

Semi-Static Hedging the Guaranteed Minimum Withdrawal Benefits (GMWBs)

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Abstract: The GMWBs are optional riders provided by insurance companies in variable annuities. They guarantee the policyholders' ability to get the initial investment back by making periodic withdrawals regardless of the impact of poor market performance. Hedging the GMWBs helps insurers to specify and manage the risks of writing the products, as well as to find the fair prices. In reality, a dynamic hedging strategy has to balance transaction cost and quality of the hedge. In times of large market movements, dynamic hedging performs poorly. In contrast, semi-static hedging requires less portfolio adjustments, and jumps will not affect semi-static hedging so much as dynamic hedging. We explain how to construct the semi-static hedging portfolios with numerical examples.