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Capital and Risk Management of Life Offices

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Introduction

The purpose of this paper is to briefly examine the interaction of capital management and risk management in a direct life insurance company. It will examine how risk drives the need for capital and the various means available to an insurer for meeting these needs.

It will then outline the factors which management should consider in deciding between the various options.

The objective is not to deal with each subject in great depth, this would require a text book rather than a short paper, but rather to form a basis for thought and discussion. The various lists herein may also form a useful aide memoire when considering these topics.

Background

The first question to ask is why insurers need capital. A manufacturing company may need cash on hand but it doesn't need to constantly demonstrate its level of capitalisation (though rating agencies will have some interest).

Fundamentally, insurers need capital to allow them to take on and carry risk. This capital is then absorbed by the business via the following effects:

- Statutory reserve strain on organic growth is the most common and often largest source of capital depletion
- The actual cost of an acquisition and the statutory strain associated with the business acquired are often material in consolidating or dynamic markets
- Losses resulting from insurance or investment risk
- Classical non-insurance specific investments such as IT projects, loss leader products, advertising, etc

Having allowed for all of the capital depletion effects outlined above insurers are then forced to hold additional capital to satisfy various assessments. The key targets that need to be satisfied are:

- Minimum statutory solvency margins as set by the insurance regulator
- Rating agency capital adequacy tests
- Internal management tests based on factors such as the probability of insolvency

It is clear from looking at the above lists that the need for capital is driven by risk. Based on this, capital management cannot be divorced from risk management.

How is capital managed?

So now we know why an insurer needs to manage its capital position, the next question is “How?”.

The primary methods of managing capital adequacy upwards can be roughly separated into those which sell future profits of the company and those which mortgage future profits. Of course some complex solutions, such as preference shares, straddle the border of these two categories but the main divisions are:

<u>Sale</u>	<u>Mortgage</u>
Equity Issue	Subordinated Debt
Retained Earnings	Securitisation
Sale of the Company	Financial Reinsurance
Sale of a Block	
Sale of Margins	
Removal of Risk	

We will now proceed to look at each of these two categories in more detail .

Selling Future Profits

Phrases such as “sale of future profits” tend to evoke strong responses but they should not. The foundation of our economy is based upon individuals being able to buy a share of the future profits of a company via an equity interest. Without using these methods we are stuck with sole proprietor operations or partnerships which are not very effective structures for an insurance company.

This category includes all capital raising methods where the payment for the capital is based in some way on the future performance of the company and is not capped at some pre-determined rate of return. In all of these approaches the party supplying the capital participates to some degree in the results of the insurance company.

Common Equity:

The basis of any non-mutual insurer’s capital must be an equity stake. This capital tends to be the most robust as any repayment is purely at the insurer’s option and there is no contractual commitment to a dividend stream. Rating agencies and regulators alike would prefer the bulk of capital to be equity. The downside to equity is that it is expensive as shareholders expect to be compensated for this long term and comparatively tenuous repayment pattern.

Retained Earnings:

Some people view retained earnings as being almost found money. However, these earnings are owned by shareholders and, if not distributed as dividends, the same return expectations arise as for equity investments. Retained earnings have some advantages in that they do not require an expensive issue process and may therefore be available in comparatively small

amounts. However, the future availability of retained earnings is speculative and tends to be at a minimum just as needs are greatest. Also, start-up operations obviously have a limited source of earnings.

Selling the Company:

This is obviously an extreme action and is generally beyond the scope of this paper. However, this option should always be left on the table for comparison with other methods of capital raising. This is particularly true of small subsidiaries within large groups.

Selling Blocks of Business:

This is often a more palatable option than selling the entire company. Many well established insurance players end up with large blocks of older business which consumes undue amounts of capital and management attention. Often these blocks are associated with legacy IT systems. The sale of such business either to a competitor may be unpalatable for a number of reasons but there are a number of specialists in the field of profitably running-off such closed blocks while leaving control of the customer with the original insurer.

Selling Insurance Margins:

Traditional reinsurance structures which include any form of initial commission can be viewed as purchasing the future margins on the business reinsured in exchange for payment of this commission. These vary from a modest initial commission which just matches the agent commissions to figures in excess of 300% of premium. In many markets such as the US, UK, and Canada, insurers set up quota share new business treaties which effectively sell 80% of the mortality and persistency margins on each policy as it comes onto the insurer's books. In this way, the insurer is able to take on a large amount of business which in effect capitalises itself. Also, it is possible to apply the same approach to a block of inforce business and crystallise the asset tied up as Value of Inforce. The major disadvantage with this approach is that the margins must exist for them to be sold, as opposed to equity which may be raised based on expectations of future operations. Companies which are either at a start-up stage or already heavily reinsured may not be able to realise much capital in this way.

