AllianceBernstein

Case Study:

Effective Bond Strategies for Guaranteed-Benefits Variable Annuities

The Challenge

Variable annuity products offering guaranteed-minimum benefits have enjoyed strong popularity over the past decade due to their attractive combination of insurance benefits, investment features and asset preservation. In the aftermath of the 2008 market crisis, however, insurers are taking a harder look at the risks posed by these guarantees and at the strategies employed to manage and mitigate them. With financial markets likely to remain volatile, carriers face the prospect that the actual value of a variable annuity account may fall below the minimum guaranteed value, possibly requiring them to make up the difference out of reserves.

Many insurers employed derivative instruments to hedge these exposures. Because the investment choices in a typical variable annuity are often either stand-alone bond and equity funds or blended strategies of stocks and bonds, hedging typically involves stock index futures for equity exposure, and bond futures and interest-rate swaps for fixed-income exposures. The problem is that while equity derivatives can effectively hedge the systemic risk of owning stocks, fixed-income derivatives are potentially much less effective when it comes to hedging systemic bond exposures. The result is that hedging the fixed-income choices made by policyholders (whether via a stand-alone fixed-income choice or a balanced fund option) has proved less effective and more costly than expected.

Given these limitations, insurers face difficult choices as they reevaluate and refine the fees they charge policyholders for guaranteed benefits and the amount of capital needed to cover the risks.

To gauge whether a better solution exists, we tested four fixed-income strategies offering the following characteristics (the global strategies were currency hedged):

Strategy	Return Potential	Hedgeability	Volatility (Net of Hedging)
US Aggregate	Modest	Modest	Modest
Global Treasuries	Lowest Expected	Good	Low
Global Aggregate	Modest	Modest	Low
Global Credit	Superior	Poor	High

To isolate the suitability of each of these strategies, we assumed that each strategy was indexed to its respective benchmark. This was done to eliminate volatility associated with active risk-taking. Our study also applied consistent assumptions as to the frequency of hedge rebalancing and the effectiveness of the indexation strategy.

Based on our findings, we recommend that insurers offering minimum-guaranteed variable annuities should focus on fixed-income strategies that are relatively less volatile and easier to hedge, allowing them to offer policyholders valuable benefits while also lowering capital requirements.

Client Profile

Insurers offering variable annuities with guaranteed benefits

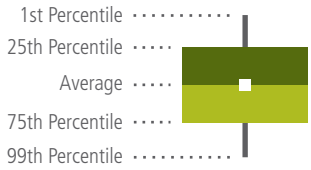
Objectives

- Rebuild minimum-guaranteed variable annuities business after 2008 market collapse
- Offer policyholders valuable guaranteed benefits while lowering capital requirements
- Adopt more effective strategies for hedging guaranteed-benefits risks

