

The Interaction of Investment and Capital Management for Insurers



Executive Summary

- Insurance companies have long balanced economic, regulatory and accounting considerations in managing their businesses. Conflicting measures can lead to suboptimal economic decisions.
- Ongoing regulatory and accounting reforms will result in greater consistency with accepted economic principles and measures.
- Investment strategy plays a key role in the management of a company's economic and regulatory capital position, risk profile and value creation for shareholders.

Introduction

Insurance industry regulation and financial reporting are undergoing significant reform. For example, the upcoming European Solvency II regulatory regime embraces a market-consistent approach to the valuation of an insurance company's balance sheet and capital position. Capital requirements are calibrated based on economic risk; this brings transparency to the market-consistent value¹ of insurance companies' capital positions and risk exposures. Other jurisdictions, including the US, are carefully reviewing their approaches to insurance regulation and are moving in a similar direction. In addition, financial reporting standard-setters are evolving to embrace more economic balance sheet and income measures. These changes will increase the consistency of economic, regulatory and accounting measures. Closer alignment among these frameworks can only be beneficial to insurers, policyholders and shareholders.

This paper focuses on the role of investment strategy in the management of an insurance company's economic capital position and the creation of value for shareholders.

Background

A primary objective of insurance company management is to maximise value for the firm's owners. However, traditional cost-based accounting measures and simplistic regulatory capital requirements are often inconsistent with this objective. Management incentives are typically based on these measures, complicating management decisions.

Insurance industry investment professionals are familiar with balancing economic, accounting and regulatory frameworks in the management of a company's portfolio. In some cases, conflicting measures act as binding constraints that result in suboptimal economic investment decisions. A change to more economic-based regulatory and accounting measures should help management focus on the true economics of their business and avoid distortions created by cost-based accounting and capital requirements that are not adequately risk-sensitive.

Economic Capital Requirements

A company's "economic net worth" is the market value of assets minus the market-consistent value of liabilities. Economic capital can be viewed as the amount of economic net worth required to ensure the continuation of an insurance company's operations. It is capital an insurance company must hold to maintain the confidence of its investors, policyholders and regulators. For example, in Solvency II's fifth Quantitative Impact Study (QIS 5), capital requirements are based on a Value at Risk (VaR) measure that calculates the capital required to ensure that a company can support its risk exposures over a one-year period with a 99.5% confidence level.

Investment strategies have an important impact on both required economic capital and the volatility of available capital. In an economic framework, changes in balance sheet risk exposures immediately result in changes to required capital. Investment strategies must be carefully customised in the context of the entire balance sheet, with explicit consideration of the marginal impact on a company's required capital and cost of capital.

Insurance Company Cost of Capital

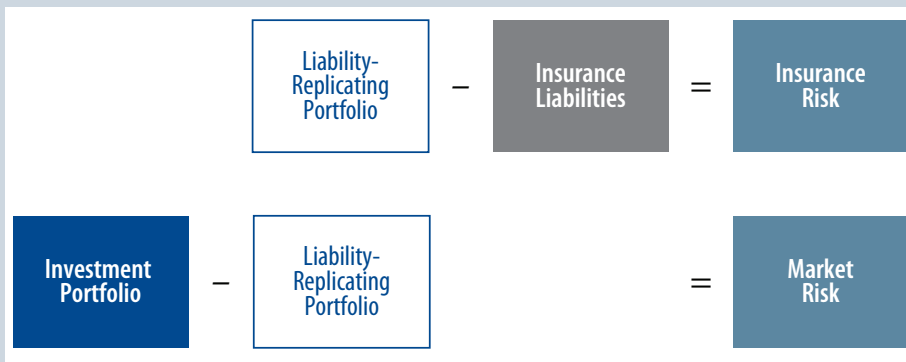
A company's cost of capital is the return demanded by investors. It is directly related to the size and types of risk a company takes. An insurance company's two largest risk exposures are market risk and insurance underwriting risk. Market, or systematic, risk is associated with aggregate financial market returns and is not diversifiable. Pure insurance risk (e.g. accident, fire, longevity, etc.) is non-systematic and, theoretically, can be diversified away by shareholders, resulting in no economic cost. In practice, the uncertainty of insurance cash flows gives rise to frictional capital costs. We will focus exclusively on an insurer's market-related cost of capital and its relationship to investment strategy.

The investment side of an insurer's balance sheet is exposed to market risks. Liability exposures include both market and insurance risks. Liability market risks include interest rate, option (e.g. minimum return guarantees) and inflation risks. To quantify a company's market-related cost of capital, it is helpful to separate the market and insurance risks of the liabilities. This can be done by creating a replicating portfolio of traded market instruments that mirrors the best-estimate liability cash flows for a complete set of arbitrage-free market scenarios. If properly constructed, the replicating portfolio hedges all market risk embedded in the liabilities, isolating insurance risk. The value of the replicating portfolio is the market-consistent value of the liabilities. The investment portfolio, funded by the replicating portfolio, isolates the company's market risk exposures (Exhibit 1).