Removing Risk:

This is not truly a method of generating additional capital but rather an approach for reducing capital targets. The majority of capital targets are expressed formulaically and include factors based on sum at risk, volume of reserves, etc. By reinsuring risks the values input into these formulas can be reduced. By itself, this volume of capital raised may be modest but this method can be very effectively combined with the sale of insurance margins.

Reduce Sales Volumes:

Again, this is not truly a capital raising method but is an option that should be considered. As mentioned previously, much of the on-going strain in an insurer is caused by statutory strain on new policies and these same policies also increase the required capital level. Therefore, any analysis of options should include a temporary reduction in sales targets.

All of the above solutions provide a source of long term reliable capital. Once the capital has been received it is permanent. Future dividends are optional and future reinsurance premiums are dependent on having the offsetting inflow of premium.

Mortgaging future profits

Mortgaging future profits includes all structures that have risk and repayment patterns materially identical to debt. The defining feature of most such instruments is that their cost is defined as either a fixed interest rate or a margin over a floating index such as LIBOR or EUIBOR.

This category does not, however, include straight debt issues or loans received as these affect both the asset and liability side of the balance sheet and do not increase capital. For capital to be increased the repayment of the loan must be in some way conditional on the results of the company. The exact conditions required are based on capital measurement which is being considered but statutory and rating agency tests are generally the most relevant.

Subordinated Debt

The issuance of subordinated debt can increase the capital base of the company. The usual restrictions on this effect are that the interests of the bondholders must be heavily subordinated and that there is a minimum tenor. Options in the hands of the bondholder are generally severely limited also. Small amounts of such debt can be placed privately but in most cases the debt is placed in the open market and requires a significant upfront investment and publication of otherwise confidential information. The exception to this rule is intra-group issues which are used extensively by some insurance groups. A material amount of corporate debt has been issued by European insurers in recent years and has generally been well received by the market. In particular there have been some large issues of perpetual debt which helps avoid any potential difficulties caused by the tenor of existing debt falling below the minimum required for it to contribute to available regulatory capital. Both regulators and rating agencies place limits on the percentage of capital that can be made up of subordinated debt.

Financial Reinsurance

Financial Reinsurance is subject to a variety of definitions. The one most appropriate to this analysis is: "Reinsurance which improves the cedant's capital position without any material transfer of insurance risk". These treaties can be structured in a number of ways but have some basic similarities. Capital is supplied to the cedant via either an initial commission which increases assets or a reduction in reserves which reduces liabilities. This initial benefit is then amortised by statutory profits. As a general rule of thumb, the amount of the initial capital generated will be in the range of 40-50% of the present value of the projected future margins which will be used for to amortisation. More stability in the future profits increase this percentage and vice versa. The major difference between this structure and the other debt-like structures is that Financial Reinsurance may be done on cashless basis if the capital is created by removing liabilities. In these cases the fee becomes a flat percentage of the capital released with no floating rate component.

Securitisation

Securitisation is similar in principle to Financial Reinsurance but the capital is supplied by the debt market rather than by a reinsurer. In some cases a reinsurer may also participate to guarantee the emergence of future profits from the block. The number of these transactions which have been completed is very small so it is hard to comment on any general approach. The common thread would appear to be that the size of the transaction must be very large (circa USD 250,000,000 or over) in order to justify the upfront costs of putting such a deal in place. This type of deal should not be mixed up with catastrophe bonds which have become fairly common. Catastrophe bonds do not create capital for the issuer, they only reduce the chance of an extreme loss event. Such events are usually not covered by capital adequacy tests and the cover often involves some basis risk so little or no effect is made on required capital levels.

When considering S&P capital, it should be recognised that the current S&P capital adequacy model gives an insurer credit for up to 50% of the value of inforce business (VIF). VIF is effectively the anticipated future statutory profits on the inforce block, which is exactly what the structures listed above are repaid from. S&P will therefore generally take steps to avoid double counting of this profit stream which may involve reducing VIF or backing out the effect of the debt-like structure.