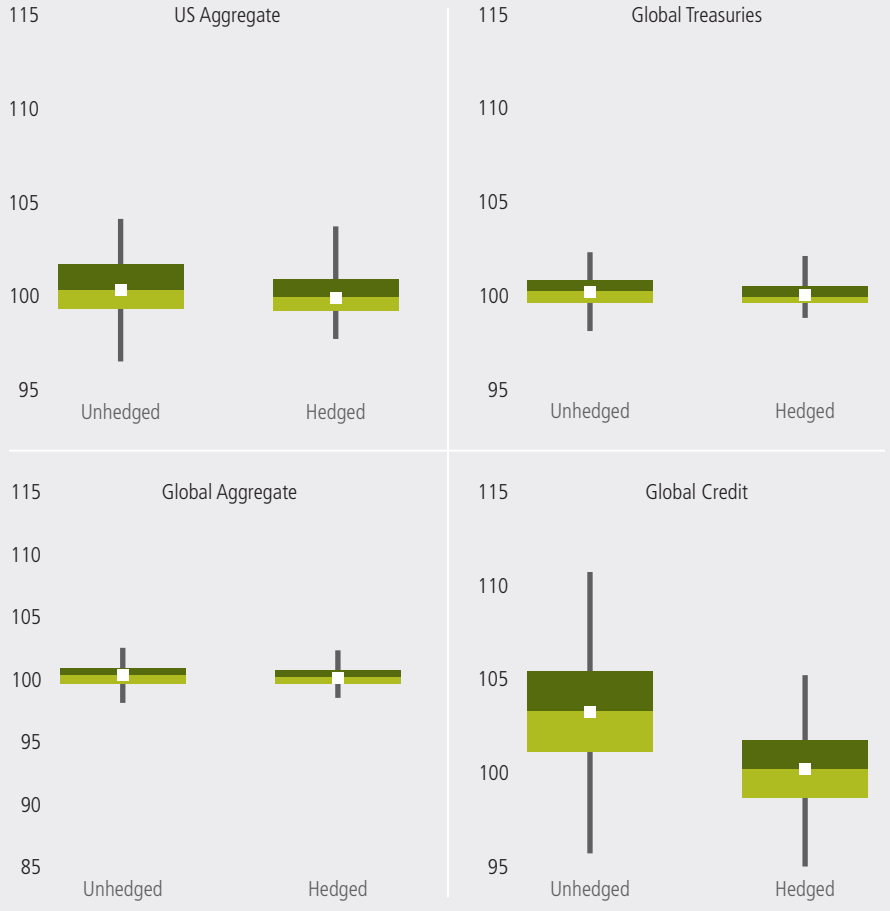
Key Observations:

- Factoring in certain assumptions about the frequency of hedge rebalancing and the effectiveness of the indexation strategy, we found that strategies with lower risk and higher hedgeability (i.e., Global Treasuries and Global Aggregate) could be expected to provide superior net returns (absolute investment returns minus policyholder fees and hedge costs) to policyholders while also lowering capital requirements for insurers.
- While the return opportunities were greatest in US Aggregate and Global Credit (given their relatively high exposure to nongovernmental credit), the costs of hedging reduced net returns. In the case of Global Credit, the hedge strategy not only limited the upside but also failed to protect the downside (*Displays 1 and 2*). This is due to the volatility of the strategy and the cost associated with being short volatility. As a result, the strategy was whipsawed into and out of hedge positions that carry a performance cost.
- On a net basis, the more volatile and harder-to-hedge strategies (US Aggregate and Global Credit, in our example) showed the greatest downside risk (*Display 3*).
- Hence, insurers need to set aside more capital for the more volatile and harder-to-hedge strategies (*Display 4*).

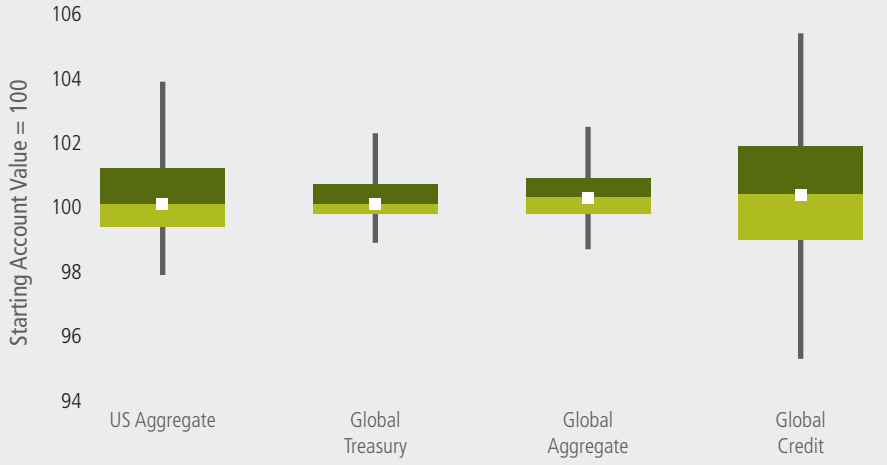
Display 1 contrasts each strategy's distribution of monthly account values, with and without hedging.



