

Appendix 8

Risk appetite and capital requirements for life insurers

A report for the policyholder advocate in connection with the reattribution of the CGNU Life and CULAC with-profits funds

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1.00 Introduction

This paper examines with-profits life insurers' capital requirements; their risk appetite; and the role of regulators in imposing capital requirements.

It begins by setting out the uses of capital, that is, to finance adverse outcomes and to enable the business to develop and take risks.

Risk can be categorised based on the classes of risk used by the Financial Services Authority (FSA). Particularly important for with-profits life insurers is market risk: firms have typically held more equities and fewer bonds than a matched position implies, which may be justified by the firm having surplus assets. Mismatching proved to be a problem when interest rates declined in the 1990s and share values fell sharply in 2000-03. For more information see Appendix 9, Investment, Smoothing and Bonus Policy'.

Insurers need to establish their risk appetite. This defines the level and nature of risks that the board consider is acceptable exposure for the insurer, this being an essential part of risk frameworks.

Insurers then assess the extent to which it is appropriate to mitigate risks, for example by changing their investment strategy or by using reinsurance. It is not possible, nor indeed desirable to hedge all risks. Capital is then available as a means of financing risks where there are adverse outcomes.

We expect that firms choose their strategies for risk mitigation and holding capital based on their corporate objectives, which we suppose to be maximising shareholder value. However, in so doing, they will take into account in particular the interests of policyholders, the requirements of regulators and the assessments of rating agencies.

The FSA sets a minimum capital requirement for life insurers. The current solvency regulation regime in the EU uses so-called 'fixed ratios', in which the minimum capital does

not relate closely to the risk the insurer is running. In 2004 the FSA introduced a new requirement for medium-sized and large with-profits life insurers, based on the ‘realistic balance sheet’ (RBS), and using ‘stress tests’, i.e. ensuring that the insurer can withstand adverse changes in conditions (such as a 20% fall in the prices of equities). The FSA also requires all insurers to undertake an ‘Individual Capital Assessment’ (ICA), usually carried out to assess the capital needed to give at least a 99.5% probability of their having sufficient assets to meet the liabilities in one year’s time. This is broadly equivalent to a BBB credit rating. These new tests, however, involve sophisticated actuarial modelling, and there is a variety of ways in which insurers carry out the calculations.

2.00 Uses of Capital

Capital can be regarded as the excess of assets over liabilities, often referred to as the solvency of the insurer. In the case of a with-profits insurer, the excess of assets over liabilities in the long-term insurance business fund, calculated on a ‘realistic’ basis, is known as the inherited estate (see Appendix 7). However this does leave some issues about differences in quality of capital, addressed in section 3.04.

The capital of life insurers can be considered as having two main roles:

1. “risk capital”: to finance adverse outcomes, given the inherent uncertainty regarding the outcomes of the risks that insurers take; and
2. “working capital”: to enable the business to develop (e.g. new systems and distribution channels), thereby enhancing shareholder value and benefiting with-profits policyholders, for example by increasing investment flexibility, spreading costs and facilitating smoothing to even out investment returns over time.

2.01 Risk capital

The future financial position of the insurer is subject to a variety of possible outcomes, e.g. if mortality rates are different from what has been assumed in placing a value on the liabilities.

The life insurer will therefore wish to have capital so that it is capable of fulfilling its obligations in adverse circumstances.

There are a number of risks to which life insurers are exposed which can lead to a need for capital. There are a number of ways of classifying these risks, with the following based on the categories used by the FSA:

Market and interest rate risk

- given the large investments in equities, equity market risk is particularly important, for many insurers the most important;
- with-profits life insurers have significant guaranteed liabilities, and the value of the guarantees is sensitive to interest rate movements;
- they are also exposed to market and investment risks as a specific result of the ‘smoothing’ of payouts that they provide (considered further below)..

Credit risk

- in the case of life insurance, one of the main credit risks is that a reinsurer fails.

Persistency risk

- If policies are discontinued prematurely by the policyholder, then the profits expected over the lifetime of the policy will not be achieved, and expenses incurred at the outset of the policy may not be recovered.

