The SST Concept: Market Value Margin

Definition: The market value margin is the smallest amount of capital which is necessary in addition to the best-estimate of the liabilities, so that a buyer would be willing to take over the portfolio of assets and liabilities.

Idea: A buyer (or a run-off company) needs to put up regulatory capital during the run-off period of the portfolio of assets and liabilities

→ a potential buyer needs to be compensated for the cost of having to put up regulatory capital

Market Value Margin = cost of capital of the present value of future regulatory risk capital associated with the portfolio of assets and liabilities

Problem: How to determine future regulatory capital requirement during the run-off of the portfolio of assets and liabilities?

-> Assumptions on the evolution of the asset portfolio are necessary

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Key Idea:

- The insurer setting up the market value margin should not be penalized if, after the transfer, the insurer taking over the portfolio does not minimize the regulatory risk capital requirements as fast as possible.
- The insurer taking over the portfolio of assets and liabilities should be compensated if the insurer setting up the market value margin invested in an illiquid asset portfolio.

Assets: Assume that initial asset portfolio is rebalanced such that it matches optimally the liabilities. The speed of the rebalancing is constrained by liquidity of assets (it takes longer to liquidate for real estate than for government bonds). The time until the optimal replicating asset portfolio is achieved depends on the asset mix.

Liabilities: Assume no new business

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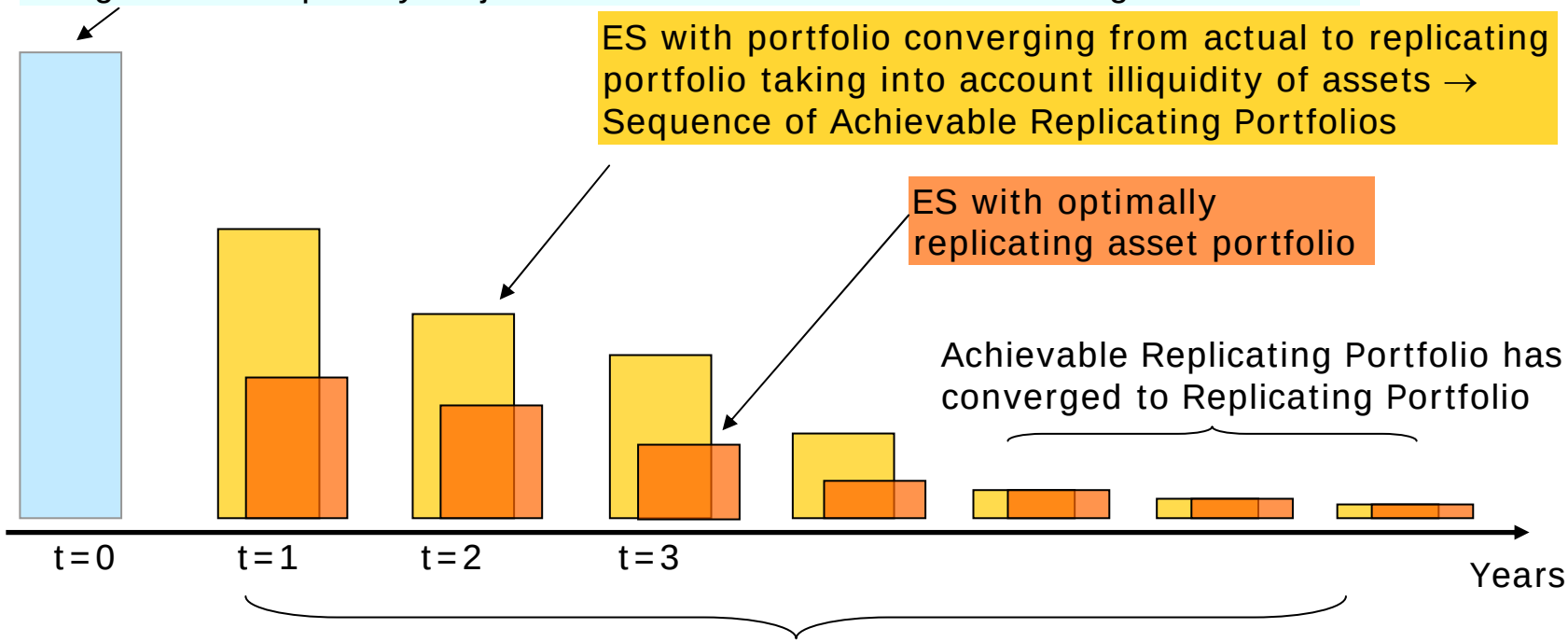
$$RM = CoC \cdot \sum_{t \geq 2} ES\left[\Delta RBC(t)\right]$$