Display 1: Monthly Distribution of Account Values per $100 Starting Value



Display 2: Monthly Distribution of Account Values per $100 Starting Value (Net of Hedging)



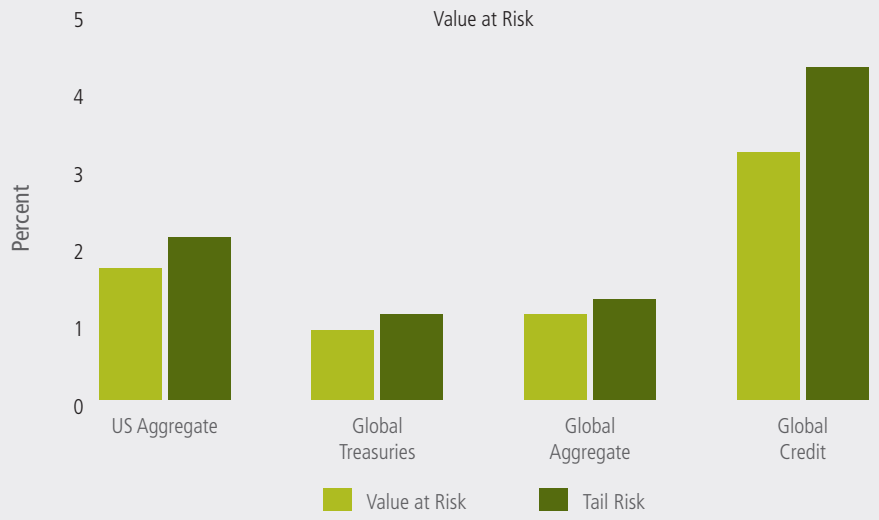
Display 2 aggregates the four strategies on a hedged basis.

Display 3: Probability of Account Value Falling Below Guaranteed Value

Display 3 highlights the probability that the account value, plus hedging gains and losses, will be less than the guaranteed value; 1% less than the guaranteed value; and 2% less than the guaranteed value.

Display 4 plots the value at risk at the 5th percentile and the tail risk associated with the 5% worst cases.

Display 4: Monthly Value at Risk and Tail Risk[1] at 5th Percentile



[1]Tail risk is the probability-weighted return of all results equal to and worse than the specified confidence interval (in our example, this is the expected result with the tail represented by the worst 5% of all occurrences).

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AllianceBernstein

AllianceBernstein L.P.
1345 Avenue of the Americas, New York, NY 10105
212.969.1000

AllianceBernstein Japan Ltd.
Marunouchi Trust Tower Main 17F, 1-8-3, Marunouchi,
Chiyoda-ku, Tokyo 100-0005, Japan
+813 5962 9000

AllianceBernstein Hong Kong Limited
Suite 3401, 34/F, One International Finance Centre
1 Harbour View Street, Central, Hong Kong
+852 2918 7888

AllianceBernstein (Singapore) Ltd.
No. 30 Cecil Street, #28-01, Prudential Tower, Singapore 049712
+65 6230 4686
Company Registration No. 199703364C

AllianceBernstein Limited
Devonshire House, One Mayfair Place, London W1J 8AJ, United Kingdom
+44 20 7470 0100
Registered in England, No. 2551144, Regulated by FSA

AllianceBernstein Australia Limited
Level 37, Chifley Tower, 2 Chifley Square, Sydney NSW 2000, Australia
+61 2 9247 9766

AllianceBernstein New Zealand Limited
Level 13, ASB Tower, 2 Hunter Street, Wellington, New Zealand
+64 4 471 1626

AllianceBernstein Canada, Inc.
Brookfield Place, 161 Bay Street, 27th Floor, Toronto, Ontario M5J 2S1
416.572.2335

Sanford C. Bernstein & Co., LLC
1345 Avenue of the Americas, New York, NY 10105
212.969.1000

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