Operational risk

- this refers to the risk of loss resulting from inadequate or failed internal processes, people, and systems, or from external events;
- life insurers have contracts with policyholders that may last 25 years or more, which gives rise to particular risks in ensuring that the policies are administered and operated correctly;

- a major operational risk has been mis-selling. Personal pensions mis-selling 1988-94 cost the UK life industry around £13 billion. There have also been many complaints about mis-selling of mortgage endowments, leading insurers to pay additional claims and establish provisions for such liabilities.

Mortality and morbidity risk

- life insurers make estimates of mortality and/or morbidity when setting premium rates, but these estimates may not materialise in practice;
- mortality rates have been reducing, and the reductions may be greater than previously estimated. In relation to life assurance policies, this will typically have led to an increase in the insurer's surplus, while in relation to annuity policies. it has led to a reduction in surplus;
- morbidity risk relates to policies where claims depend on the policyholder's health; the volume of such business is generally relatively low, so that morbidity risk is typically less important than mortality risk.

Expense risk

- this is the risk that expenses exceed the levels assumed when setting the premium rates.
- maintenance expenses are affected by both general inflation and by the company's own expense efficiency, and over a period of 25 years or more that a policy may last, can turn out to be very significant.
- with-profits life insurers charge expenses to asset shares, and the risks are largely borne by policyholders, whose bonuses may be reduced by higher than expected expenses (although, in some cases, high expenses would lead to guaranteed benefits exceeding asset share).

The risks attaching to the company's pension scheme

- many insurers have a defined benefit scheme for their staff. This exposes them to a number of risks, in particular that the investments of the scheme may perform badly or pensioners live longer than assumed.

Liquidity risk

- liquidity risk is the risk that a firm, though solvent, either does not have sufficient financial resources available to enable it to meet its obligations as they fall due, or can secure them only at excessive cost;
- life insurers usually regard this risk as relatively low, for a number of reasons, e.g. because assets are often realisable without undue difficulty in order to meet claims, and insurers also have ongoing premiums received from existing regular premium policies;
- in some circumstances, however, particularly in untypical market conditions, liquidity can be a problem.

Reinsurance risk

- this is the risk that a reinsurer may be unable or unwilling to pay a claim on a reinsurance contract: it is a form of credit risk for the insurer.

Group risk

- This is the risk of inadequate control or influence from elsewhere in the group. It has been important in a number of cases, for example where the parent company has set inappropriate objectives for its insurance subsidiary or there is contagion related to other companies in the group.

The 'smoothing' that with-profits insurers offer requires capital. If investment conditions deteriorate and asset shares fall, then bonuses should drop in order that insurers do not pay more than asset share. However, if a with-profits policy is to offer a return to policyholders that does not fluctuate with investment conditions in the direct way that a unit-linked policy does, it must have capital available to 'smooth' asset share, i.e. limit the reduction of bonuses

and pay out more than asset share (see Appendix 9). Similarly, in especially favourable investment conditions, the increase in bonus rates may be limited and payouts are less than asset shares.

2.02 Working capital

Capital is required to support the insurer's business strategy.

For example, it may be needed to cover the costs of organic expansion, such as the cost of computer hardware and software, or product development. Or it may be used to acquire other companies or blocks of business. It may be used to develop a new distribution strategy.

2.03 New business strain

Traditionally, the valuation of assets and liabilities has been carried out in accordance with regulations that set an actuarial basis that leads to new business depleting the insurer's solvency ('new business strain'). This has arisen because:

- insurers traditionally incur high expenses at the start of a policy, thereby depleting the assets as recorded; and
- their liabilities have been inflated as a result of regulations requiring them to be calculated prudently.

New business strain could be funded from the insurer's capital.

The way in which new business can have an adverse effect on the insurer's finances has caused concern about how the business is reported. For example, many firms now report (as supplementary information to their accounts) the value of all cash flows resulting from the new business they write, which enables the profitability of new business to be seen more clearly. Furthermore, the realistic balance sheets now used by the major UK with-profits life insurers also involve calculations that take into account future cash flows in a way that means profitable new business does not lead to new business strain.

It is therefore possible to regard the ordinary process of writing new business as involving initial costs that are expected to produce positive cashflows, already largely taken into account, so as to remove new business strain and what was traditionally a need for capital.

