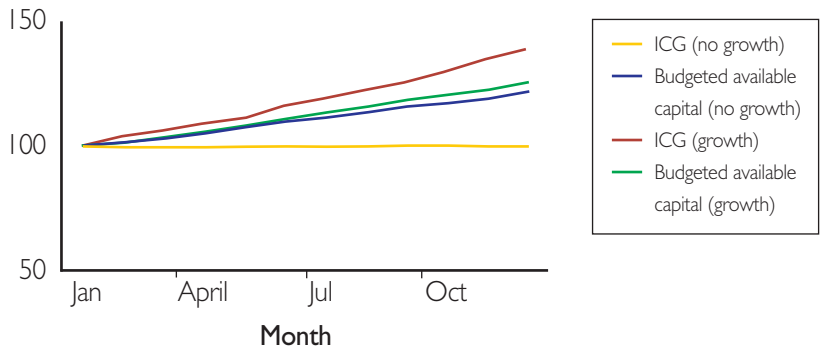
Implementing ICAS

Hans Waszink explains why insurance companies shouldn't hold too much capital.

The ICAS regime for insurance companies in the UK has generated a wealth of expertise around the assessment of financial risks and minimum capital requirements. In this article, we will take the minimum capital requirement as a starting point and consider the following strategic question:

Given the minimum capital requirement for an individual firm, what is the optimal level of capital for the firm to hold?

Figure 1 ICG and available capital for a firm with and without growth; ICG = available capital at the start of the year



In order to answer this question, we will analyse the interests and behaviours of policyholders, shareholders, debtholders, and the management of the firm, using aspects of corporate finance theory.

Definition of the problem

In order to determine the optimal level of capital, we consider the following two questions.

1 What are the consequences of breaching the minimum regulatory capital requirement for policyholders, shareholders, debtholders, and management?

We separately consider implications for each.

Breaching the minimum capital requirement has no direct implications for policyholders, as long as the firm has enough funds to settle all outstanding obligations. Nevertheless, negative publicity may lead to *en masse* cancellations, in particular for reinsurance companies. If there are insufficient funds to settle all outstanding liabilities, policyholders may lose out.

Shareholders may choose to replenish capital but have no obligation to do so.

Debtholders will lose out either if the firm defaults on its debt, or if the credit quality of the debt deteriorates, which will lower the market value of the outstanding debt.

Investors, policyholders, and regulators alike may question management's competence. However, in the case where a one-off event causes massive losses across the market, reputational damage is likely to be limited. Management will have to take measures to bring solvency back to the required level, or otherwise let the firm go into run-off.

2 Are there benefits for the firm's shareholders and management – the decision-makers of the firm – in holding capital above the legal minimum requirement?

Suppose a firm holds capital exactly equal to its ICG at a given balance sheet date. Assuming that the firm generates profits on a continuous basis, and its volume of business does not change, available capital will grow above the ICG until the next dividend payment date. On the other hand, a firm with a growing book may find that its ICG grows more than its available capital (see figure 1).

Any firm may experience a decline of its available capital due to unexpected losses. Hence, if a firm holds the exact minimum required capital at the beginning of the year, it is not unlikely that it will breach the minimum requirement later on. Holding more than the minimum required capital therefore seems recommendable. The question is, of course, how much more?

Quantification

Consider a sample firm writing various lines of General Insurance business with the following headline figures:

- £1bn gross premium annually in real terms for the next 20 years.
- Expected profit £100m per year before tax, or 10% of premium.
- The ICG equals £300m or 30% of premium.
- Shareholders require a rate of return of 10% in real terms on their investment net of tax.
- The effective tax rate equals 35%.

The value of the firm to shareholders equals the present value of future cashflows from the firm:

Projected cashflows (in real terms) and present value (£m)

Time	0	1–19	20
Cashflow	-300	65	365
Discount rate	10%		
Present value	**298**		

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The value of the firm to shareholders under these assumptions equals £298m.

With the value of the firm being almost £300m, it would be irrational for shareholders not to replenish a capital deficit of £100m or £200m in order to save the company and its expected profit streams. As a result, funds available to policyholders in the event of a severe claims accumulation will be far in excess of the capital held by the company on its balance sheet.

The firm would be unable to attract additional capital only if there is no expectation of future profits emanating from the firm after a severe loss, or if investors were unable to raise additional funds. These conditions, however, require that either the business is fundamentally unsound and unable to operate profitably in the future, or that global capital markets become completely exhausted. The latter scenario is extreme, given the current level of capital available worldwide for risk-bearing investments.

