initial commission being payable.

Par Savings Product



(III) Charging for Risk

If something is valuable, charge for it. Policyholders like guarantees and options because they are worth something. Consider two index-linked policies, both with returns linked to a stock market index. Policy A has a guarantee of at least a return of capital at maturity. Policy B has no such guarantee. Policy A clearly has a higher potential cost to the company. But all too often the premium or charges for Policy A are the same as Policy B.

So charge, but also reserve for, the additional premium. Do not simply pay out the extra premium received as profit! Review the potential future cost regularly during the policy's lifetime.

4 Conclusion

The last 10 years in Taiwan have been very different from expected, causing significant problems. At the heart of the problem is the liability strategy. Particular points of focus are marketing, managing new business volumes and, most importantly, product design. Good product design can significantly reduce the liability risk profile. Consider transferring risk by moving to unit-linked products. Be fully risk aware, and why not use the last 10 years as an example. Finally, put a value to any guarantees that you need to give, and monitor them.

References

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- [2] *Taiwan Standard Ordinary Experience Mortality and Lapse Rate Report (200 Observation Year)*, Life Insurance Association of the Republic of China.

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