The argument that the incremental cost of writing new business does not require capital is consistent with the usual fund approach to with-profits business where, provided there already is some capital (as there ordinarily would be), that can be used to fund the initial cash outflows.

3.00 Risk appetite, risk management and capital

3.01 Risk appetite

The Financial Services Authority (2006) indicates that “Risk appetite defines the level and nature of risks to which the board considers it is acceptable to expose the firm. It therefore defines the boundaries of activity that the board intends for the firm. It is an essential component of risk frameworks.” Risk appetite may be considered in conjunction with the term “risk tolerance”, i.e. what risks is the firm prepared to tolerate?

Two points are especially relevant for with-profits life business. First, the risks are shared between the insurer and its policyholders: therefore, policyholders have a particular interest in what risks the insurer is willing to take. Second, these are long-term contracts, and insurers need to consider past statements about their risk appetite which may commit the insurer for the future (in particular the regulatory requirement to treat customers fairly).

Insurers are expected to consider their risk appetite with reference to the various types of risk to which they are exposed. The risk appetite may vary depending on conditions, e.g. the appetite for risk may be less if the firm’s solvency position has reduced.

However, we would expect a proprietary insurer to set its risk appetite, along with its decisions on other matters, as what it regards as appropriate with reference to its objectives. We would generally suppose that a firm which has objectives around shareholder value will

set its risk appetite accordingly. It would therefore take into account the expected profits from its existing business and the profits expected from new business; but future uncertainties have to be considered. For example, a strategy that has a significant probability of the firm becoming insolvent would ordinarily not be acceptable because of the loss of shareholder value that might result (even if it was not the expected outcome).

This does not, however, imply that stakeholders other than shareholders are irrelevant. For example, policyholders may be reluctant to buy policies from an insurer that has a high risk appetite, meaning that such a risk appetite would reduce the firm's goodwill and may not be in shareholders' interests.

3.02 Risk management

Insurers take a number of steps to manage the risks, consistent with their risk appetite. It is not possible to eliminate the risks and, indeed, such an objective would not be consistent with maximising shareholder value.

A life insurer's investment strategy will involve some risks as a matter of deliberate policy, designed to enhance the insurer's performance. In particular, it has been common for with-profits life insurers to choose to hold fewer bonds than would be needed if they matched their guarantees, enabling them to hold more equities. The intention was for this to lead to higher returns than otherwise for policyholders and shareholders. Such an approach, sometimes referred to as 'mismatching' (see Appendix 10), is like other gearing decisions: in some cases it will pay off, but in others it will not. It can be a rational approach if the risks are understood. When equity markets fell – especially in 2000-03 - the risks were exposed, and the assets fell in value; but the value of liabilities fell by rather less.

The risks that result if assets are not closely matched to liabilities have also been exposed by the fall in interest rates since the early 1990s. A reduction in interest rates means that the value of life insurers' guaranteed liabilities increases (the present value of a future sum increases when discounted at the new lower rate). If life insurers had held enough bonds to

match these liabilities the bonds would have increased in value in a corresponding way. However, as they have fewer bonds than a matched position implies, the increase in the value of their assets can be less than the increase in their liabilities.

Many with-profits life insurers saw their solvency levels reduce after 1999, and have been keen to reduce investment risks. Many have therefore reduced their exposure to equities, and have bought more bonds and/or derivatives, leaving them less exposed in the event of adverse market conditions, with a consequential impact on returns. However, some insurers may feel constrained, as they may have indicated to policyholders that a substantial proportion of the fund will be invested in equities (or equities and property) and this could limit their ability to adopt a matched investment strategy.

Market risk can also be mitigated by reducing the amount of smoothing in payouts. This involves transferring some of the risk to policyholders (this being separate from cutting the actual level of payouts). Many insurers reduced the amount of smoothing they did in 2000-03 (when share values declined). They needed to examine what had been said to policyholders previously to check that such a change was feasible. Nevertheless, it is worth quoting Harley & Davies (2001):

“If faced with insolvency [companies] would have the option of changing the [smoothing] rules and making more abrupt changes; indeed it would be very odd if companies clung to rules that threatened them with imminent ruin.”