One viable option for a market-consistent valuation of liability cash flows uses swap-market instruments to construct the replicating portfolio to hedge liability market risk. In QIS 5, adjustments are made to the swap curve. Liability cash flows are discounted using swaps minus 10 basis points (bps), plus a liquidity premium that is based on a portion of the credit spread in the investment-grade corporate bond index of the relevant currency. A QIS 5-replicating portfolio would include some exposure to corporate bonds to hedge the liquidity premium risk in the liability discount rate.

A company's market-related cost of capital can be estimated from the market's expected returns for the investment portfolio and the liability-replicating portfolio. The replicating portfolio can be viewed as debt provided by policyholders to leverage shareholder equity. If the asset/equity ratio is 5-to-1, the expected return on equity would equal: (return on assets x 5) – (return on replicating portfolio x 4) (Exhibit 2). Cost of capital is the measure for assessing a company's economic value creation.

Exhibit 1
Separating Balance Sheet Market Risk from Pure Insurance Risk



Source: Western Asset

Exhibit 2
Insurance Company Balance Sheet, Expected Returns and Cost of Capital

	Assets	Market Expected Return		Liabilities	Market Expected Return
Investments	100	4.5%	Policy-Replicating Swap Portfolio	80	3.5%
			Equity	20	8.5%*
Assets	100	4.5%	Liabilities and Equity	100	4.5%

*Equity Cost of Capital = 8.5% = [(100 x 4.5%) - (80 x 3.5%)] / 20

Source: Western Asset

Economic Value Creation

Insurers create value primarily by underwriting and pooling insurance risk, and managing investment portfolios leveraged with policyholder funds. Premiums collected for insurance risk often provide investable funds at a cheaper cost than other market alternatives. Active investment strategies try to earn above-market risk-adjusted returns. Value creation through investment management is the focus of this discussion.

Corporate finance theory says that a company creates incremental value for shareholders only to the extent that returns are greater than the cost of capital. In a perfectly efficient market, incremental value creation would not be possible. Investments would always be priced to deliver their required return based on an accurate assessment of underlying risks. Riskier investment strategies would earn higher returns (or, in the context of a regulated insurer, require more capital/less leverage) to compensate for higher risk, but the riskier investment strategies would not increase shareholder value. The conclusion is that investment strategy does not matter in an efficient market.

The underlying premise of active management is that market inefficiencies allow skilled investors to identify mispriced securities and earn returns greater than the cost of capital when prices return to equilibrium. Value investors use fundamental analysis to identify securities that offer returns above the market's requirement for similar risks. Other active strategies include varying a portfolio's systematic risk exposures (e.g. sector over/underweights, term structure positioning) in response to developments in the economic cycle.

Implications for Investment Strategy

A logical starting point for constructing investment strategy is a replicating portfolio that hedges liability market risk. This is the minimum risk portfolio that, conceptually, leaves no market risk on the balance sheet and leaves shareholders with a risk-free market return, plus the return generated from underwriting pure insurance risk.

In most companies, management will have some degree of market risk tolerance. A strategic asset allocation to risky assets can increase market risk and returns to match management's preferences. This exercise is dependent on existing capital levels and the company's targeted solvency ratio (capital/required capital). Capital-constrained companies will opt for lower risk allocations. A strategic allocation to multiple asset classes gives active investment managers more opportunities to identify and add value. The strategic allocation also serves as the portfolio benchmark for market risk. Active-portfolio risk exposures will be sized and evaluated relative to this allocation.

Risk budgets define management-approved deviations from benchmarks in either spread or rate exposures; these are created within the context of a company's capital position. Risk budgets are used by active managers in an effort to add returns in excess of the marginal cost of capital to create incremental value for shareholders.

In an economic capital framework, duration and key-rate duration asset-liability mismatches increase required capital. Consequently, many companies will choose to match their benchmark duration to liabilities and assign any tolerance for mismatches to the active risk budget. Asset benchmarks must be highly customised and revised frequently to match liability changes.

Investment Performance Measurement

Since capital requirements are commensurate with an investment strategy's risk, active investment strategies will be judged by their risk-adjusted performance. Consider a strategy benchmarked to the Barclays Capital Corporate Bond Index. Assume an investment manager builds a portfolio with a 150 bps option-adjusted spread (OAS) and six-year duration, and that at the time that the portfolio is constructed it has an OAS and duration identical to that of the Index. Since the portfolio and Index have the same value produced by multiplying the OAS by duration, it is reasonable to conclude that the market is assigning approximately the same amount of risk to both.² An economic capital model using this measure of risk would assign the same required capital to both.

