



Craig Turnbull
Craig.Turnbull@barrhibb.com

Market-Consistent Valuation: Judging the Market

Recent market turmoil has further highlighted the challenge the insurance industry faces when valuing their liabilities. Like the CRO Forum¹, we believe the principal of market-consistent valuation is the right basis for this job. Whilst financial economics and mathematical models provide the intellectual technology for market-consistent valuation, its application to insurance liabilities can require significant judgement which must be applied within a good governance structure. In this note we consider how the need for judgement in the market-consistent valuation process arises and what it means for risk managers.

From Mark-to-Market to Market-Consistent

Over the past decade, methods for rigorously taking account of the complex forms of financial market risk that can be embedded in insurance liabilities have been revolutionised. The concept of 'mark-to-market' for insurance liabilities has been crucial to this transformation. Indeed, mark-to-market valuation is now an essential element of risk management thinking and practice. It underpins UK insurance regulatory capital, and will similarly form part of the Europe-wide Solvency II implementation. It also plays an important role in US GAAP for at least some insurance product features. Insurance groups use it to measure economic capital requirements, price and design products and to inform capital management strategy. Rating agencies use it to justify changes in the credit ratings of global insurance groups.

'Mark-to-market' sounds straightforward and objective—work out how to de-construct insurance liabilities into an equivalent portfolio of financial instruments and then take the cost of this portfolio to be the liability market value. But mark-to-market is not so simple in the world of ultra-long-term, complex insurance liabilities that may depend on policyholder and management behaviour as well as financial markets. This gives rise to the concept of market-consistent valuation—a piece of jargon that simultaneously aspires to market valuation, whilst recognising that there may not always be a market price available.

The need for judgment

In the absence of an observable market price for many forms of insurance liability, we need to rely on judgement. This judgement falls into three areas:

Illiquidity premium

Insurance liabilities are often inherently illiquid. For example, an annuity writer can assume there is no circumstance under which the annuity premium will have to be returned to the annuitant as a lump sum at short notice. Does the market price of a liquid fixed cash flow

1. "Insurance Risk Management Response to the Financial Crisis", CRO Forum, 2009

differ from an illiquid one, and thereby justify placing a lower value on illiquid liabilities on the balance sheet? Given how difficult it is to observe any illiquid price (almost by definition...), how can you tell? It is generally accepted that the more illiquid an asset is, the less it is worth (the illiquidity premium). Economic models have been developed to estimate this illiquidity premium, and these have been used to adjust market-consistent liability values downwards. Inevitably, they involve difficult parameter estimation and judgment may be required in considering to what extent such adjustments should be made to market-consistent liability values. This issue is very topical—currently there is much discussion about the extent to which adjustments for illiquidity should be made for the purpose of estimating Market-Consistent Embedded Value.

Extrapolation of observable market prices

Market consistency for insurance liabilities means that the valuation should be consistent with prices of assets with similar characteristics. For fixed insurance liabilities or cash flows with option-like features e.g. guarantees, these values should be consistent with market option prices and the prices of long-dated bonds. However, the required interest rates and/or option prices may fall beyond the maturities observable in markets. This issue is most acute in economies where capital markets are less-developed. However, in practice it arises in every market including the world's deepest, broadest capital markets. Just try to find a quote for an out-the-money 30-year S&P 500 option. So, judgment and technical expertise is required to estimate reasonable and consistent 'mark-to-model' prices for these long-term exposures.

Market-consistent assumptions for highly complex forms of market risks

Future policyholder and management actions, which may be contingent on future financial market behaviour, can generate very complex, path-dependent forms of optionality in insurance liabilities such as with-profit policies or variable annuity contracts. Market-consistent valuation can often involve using models to (subjectively) infer what 'plain vanilla' option prices might imply for much more complex forms of market risk optionality. It is important to consider the potential ramifications of this in the valuation process. For example, it may mean that using a model that produces a better fit to plain vanilla prices could feasibly produce a less market-consistent liability valuation - if the model produces a less appropriate description of the non-vanilla risk features that are important to the liability.

Summary

So, what does this all mean? We can draw a number of conclusions. Judgment must form a crucial part of market-consistent insurance liability valuation – the subjectivity of the challenge requires deep domain knowledge. Stochastic models and financial economics are also vital parts of the valuation methodology. Over the last decade, the level of expertise within the actuarial and risk management professions in how to apply the insights and power of these ideas and techniques to insurance business has grown hugely. The publicity surrounding the valuation challenges of the recent financial turmoil has heightened awareness that this will continue to be a fast-developing and strategically important area of risk management and actuarial practice globally.

Disclaimer

Copyright 2009 Barrie & Hibbert Limited. All rights reserved. Reproduction in whole or in part is prohibited except by prior written permission of Barrie & Hibbert Limited (SC157210) registered in Scotland at 7 Exchange Crescent, Conference Square, Edinburgh EH3 8RD.

The information in this document is believed to be correct but cannot be guaranteed. All opinions and estimates included in this document constitute our judgment as of the date indicated and are subject to change without notice. Any opinions expressed do not constitute any form of advice (including legal, tax and/or investment advice).

This document is intended for information purposes only and is not intended as an offer or recommendation to buy or sell securities. The Barrie & Hibbert group excludes all liability howsoever arising (other than liability which may not be limited or excluded at law) to any party for any loss resulting from any

action taken as a result of the information provided in this document. The Barrie & Hibbert group, its clients and officers may have a position or engage in transactions in any of the securities mentioned.

Barrie & Hibbert Inc. 28th Floor, 40 Wall Street, New York and Barrie & Hibbert Asia Limited (company number 1240846) registered office, Level 39, One Exchange Square, 8 Connaught Place, Central Hong Kong, are both wholly owned subsidiaries of Barrie & Hibbert Limited.

This document is intended for information purposes only and is not intended as an offer or recommendation to buy or sell securities. The Barrie & Hibbert group excludes all liability howsoever arising (other than liability which may not be limited or excluded at law) to any party for any loss resulting from any action taken as a result of the information provided in this document. The Barrie & Hibbert group, its clients and officers may have a position or engage in transactions in any of the securities mentioned.

Barrie & Hibbert Inc. and Barrie & Hibbert Asia Limited (company number 1240846) are both wholly owned subsidiaries of Barrie & Hibbert Limited.

Disclaimer

Copyright 2009 Barrie & Hibbert Limited. All rights reserved. Reproduction in whole or in part is prohibited except by prior written permission of Barrie & Hibbert Limited (SC157210) registered in Scotland at 7 Exchange Crescent, Conference Square, Edinburgh EH3 8RD.

The information in this document is believed to be correct but cannot be guaranteed. All opinions and estimates included in this document constitute our judgment as of the date indicated and are subject to change without notice. Any opinions expressed do not constitute any form of advice (including legal, tax and/or investment advice).

This document is intended for information purposes only and is not intended as an offer or recommendation to buy or sell securities. The Barrie & Hibbert group excludes all liability howsoever arising (other than liability which may not be limited or excluded at law) to any party for any loss resulting from any action taken as a result of the information provided in this document. The Barrie & Hibbert group, its clients and officers may have a position or engage in transactions in any of the securities mentioned.

Barrie & Hibbert Inc. 28th Floor, 40 Wall Street, New York and Barrie & Hibbert Asia Limited (company number 1240846) registered office, Level 39, One Exchange Square, 8 Connaught Place, Central Hong Kong, are both wholly owned subsidiaries of Barrie & Hibbert Limited.