

The Economic Capital and Risk Adjustment Performance for VA with Guarantees with an Example of GMAB

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Abstract

Economic capital (EC) and risk-adjusted performance measurement (RAPM) are becoming increasingly important criteria in product development and performance evaluation for insurance companies. The EC framework can assist in strategic decision making and increase capital allocation efficiency. However, there are very few precise and detailed definitions for EC and RAPM in life insurance case studies. This paper proposes a general definition for EC that can be applied to various types of insurance products in a consistent manner. Also, we will illustrate how to calculate RAPM by using a fair value framework.

We apply the EC framework using a specific example: a simple variable annuity (VA) with guaranteed minimum account benefit (GMAB). The paper also illustrates how to adjust EC for a longer time horizon and how hedging affects the EC and overall performance. We conclude by showing how the EC-based RAPM framework for the GMAB can be extended to evaluate various types of VA guarantees, such as a guaranteed minimum income benefit (GMIB). We also show how to increase the efficiency of capital usage.