At the end of the performance measurement period, the Index and portfolio still have the same duration, but the portfolio spread has tightened by 10 bps versus the Index. The portfolio's performance beat the market's required return (as measured by the Index), adding incremental shareholder value. In addition, the portfolio's tighter spread will reduce the required capital amount relative to the Index, assuming economic risk is measured by spread and duration.

Now consider a situation in which the investment manager builds a portfolio with a spread of 200 bps—50 bps wider than that of the Index. The portfolio will have a capital requirement approximately one-third higher than the Index, based on the incremental spread versus the Index. The higher spread compensates for this extra capital usage.

At the end of the period, the spread on both portfolios has tightened by 10 bps. The price appreciation is the same for the Index and the portfolio. However, the portfolio's price return underperformed the Index on a risk-adjusted basis, since it did not outperform the lower-risk Index. The portfolio strategy had a higher total return than the Index due to its higher spread, but it was an incremental value detractor because the strategy's extra return did not compensate for the extra risk.

It should be noted that capital-constrained companies can still extract value from higher-risk assets. If a higher-risk asset is cheap, risk can be reduced by hedging with fairly priced instruments. The capital requirement is reduced by the hedge, and the value of the higher-risk security will be captured assuming spreads move to equilibrium.

Economic Capital Models: Principles versus Implementation

Principles underlying an economic capital framework include:

- Market-consistent valuation of assets and liabilities
- Risk-based capital requirements
- Identification and quantification of all risks and interdependencies

While the principles are well accepted, the interpretation and quantification of key economic variables can differ significantly. Accounting, regulatory and rating agency frameworks are converging by incorporating economic principles. However, differences will remain and companies will still need to optimise strategies to meet multiple targets. This should be considerably easier than it would be using traditional frameworks that are not market-consistent. Two examples of implementation differences of an economic framework are described below.

Implementation considerations include tradeoffs between complexity and simplicity. Although Solvency II is guided by a risk-based, market-consistent framework, it includes simplifications and differences from more sophisticated economic risk management approaches. For example, the standard formula in Solvency II QIS 5 applies the same risk factor to all securities rated BBB. As of year-end 2010, credit spreads for BBB rated securities in the Barclays U.S. Corporate Index ranged from 52 bps to more than 500 bps. Clearly, corporate spread risk is more nuanced than a handful of risk factors based on credit ratings. Nevertheless, a portfolio built using a more sophisticated, spread-based risk model can be maneuvered to meet standard formula constraints relatively easily. In addition, internal models give companies an opportunity to refine standard formula measures if they have adequate data support and are approved by regulators.

Solvency II and the Swiss Solvency Test provide another example of differences in economic model implementation. As described earlier, Solvency II uses a VaR capital requirement calculation at a 99.5% confidence level. The Swiss Solvency Test uses Tail VaR, which adds to VaR the expected loss in excess of a company's economic capital. Tail VaR is more stringent than VaR when calculated at the same confidence level. Consequently, the Swiss capital requirement is calculated at a 99% confidence level.

Investments and Insurance Product Development and Pricing

Close coordination among an insurer's investment management, product development and pricing functions is essential for optimising management of a company's economic capital position. For example, the design of new insurance products should consider the availability of liquid hedges for product features that expose the company to systematic risk.

Consider an insurance product that earns returns tied to an investment portfolio and includes a minimum return guarantee. A policyholder is effectively purchasing the underlying portfolio and a put option struck at the guaranteed return level. If the guarantee can be hedged completely in liquid capital markets, the market-consistent price of the guarantee is clear. The insurance company then has the ability to hedge the guarantee, or bear the market risk and its associated capital requirement. This decision would be based on an assessment of value in the current market. Companies will be motivated to include the cost of hedging guarantees directly in products. Failure to do so will lead to inadequate pricing that is costly to shareholders. Historically, actuarial approaches have not valued product guarantees and options in a market-consistent way, often leading to inadequate pricing.

Summary

Insurance industry regulatory and accounting reforms are gradually becoming more consistent with well-established economic principles. Market-consistent balance sheet measurement and risk-based capital requirements will make insurers' economic capital positions and risk exposures transparent.

Closer alignment of regulatory, accounting and economic measures will be conducive to management decisions that enhance shareholder value. Investment strategy and implementation will play a key role in the management of a company's capital position and the generation of returns that exceed a company's cost of capital.

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Footnotes

¹ The market-consistent value of an asset or liability is the market value of a set of traded instruments with expected cash flows identical to the asset or liability.

² For this example, we assume that duration = spread duration.

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