

The R factor

Risk cannot be eliminated, only transformed

BY JAMES I. HYMAS

One of the great lessons of the current credit crisis is that risk is indestructible.

When capital is invested in a long-term asset, risk exists, since the asset will provide value to its owner over a long period, while involving non-trivial acquisition costs. Investment in long-term assets necessarily involves forecasting, and the vagaries of forecasting are notorious.

Risk cannot be eliminated. It may only be transformed.

The most dramatic illustration of this has occurred in the banking sector. Regulators have been astonished to learn sometimes forecasts from Credit Rating Agencies—even those whose infallibility has been celebrated in law—sometimes don't work out as expected. Sometimes the inherent contradiction between investors seeking short-term assets and borrowers seeking secure long-term funding overwhelms banks whose business purpose is to arbitrage the differing supply and demand.

Lately, however, a new contradiction has become important: Investors seeking returns projected for long-term, stock-market investments, while retaining the safety of short-term assets, have invested heavily in segregated funds. The insurers who have profited by bridging that contradiction have had their capital eroded and, in some cases, overwhelmed.

Segregated funds come with a bewildering array of options and features, but all have the same general objective: Guarantee by the insurance company of a minimum rate of return on investment, in exchange for a fee.

These funds have increased dramatically in size over the past 15 years, (see "Manulife Financial Corporation (MFC): Segregated Funds," this page). In addition to

their gross value, the term of the obligations has increased.

According to the Office of the Superintendent of Financial Institutions' (OSFI) letter announcing the decision to relax the capital requirements for segregated fund guarantees: *These [pre-announcement] rules may not sufficiently distinguish between the lower capital required to support distant payment obligations and the higher capital required to support near-term payment obligations. This is due in large part to the evolution of the segregated fund guarantee products (i.e. SFG contracts generally had a term of 10 years or less when the current minimum continuing capital and surplus requirements (MCCSR) were developed; they now have much longer terms, such as 30 years, or indefinite terms based on an annuitant's life).*

As with any other business engaged in the transformation of risks, insurers offering segregated funds must contend with varying market conditions and account for the possibility that their assumption of risk may eventually cost them more than their earnings from the fees charged by these funds.

Should an insurance company seek to hedge its exposure, there are various manners in which this may be accomplished. The methodologies may be divided roughly into static and dynamic: A static hedge is epitomized by a long-dated put option, while dynamic hedging involves frequent trading of derivative instruments. Dynamic hedging is prevalent in the United States, where the amount of guaranteed assets is increasing rapidly, while static hedging is the norm in the United Kingdom, which has a more stable asset base.

Prior to this year's turmoil, MFC had declared it would be comfortable with a 10% to 15% drop in markets, considered to be an acceptable cost of doing business.

Hedging of any kind is expensive. In fact, the former CEO of Manulife Financial Corp., Dominic D'Alessandro, emphasized in an October 14th, 2008 conference call that "the volatility and cost of hedging is very, very high," but that "we're looking at the use of reinsurance for purposes of providing us additional capital relief should that become necessary." Nearly two-thirds of MFC's MCCSR is comprised of asset default and market risk.

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There is, in fact, a manner in which small investors could be incorporated into a general framework of risk-control, but first we'll have a look at the way in which risk is measured.

Insurers in Canada are regulated by OSFI, which is an office of the Government of Canada reporting to the minister of finance. The Act of Parliament establishing the office states: *In pursuing its objects, the Office shall strive . . . to protect the rights and interests of depositors, policyholders and creditors of financial institutions, having due regard for the need to allow financial institutions to compete effectively and take reasonable risks.*

To meet this mandate, OSFI has developed MCCSR: The amount of capital required to support the risks undertaken by the insurer is calculated and compared with the amount of capital invested.

The minimum capital ratio allowable is 120% (more than 100% due to risks not addressed in the actuarial calculation, such as fraud). Should a company fall below this minimum without the ability for immediate rectification,

OSFI may seize control of the assets and apply for a winding-up order. Nobody wants this to happen, so companies are required to set a target range for the ratio, and this target must be above the OSFI expectation of 150%. Most companies set a target range of 180% to 200%.

The component of MCCSR derived from segregated fund guarantees is determined by conditional tail expectation (CTE) at a given confidence level. For example, CTE(95) for a single segregated fund account is calculated by:

- using a financial model to determine the probability distribution of the value of the account's assets at the time the guarantee is applicable (this may be thought of as the expiration date of the account holder's put option);
- isolating the 5% of all cases that have worst result for insurer; and
- the weighted average of these outcomes is the CTE(95) of the account.