Another common aspect of these structures is that they do not align the interests of the capital supplier with those of the insurer as strongly as the more equity-like solutions do. The result of this is that, to protect the capital supplier's interests, constraints are often put on the management of the company. These include conditions such as:

- Limitations on dividend payments unless minimum solvency levels are satisfied
- Limitations on additional debt-like financing that can be put in place (e.g. no dilution of the current bondholders' interests)
- Limitations on asset substitutions (e.g. limitations on trading of the insurer's asset portfolio)

Also worth considering is the duration of the capital raised. Other than perpetual subordinated debt, all of the above structures will have a targeted amortisation schedule. This can be a benefit and avoid unnecessary costs if the need for capital is demonstrably short term. Of course, filling a long term hole in the balance sheet with a short term solution can cause a variety of future problems.

Value based analysis of the options

Having identified a number of capital raising options the obvious next questions are "Which method is best?" and "How much capital do I need?".

The easy answer to the first question is that each can be the best in a particular situation. Each method is appropriate to a different insurer at different stage of development and in most cases a mixture of different methods will produce the best results. Consider a few scenarios:

1. **A start up insurer is being formed as a joint venture.** – It is obvious that any start up will need a capital injection from the owners. Debt options may be considered to allow some leverage but these will be supplemental. None of the options based on inforce business are available. A quota share reinsurance structure may be put in place to minimise new business strain and manage the unpredictable nature of future sales volumes.
2. **An established insurer looks to make an acquisition.** – It is likely the purchaser is itself partially supported by retained earnings and can lower its capital ratios somewhat in merging the entities. If more capital is required, raising this in the debt or equity markets may take more time and be more public than desired. At this point the capital raising options linked to the inforce business may be more attractive. These tend to be more flexible, timely, and private as there is only one or two counterparties. Also, both the inforce of the purchaser and the purchased insurer may be considered.

The main issues to consider in selecting the method of capital raising are: “What options are available?” and “How will they affect the economic value of the company”.

The option available can be fairly readily assessed through short conversations with investment bankers, reinsurers, and, if applicable, the parent company. The question of how any particular option will affect the economic value of the company is much more difficult to answer and has been the subject of many specialist papers. The key factors to consider in this analysis are:

- Size of capital need - Some options have such high fixed initial costs that they only make sense for large transactions .
- Desire for privacy - Any market facing option will require large amounts of disclosure in a very public forum.
- Tax effects - As with any financial transaction, a close study of the tax effect of each structure is required.
- Dilution of existing shares – Often the largest barrier to using a straight equity rights issue for raising capital is that such an issue is almost always sold at a discount to the current share price and has a dilution effect on existing shares.
- The capital measure(s) being managed – It is obvious the figure being managed must be considered in the choice of solutions. For example, if the key capital measure being managed is S&P’s capital adequacy ratio then a financial reinsurance treaty will provide little or no value. On the other hand, a financial reinsurance treaty may be a very efficient source of statutory capital.
- Effect on capital needs – Methods which affect both the numerator and denominator of various capital adequacy tests may have multiplicative effects. A quota share reinsurance treaty for example may have as much or more effect of the statutory minimum solvency margin than it does on the amount of available capital.
- Impact on key ratios – Any effect on published figures such as earnings per share, debt leverage ratio, debt service levels, etc must be estimated and their impact considered.
- Management constraints – The opportunity cost of any restrictions on management actions contained within a capital raising contract should be estimated.
- Tenor of the capital required – The capital needs of the insurer and the tenor of the capital supplied should be well matched or the risks of mis-match quantified.
- Flexibility required – Structures which limit the number of counterparties to one or two are generally much more flexible and can be adapted to changing needs and regulation. Structures issued to the open market must have such flexibility built in and all such options carry a heavy cost.
- Cost – Finally, the cost of any option considered needs to be expressed on a consistent basis for comparison.

Based on a combination of quantitative and qualitative analysis of the above factors, the management team of an insurer must make a decision on what exactly its capital needs are and

on the best way to meet them. The first point can be vital as the exact level of capital required for an insurer is not well defined and is worthy of some consideration.