CoC: 6% over risk free

ES at t=0 does not enter calculation of the market value margin necessary at t=0 → risks taken into account for 1-year risk capital and market value margin are completely disjoint and there is no double-counting

ES with portfolio converging from actual to replicating portfolio taking into account illiquidity of assets → Sequence of Achievable Replicating Portfolios

ES with optimally replicating asset portfolio

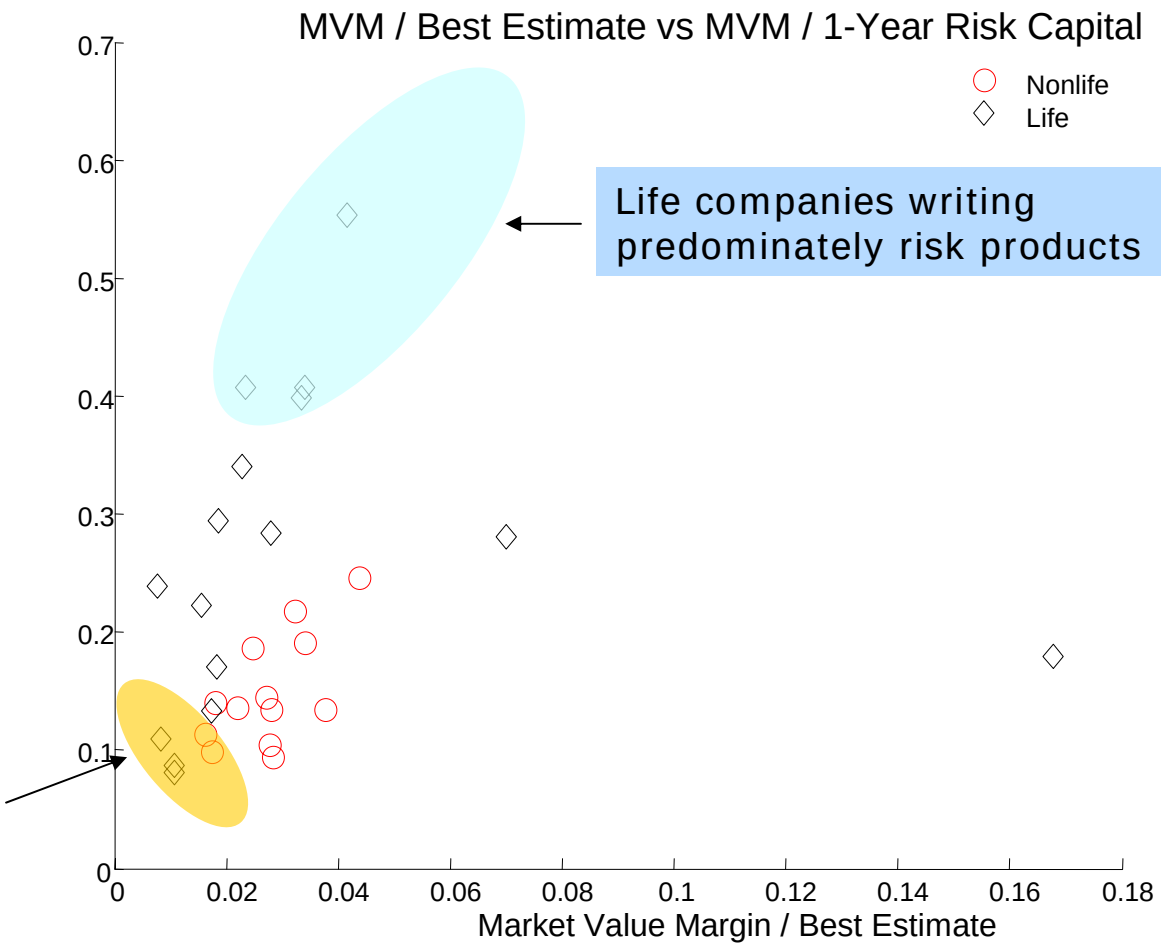


ES: 1-Period (e.g. 1 year) risk capital = Expected Shortfall of risk-bearing capital