Insurers’ risk management includes a variety of actions designed to mitigate risks, The pooling of a large number of risks is an example of this and helps protect the insurer from adverse mortality experience (although pooling does not offer protection against the impact of systemic changes in mortality over time). The way in which policies are underwritten at the outset, so that the risks are assessed and an appropriate premium charged, is a further example.

Another way that insurers manage risk is by buying reinsurance. An insurer can identify circumstances that would lead to its having financial problems, for example if there is a high level of deaths of policyholders that leads to it paying higher claims than expected. The insurer can arrange a contract with a reinsurance company (an insurance company for insurance companies), where the latter takes some of the risks. The reinsurance contract defines the circumstances under which the reinsurer pays claims to the insurer (e.g. if there is a high level of death claims) and also specifies the premiums that the insurer pays to the reinsurer for taking on this risk.

Operational risks are usually addressed by the insurer having adequate operational controls. Operational risk can also covers 'unknown unknowns', with potentially large losses but a small probability of occurrence; such risks are difficult to diversify and hold capital against.

What range of outcomes should insurers plan for? There is no easy answer. However, it is common for people to fail to recognise the full range of possible outcomes when making decisions under uncertainty. We also know that assessing the probability of extremely unlikely events is difficult. Another problem is that people may round down very small probabilities to zero.

Life insurers have only recently taken modern formal risk management on board. This may reflect, in the case of with-profits business:

- many firms had high solvency margins, which were available to cover adverse outcomes without needing extensive risk management processes in place to control risks; and
- the ability to reduce bonuses in the event of adverse outcomes, meaning that risks are largely being met by policyholders rather than shareholders (and policyholders were less likely to understand the deficiencies in risk management).

However, it is also clear that insurers' risk management practices have changed, and there are many instances of very good practice (see Dowd et al, 2008).

An insurer cannot hedge all of its risks, and we would not expect it to do so. However, it will retain capital so that it can withstand some adverse outcomes. We would expect a firm to consider alternative actions regarding, for example increasing the amount of capital it has and taking further risk mitigation actions. These can be tested in terms of their outcome on shareholder value and the value for policyholders.

An insurer cannot, however, have capital that is adequate to meet all possible unexpected outcomes. In principle, if its assets are less than its liabilities, the shareholders can default. This is sometimes known as the 'put option to default'. There are clearly business and regulatory constraints on shareholders acting in this way. Nonetheless, this 'put option to default' has a value to the firm's shareholders. Its value is affected by the amount of capital that a firm has: more capital will reduce the value (as the likelihood of default, and hence not paying some of its liabilities) is low.

3.03 Risk management, stakeholders and capital

A firm's decisions about risk mitigation actions and capital must take account of the interests of stakeholders other than shareholders, even where maximising shareholder value is the firm's objective.

In particular, regulators set rules that require insurers to hold specific amounts of capital: the 'regulatory capital' requirement. This is covered in more detail in section 4.

Rating agencies also review insurers' claims-paying abilities. An insurer will be aware of the goodwill that is part of shareholder value, and that goodwill may be adversely affected if there is a downgrading in its rating, possibly leading to lower amounts of new business. Firms may therefore have in mind a figure for 'rating agency capital', below which they do not wish to fall.

Firms will also be conscious of the needs of their customers and the basis on which policyholders took out their policies.. However, the interests of existing with-profits policyholders may not be identical. For example, for a policyholder whose policy is due to mature next year, then if the fund appears financially adequate now, his or her main interest is likely to be the amount of payout next year; if this can include a return of capital, so much the better. On the other hand, for someone whose policy has many years before maturity, he or she is likely to have a greater interest in the continued financial strength of the fund over a longer period. If this permits greater risks in the investment strategy, and if these are accompanied by higher rewards, then his or her payout will benefit from retention of capital. Note, though, that if large amounts of capital lead to its being used inefficiently, this is also to the detriment of policyholders who share in the profits. If there is excess capital, there is potential for conflict between different groups of policyholders when a distribution of excess capital is discussed.