Such a scenario is arguably far more severe than what should concern a rational shareholder or policyholder, and also far beyond the worst-case scenarios used by the FSA to assess capital requirements. Following hurricane Katrina, for example, almost all severely affected reinsurance companies managed to attract additional capital to continue operations, with investors pouring in billions of dollars.

If a firm's operations are fundamentally unsound, holding excess capital is far from optimal for the shareholder. Shareholders of such a firm may well benefit from the firm running out of capital, as this may bring about a fundamental review of the business and the position of the incumbent management.

Policyholders of a firm with no intrinsic value to shareholders are thus much more at risk than those of a healthy company. The interests of management, policyholders, and shareholders in such a firm are not aligned. Management can benefit from having excess capital at its disposal to keep an unsound operation in existence. In the short term, the availability of excess capital also benefits existing policyholders.

For shareholders, however, holding excess capital brings down the return on invested capital, and may obscure a weak risk-control environment within the firm. Moreover, holding excess capital may have a negative impact on the company's debt rating, as it reduces the firm's return on assets in the long term. It is therefore important for shareholders to impose discipline on the firm's management to prevent undue exposure to risk and inefficient use of capital.

Table 1 Stochastic internal model results

Breach level	Loss amount	Probability of occurring *Available capital at inception* ICG	ICG+50	ICG+100	Expected loss ICG	Expected loss ICG+ 50	Expected loss ICG+100
1	2	38.0%	17%	10.2%	0.76	0.34	0.20
2	90	11.5%	2.6%	1.50%	10.34	2.35	1.36
3	180	0.50%	0.4%	0.30%	0.90	0.61	0.54
Total		50%	20%	12%	**12.0**	**3.3**	**2.1**

Finding the right balance

Suppose the available capital of a firm drops to two-thirds of its ICG. This may lead to negative publicity and *en masse* cancellations by policyholders. As a result, the value of the firm to its shareholders will decline. The situation could have been prevented by holding additional capital, which also comes at a cost. So what is the optimal trade-off between the cost of capital and the cost of financial distress?

We consider three distinct cases of ICG breaches:

1. The minimum capital requirement ICG is breached but only marginally. There is no negative publicity, but there are one-off costs such as management expenses and temporary reduction of risk exposures, amounting to £2m.
2. The ICG is breached by £100m but remains positive. As a result, future business volumes are reduced by 25%, and future profits by 30%. The value of the firm is thus reduced by 30% or £90m.
3. The firm has negative equity at some point. It will eventually attract additional capital, but business volumes fall by 50%, and all future profits by 60%. Thus the value of the firm is reduced by 60% or £180m.

We now investigate the expected cost of each type of breach at three different levels of available capital:

1. exactly the ICG
2. ICG + £50m
3. ICG + £100m

We obtain the following results from the firm's stochastic capital model (table 1):

Using a cost of capital of 13% , the reduction in expected loss can be compared against the increase in cost of capital relative to the base level of the ICG as shown in table 2.

Increasing available capital from ICG to ICG+£50m creates a net expected gain of £2.2m (8.7–6.5), while increasing it further from ICG+£50m to ICG + £100m creates an expected loss of £5.3m ((13–6.5)–(9.9–8.7)). Hence, the optimal level of available capital is somewhere between the ICG and the ICG+£50m.

The analysis can be refined further on the basis of the firm's full internal model output.

A good risk-control framework

Although insurance companies should be adequately capitalised to withstand severe losses, neither shareholders nor in most cases policyholders benefit from companies holding excessive amounts of capital. In other than extreme market circumstances, companies with sound business fundamentals will be able to raise additional funds from investors following large unexpected losses.

The presence of excess capital within a company dilutes shareholder returns, may have a negative impact on a company's debt rating, and helps to obscure weaknesses in the firm's risk controls.

The ideal level of capital for a firm to hold given the regulatory minimum is a function of its probability of impairment at different levels of available capital, and its cost of capital. However, for the continued protection of policyholders, ensuring the strength of a firm's systems and controls is at least as important as having adequate capital resources. Shareholders and policyholders will benefit far more from a good risk-control framework than from the availability of excessive amounts of capital. □

Table 2 Incremental expected loss and incremental cost of capital relative to ICG (£m)

Incremental expected loss total ICG	Incremental expected loss total ICG+50	Incremental expected loss total ICG+100	Incremental cost of capital ICG	Incremental cost of capital ICG+50	Incremental cost of capital ICG+100
0	-8.7	-9.9	0	6.5	13.0