When the account holder has reset rights, the calculation can become path-dependent; an overall gain in the account value may still have a presumed cost to the insurer if the account holder resets the guarantee to a higher intermediate value.

As discussed in the December 2008 edition of *Advisor's Edge Report*, the MCCSR calculation with respect to segregated fund guarantees was recently revised by OSFI so that, for instance, the MCCSR for potential cash flows more than five years hence is calculated at CTE(90)—by definition less than CTE(95) since the additional scenarios averaged in the course of the calculation are less unfavourable to the insurer than those included in CTE(95) alone.

Despite path-dependency, it's clear the most important factor determining the MCCSR of, say, a diversified equity portfolio with a 10-year guarantee will be the level of the appropriate stock market index on that date.

The final market characteristic of interest is the practice of insurer buy-backs of their common stock. In the years 2005-07, inclusive, MFC spent more than \$5 billion buying back common stock. SLF spent more than \$400 million. GWO spent more than \$100 million. It's noteworthy, though not necessarily related, the unhedged insurer spent the most on common stock buy-backs; the hedging costs of the other two insurers is not disclosed.

We may now consider four salient points:

- segregated fund assets are growing rapidly, increasing

- insurers' market risk;
- exposure to market risk cannot be eliminated, only transformed;
- hedging this risk is expensive; and
- in good times, companies will return excess capital to shareholders via buy-backs.

A better solution is to allow shareholders to determine, at least partially, the degree of risk they wish to assume with respect to segregated funds. I propose, as market and corporate conditions permit, the insurers:

- create a wholly owned subsidiary, capitalized at, say, \$200 million;
- parent purchases a long-dated put from the subsidiary at market rates.
- the subsidiary should provide 100% collateral on the exercise value to the parent in the form of government securities;
- parent distributes full ownership of the subsidiary to its shareholders in a spin-off transaction;
- parent may then utilize the purchased put option as a hedge against its exposures;
- shareholders may retain or sell their shares in the subsidiary as they see fit;
- after expiration of the put, the subsidiary may be wound up and cash distributed to shareholders.

OSFI's approval would be required prior to implementation of this plan, but it's difficult to imagine any objections. The parent and subsidiary would no longer be related companies following the spin-off and the full exercise value of the option would be collateralized.

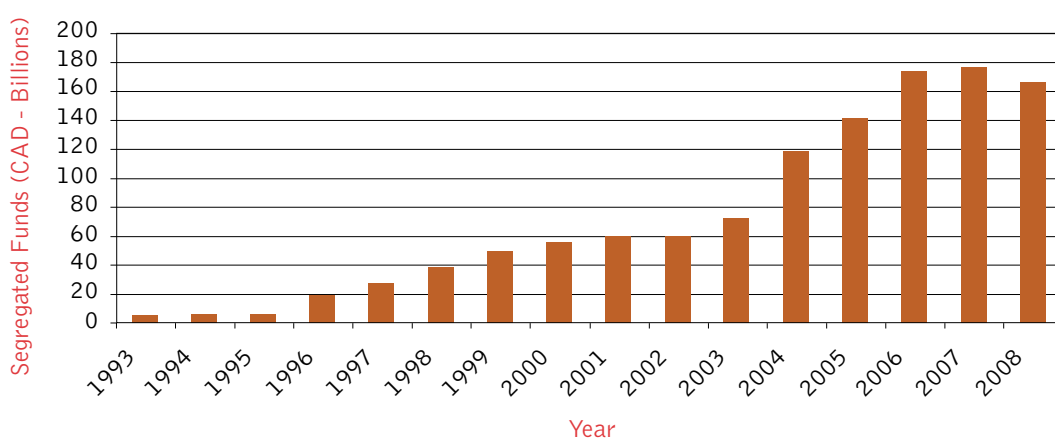
This sequence of transactions would allow insurers to hedge their market exposures incurred in the ordinary course of business without subjecting shareholders to excessive hedging costs. As a side benefit, capital markets in general will benefit from the existence of what is, essentially, an exchange-traded long-dated put option.

The benefits of this concept are not limited to insurers. Banks could hedge mortgage exposure with puts based on housing prices; there is also the potential for unregulated companies with large defined benefit pension plans to spin-out their implied market risk. And, more importantly, the full collateralization of notional value will decrease systemic risk.

Insurers, if you're going to engage in expensive hedging, let your shareholders capture the premia! **AER**

*James Hymas is a Fixed-Income/Preferred Share specialist at Hymas Investment Management.
jihymas@biminvest.com*

MFC: SEGREGATED FUNDS



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