We expect firms to come to a conclusion on the optimum amount of capital to hold, in conjunction with their strategies and risk mitigation actions. The term ‘economic capital’ may be used to describe the internal calculation of the capital required. The optimum capital then takes into account not only the internal view (ie the economic capital) but also the impact of regulators and rating agencies.

We also observe that managers can be expected to want insurers to hold more rather than less capital. Much of managers’ wealth is human capital linked to their continued employment with the firm, and a higher amount of capital can mean a greater likelihood of continued employment. Indeed, an insolvency of an insurer may mean the manager finds difficulty in finding another suitable job in the industry. An issue for shareholders is to ensure that managers take decisions on capital and risk management that properly reflect shareholders’ rather than managers’ interests.

3.04 Other sources of finance

Capital may be provided into the with-profits fund or alternatively into the shareholders' fund. Another source of finance is traditional reinsurance: for example, an insurer could reinsure term assurances or annuities in order to reduce its exposure to mortality risk and thereby make it feasible for it to hold a lower amount of capital.

Insurers have also developed "alternative sources of finance". Ernst & Young's (2008) survey refers to alternative sources of capital, as used in (with-profits and other) life insurers' traditional (regulatory) statutory solvency valuation, categorising them as:

- subordinated debt (£4.3 bn);
- contingent loans (£1.6 bn);
- financial reinsurance (£0.7 bn); and
- securitisation (£0.2 bn).

In recent years some with-profits insurers have found themselves in difficulty, and the parent company has then injected finance in the form of a subordinated loan (i.e. it cannot be repaid if the interests of policyholders are not met). However the parent will wish to avoid a position where, e.g., £100 is injected, with this immediately being regarded as increasing the surplus by £100, with £90 of this immediately being allocated to policyholders: careful attention to the documentation is needed to avoid this. Indeed, all methods of financing with-profits business have to recognise the issues resulting from the profits being shared with policyholders.

A contingent loan is a loan where repayment depends upon certain events, such as future profits arising or the fund being solvent.

Financial reinsurance is where the main purpose of the reinsurance is to provide finance rather than to transfer risk. It may be used to finance new business, although this is less effective under the realistic reporting arrangements, where financing costs have to be reported among the 'realistic liabilities'.

In a securitisation, an insurer converts expected future cash receipts to a security that can be sold and traded.

It is often the case that insurers making use of alternative capital are those that are relatively weak.

The FSA has amended the format of the returns that insurers prepare for the FSA, so that they now distinguish between forms of capital with different degrees of permanence and security. For example, share capital is counted as “tier one capital” and subordinated debt is “tier two capital”. The rules allow for the lower quality capital (tier two) to be taken into account to a lesser extent than higher quality capital (tier one).

4.00 Regulatory requirements

4.01 Valuation of assets and liabilities

Insurance regulators set minimum capital requirements for insurers. However these need to be understood in the context of how assets and liabilities are valued. The valuation of the assets and liabilities of life insurers is complex, and the International Accounting Standards Board is still working on a standard for insurance contracts (the one it issued in 2004, IFRS4, represents only the work agreed in Phase I of the Board’s project on insurance: Phase II, which addresses the more complex issues, is not yet complete). The Board envisages publishing a final standard in 2011.

Insurance regulators therefore monitor the solvency of insurers by requiring them to value their assets and liabilities on a basis that the regulator sets, with no uniformity internationally. We can refer to this as the statutory solvency valuation.

We briefly review the FSA requirements as they apply to with-profits business.

Firstly we consider the position prior to the introduction of the ‘realistic balance sheet’ (RBS) for medium-sized and large with-profits life insurers at the end of 2004. Assets were at market value, subject to a number of adjustments to bring them to ‘admissible value’, e.g. not giving full value where the insurer had a large proportion of its assets in shares of one firm.

Liabilities were calculated as the present value of the guaranteed benefits under the policy, excluding any future bonuses; minus the present value of future premiums payable – this was not the actual premium but a so-called ‘net premium’, which would be adequate to support the benefits payable on the policy with prudent assumptions and ignoring expenses;

This calculation method has proved increasingly unsatisfactory, for example when mortality assumptions needed to encompass the emergence of AIDS, and when insurers began to place a value on their guaranteed annuity option liabilities.