Future ES entering calculation of MVM at t=0

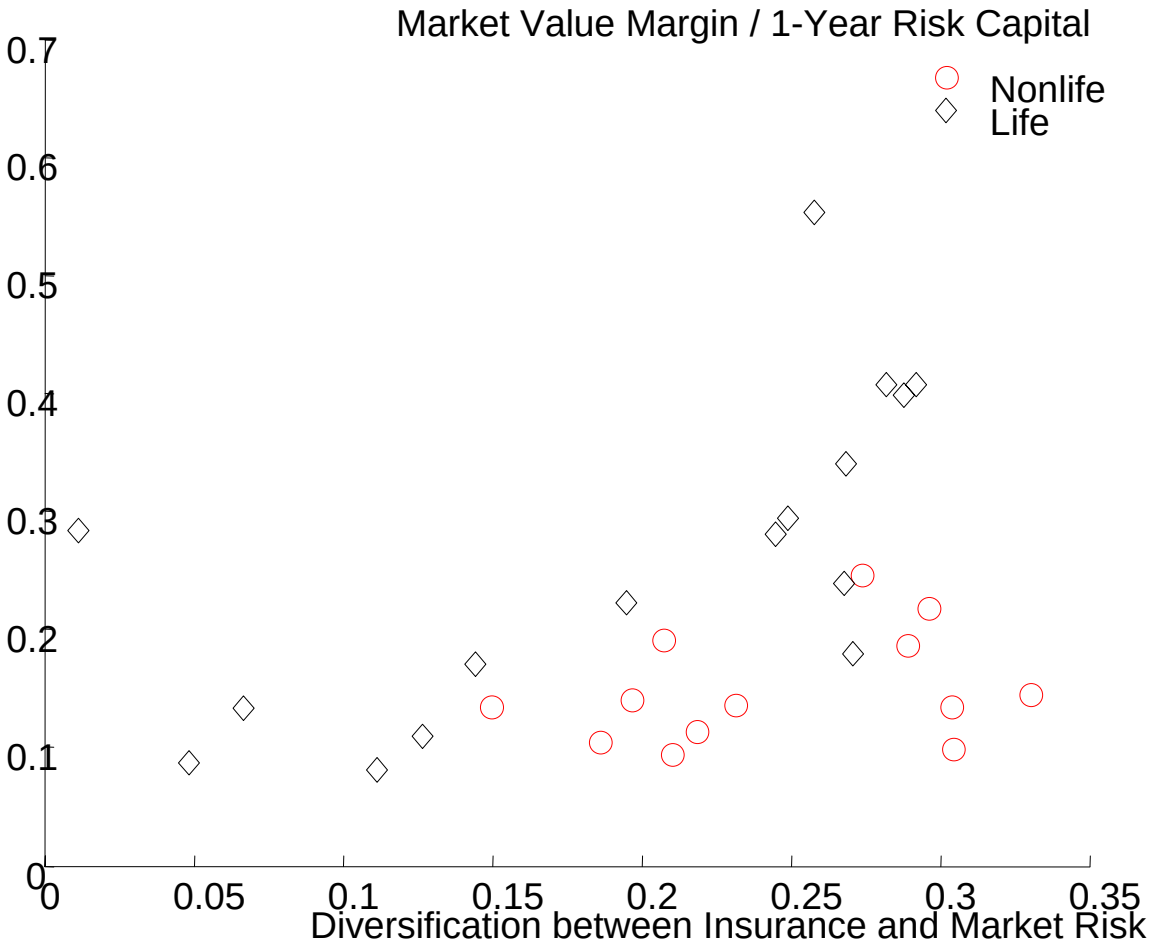
Market Value Margin

MVM / Best Estimate vs MVM / ES[RBC], based on provisional data of Field Test 2005



Market Value Margin

Diversification vs MvM / ES[RBC], based on provisional data of Field Test 2005



MVM : Effect of Illiquidity of Assets

The following graph shows a comparison of the actual MVM which include the effect of illiquidity of assets with (theoretical) MVM where assets are assumed to be completely liquid and where convergence to the optimal replicating asset portfolio were instantaneous

For some companies a substantial reduction of the MVM could be achieved by going over to a more liquid asset portfolio

Diversification vs MVM / ES[RBC], based on provisional data of Field Test 2005