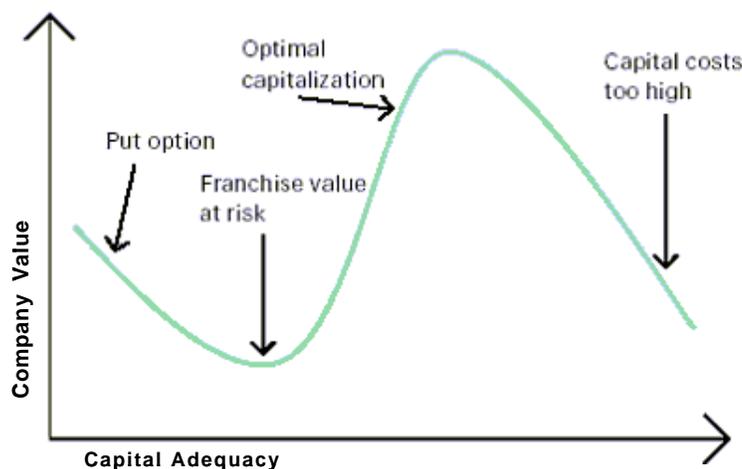
Risk managers and Appointed Actuaries tend to work on probability of ruin and the “you cannot have too much” approach to capital management. This is sensible given their focus on risk and protecting the interests of policyholders and the solvency of the company. CEOs and CFOs have a somewhat more difficult two-sided challenge in that they must optimise the risk:reward trade-offs of different capital levels rather than just minimising risk.

In evaluating the “correct” capital level for an insurer, management must consider the following:

- The cost of paying for excess capital
- The effect of low capital levels on debt costs and insurance sales
- The risk of lowering franchise value due to public financial distress
- The risk of a near total loss of franchise value on insolvency
- The value to shareholders of not needing to pay for losses in excess of current equity

The last of the above points needs some further explanation. When a shareholder invests in a limited liability company their maximum loss is limited to their share in the equity of this company. That means that once an insurer’s capital is so low that it will almost certainly be taken over by the regulators the shareholders’ interests are best served by having as little capital as possible in the company. This is sometimes referred to as the shareholders having the option to “put” the ownership of the company to its debtors at a value of zero. In an insurance environment this factor rarely has any material impact since the minimum regulatory capital is often much higher than the level at which this value becomes material.

The graph below shows how the value of a company can be affected by different levels of capitalisation. Note that the horizontal axis represents varying levels of capital adequacy and not necessarily increasing levels of capital.



Even the source of the capital may affect this trade-off. Cheaper capital sources tend to demand some level of payment, of at least income, during periods of poor experience. In fact, some capital sources may accelerate repayments or increase fees during times of financial impairment.

Setting an insurer's desired level of capital and identifying the most appropriate sources of capital can be a daunting task when considered thoroughly. However, these are also among the most important decisions which the insurer's management will make in managing the economic value of the company.

Indian Considerations

All of the above is fairly generic and could be applied in any market. While the author is certainly not an expert on India a few specific points should be mentioned.

Limitation on foreign share ownership

Access to equity capital for Indian insurers is limited by the current restrictions on foreign ownership which may not exceed 26%. This is not an unusual position for a newly opened market and can be expected to be phased out over time. At the moment it is just a restriction which insurers need to work within.

Start-up companies

The majority of life insurers in India at the moment are joint venture start-up operations. These companies do not have a large inforce book to draw upon and therefore a number of the capital raising options set out above are either unavailable or of limited benefit. However, having a comparatively wealthy parent company may make access to equity injections or intra-group debt more readily available. The capital needs of such companies will be aggravated by the uncertain business volumes and less predictable claims that come with any such operation suggesting that a low surplus or quota share reinsurance treaty may be beneficial. However, see government restrictions below.

Government restrictions on reinsurance structures

It is the author's understanding that the current Indian insurance regulation & practice constrains the use of quota share reinsurance treaties. This dramatically limits the capital management opportunities available to Indian insurers compared to insurers in other markets. It is the norm for high percentage quota share reinsurance to be put in place on term life policies and, in some cases, the mortality element of savings policies such as Universal Life and Variable Universal Life in many Anglo-Saxon markets. As noted above, such a structure may suit the situation of many Indian insurers currently. It is the author's understanding that this regulation is designed to prevent a large scale transfer of insurance assets out of the country and, potentially, into a different currency. There is the possibility that quota share deals may be more acceptable to the Indian regulator if the coverage is strictly limited to the risk element of policies and excludes the savings component. This would allow the Indian insurers access to most of the benefits of such structures without any material transfer of insurance assets. Such a proposal would need to be explored in detail with the Insurance Regulatory and Development Authority before being put in place.

About the Author

David started his reinsurance career with Mercantile & General Reinsurance, Toronto in 1987. Other than brief forays into the world of USGAAP reporting and IT development, the focus of his background has been pricing and product development in regions as diverse as the US, UK, Middle East, and Scandinavia. Immediately before taking his current position as Chief Pricing Actuary for SRL&H in Zurich, David spent two years as the Head of Pricing for SRL&H in the UK and was heavily involved in the recent changes in the UK critical illness market. He has a degree in Mathematics and is a Fellow of the Society of Actuaries in the US.