The FSA’s requirement for the calculation of a realistic balance sheet (RBS) looks at the liability in a manner consistent with how the insurer meets its obligations in practice. At maturity the insurer pays an amount based on smoothed asset share, subject to a minimum guarantee under the policy. It makes sense for the liability of a policy that has yet to reach maturity to be based on the asset share as it has accrued up the valuation date, subject to adding a further amount that represents the value of the guarantee on the policy (which may or may not have a value when the policy reaches maturity), and plus (or minus) a further amount to reflect the cost of smoothing. In practice, there may be some other adjustments, such as additional payments needed to ensure that the obligation to treat customers fairly is met, the costs of past mis-selling that have not yet been put right, etc.

The RBS employs the market value of assets without some of the deductions for inadmissibility in the traditional approach, and also includes as an asset the value of profits expected from non-profit business. However, there is some discretion allowed to insurers in how they calculate their ‘realistic’ value of liabilities. A properly realistic calculation would recognise, for example, that management actions can reduce the likelihood that guarantees will bite (e.g. if the insurer has a policy of switching out of equities into bonds when the

solvency ratio is low). Similarly, firms may reduce the smoothing they do, and let payouts fall further when the stock market declines. However, it is not compulsory for insurers to incorporate management actions: while many do, some do not (or do not fully), which means they are implicitly overstating their liabilities and understating their inherited estate compared to the position if they did incorporate management actions fully.

There have been a number of issues in implementing these realistic valuations. The analysis of change in the inherited estates of several insurers from 2004 to 2005 demonstrated several adjustments, changes in methodology or corrections. For example, AXA Sun Life's inherited estate, which was £1805m at the end of 2004, gained £214m as a result of a change in its model Commercial Union Life Assurance saw its inherited estate, which was £1617m at the end of 2004, reduce by £104m as a result of an "evolving approach to calculation of asset share". A number of adjustments of this nature have been made in subsequent years, although it is to be hoped that, as the valuation systems bed down, the position will be more settled and the results more robust.

4.02 Minimum solvency margins

In 2002 KPMG produced a report for the European Commission on solvency regulation. The paper set out four general approaches to setting the minimum solvency margin (MSM), i.e. the excess of assets over liabilities as determined on the regulatory basis. Briefly summarised these are:

- **Fixed ratios:** applying some fixed factors to numbers such as sums insured and liabilities, broadly meaning that large insurers have to hold larger minimum solvency margins than small insurers, but without proper recognition of some insurers being more exposed to risks than others;
- **Risk-based capital:** where the MSM is compiled from factors reflecting risks, e.g. investment risk is represented by a higher factor applied to an insurer's equities than its government bonds; and higher factors are applied to premiums or liabilities on risky lines of business;

- **Scenario approaches:** where the MSM is that needed to ensure the insurer is still solvent in certain scenarios, e.g. if interest rates and share prices decline ('stress tests'); and
- **Probabilistic modelling:** where the MSM reflects the probability of alternative outcomes, e.g. the MSM is that needed to ensure a specified probability of the insurer having enough assets needed to meet its liabilities over a given period.

The traditional statutory solvency regime in the UK is (largely) a fixed ratios regime, derived from an EU Directive (although it did incorporate a "resilience test", effectively a stress test). The FSA has been keen for the MSM to be more risk-related and to give incentives to effective risk management.

The RBS for the major with-profits life insurers is associated with a number of specified scenarios (stress tests), leading insurers to calculate a 'Risk Capital Margin' (RCM), against which capital needs to be held.

The RCM was calibrated such that the level of capital was sufficient to ensure that an average with-profits company would remain solvent over one year with a probability of 99.5%. The RCM was calibrated to allow for all the risks a company would face, using the simple stresses set out below.

The stress tests require insurers to examine market, credit and insurance risk (O'Brien, 2006). The market risk test involves considering alternative financial scenarios; these alternatives are as required by the FSA (they were set when the new rules were introduced in 2004 but, in principle, can be changed by the FSA):

- The market value of equities rising or falling by 20% (except that a lower figure, but not less than 10%, applies if the FTSE Actuaries All-Share Index is lower than the average index value over the previous 90 calendar days);
- Property values rising or falling by 12.5%; and

- The yield on all fixed-interest securities rising or falling by 17.5% of the yield on long-term UK government securities (e.g., by 1.05 percentage points if the government bonds yield is 6%): similar changes apply to non-UK assets.

The credit risk scenario is such that the spread of yields on bonds and debt, over government bonds, is increased, more so for bonds with low credit ratings. Bonds issued by certain banks, governments, and multinational organizations are exempt from these stress tests. There is a similar change in the value of any reinsurance or analogous non-reinsurance financing agreements.

One aspect of insurance risk is included in the stress tests, namely persistency risk. The scenario tested is that there is a change of 32.5% in the rates at which policies terminate. For example, if the standard assumption in the RBS was that policyholders surrender at the rate of 4% per annum, this would change to 2.7% or 5.3%.

In making the calculations, insurers have discretion about the extent to which they incorporate management actions.

The stress tests were selected so as to be consistent with there being a 99.5% probability that the firm is able to meet its realistic liabilities in a year's time. The calibration of the tests was for a typical fund that is well-diversified, with assets matching its liabilities and good controls.

Insurers also have to undertake regular assessments of the amount and quality of capital which in their view is adequate for the size and nature of their business: their Individual Capital Assessment (ICA) (FSA, 2005). This is based on their own circumstances and business plans. Most life insurers do this using a test that there should be at least a 99.5% probability of their having sufficient assets to meet the liabilities in one year's time. This is broadly equivalent to a BBB credit rating.

The ICA typically uses probabilistic modelling. This raises several issues, given the complex nature of a life insurer's business. The amount of capital needed is sensitive to the insurer's asset-liability management: a firm that hedges relatively less would need more capital.

However, a firm can change its practice over time. Some of the difficult questions to answer are: what are the correlations between the various risks? how do these correlations differ in extreme situations? how is operational risk dealt with? Many insurers are planning to increase the sophistication of their calculations once updated systems and more powerful computers are available (FSA, 2006). This all implies that two insurers with identical portfolios may come to different answers about the capital they need: this highlights the need to have appropriate systems to calculate what the required capital is.

In theory, we would expect the capital requirements for the ICA and RCM to be roughly equal on average. In practice, companies find the ICA to be either higher or lower and the relationship can change over time. In particular the RCM stresses have remained fixed and have not moved with the market, unlike the ICA.

If the FSA regards the firm's ICA as inadequate, it can issue Individual Capital Guidance (ICG), requiring the insurer to hold this higher amount of capital. FSA (2007) reported that, for life insurers, the average ICG (weighted by size of firm) was 114% of a firm's ICA.

4.03 Changes in regulation

The European Commission is planning a new solvency regime ('Solvency II'), expected to be introduced in 2012. In May 2009 the European Union's Financial Affairs Council approved the Solvency II Framework Directive, a draft of which had been circulated during 2007. In particular, it is intended that there will be two levels of capital requirement: a 'solvency capital requirement' and 'minimum capital requirement'. These (or at least the former) will be more sensitive to the risks being run by the insurer, than has been the case in the past. Insurers will be allowed to use their internal models to determine the capital requirements. They will also be required to carry out an 'Own Risk and Solvency Assessment', similar to the ICA reports that UK insurers have been preparing.

5.00 Interests of the parties

It is useful to consider the interests of various parties as regards the capital they would like with-profits life insurers to hold.

It might seem that shareholders would have an interest in holding as little capital as possible; the sooner it can be distributed to them, the better. However, there are some contrary points: for example, if there is a large amount of capital, this may lead to an increase in consumer demand, with policyholders possibly paying more to be part of a strong company. Further, a large amount of capital reduces the chance of financial distress, which can mean high costs.

We may suppose that regulators have an interest in insurers holding more, rather than less, capital. This reduces the possibility of insolvency. However, “too high” capital requirements may lead to less competition and high insurance prices for consumers.

The FSA has been keen to stress that the UK regulatory regime is deliberately not intended to be zero-failure (FSA, 2003). For example, its new rules announced in 2006 to reduce capital requirements for life insurers were framed with a view to eliminating unnecessary margins that could inhibit competition.

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