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Liquidity Management for Property/Casualty Insurance and Reinsurance Enterprises

Casualty Loss Reserve Seminar – Fall 2006

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Background on liquidity risk for P/C insurance companies

- Insurer product – promise to pay
  - *Fulfilling that promise is critical to future business prospects*
  - *Perceived potential that you'll fail to fulfill your obligations can be very harmful.*

- Principal of insurance requires use of leverage
  - *Combined policyholder and shareholder funds are not sufficient to pay the maximum amount of claims possible.*
  - *This creates a potential access issue (will my money be there) and importance of order of claims (if the line builds, you have to hurry to get in it).*

Background on liquidity risk for P/C insurance companies

- Investment yield vs. form of claim payments
  - *Claims are paid in cash, yet somewhat less liquid assets can increase yield*

- Companies attempt to maximize capital efficiency by having money “just in time”
  - *Holding money any longer than needed reduces return, via deadweight cost of capital.*
  - *Efficient funding suggests having a good estimate of needed money.*
  - *In normal conditions, operating cash flow (premium less expenses) pays for claims*

Liquidity risk

- Liquidity risk for P/C insurers
  - *Risk of an actual or perceived shortfall of liquid assets to pay claims or operating expenses.*
  - *Risk of low investment yield related to liquidity issues, e.g.*
    - *Investing too safely; maximizes liquidity but hurts performance.*
    - *Having to get out of a position at an inopportune time and realize a loss (significant research on "cost of distress" issues).*

- Impacts of liquidity issues
  - *Inability to pay claims on a timely basis can produce "run on bank" mentality*
  - *Rating agencies rate willingness and ability to pay – Money invested in illiquid assets is heavily discounted in the rating process. Downgrade=death.*
  - *Poor investment performance related to liquidity issues can contribute to further problems (particularly distressed selling)*

Unique attributes of P/C insurance industry

- Majority of cash obligations are estimates – not known in nominal or present value
  - *Analysis that reflects the uncertainty of obligations suggests a different position than a static analysis would*
  - *Liquidity management becomes important*
- Liabilities are sensitive to inflation
  - *Simultaneous impacts on assets and liabilities should be understood*
  - *Forces that could result in increase of liabilities and decrease of assets at the same time impair operating flexibility and can force a liquidity crunch*
- Underwriting cycle can produce fluctuating operating cash position
  - *Changing levels of internally generated cash may alter investment strategy and concerns about liquidity*
  - *Less concern when internally generated cash is readily available*
- Catastrophe exposure
  - *Must account for potential need for significant liquidity*

Unique attributes of P/C insurance industry

- Regulatory constraints on investing “creativity” (concern for policyholder welfare)
  - *Strategy must incorporate constraints by external parties*
  - *Practically speaking, this results in a need to keep a safe liquidity posture*
- Asset management has established conventional wisdoms and risks of deviations
  - *Departures from traditional approaches often must be supported by strong evidence*
- Sometimes poorly institutionalized links between asset and liability side
  - *More dynamic links can be created*

As insurers move to implement ERM, they will need to develop a robust framework for linking risk, capital and value

Risk-return questions extend to both investment and underwriting operations, and liquidity is a key element of these issues:

- How much catastrophe reinsurance should I buy? What lag is required where the gross claims will need to be paid before receiving recoveries?
- How predictable are my non-cat liabilities? Are they inflation sensitive, and how will they potentially correlate?
- What is my operating cash position? How does this mitigate or exacerbate the need for additional liquidity?
- What is the strategy of the company (grow/shrink)?

Liquidity management is a critical element of survival and value for an insurer

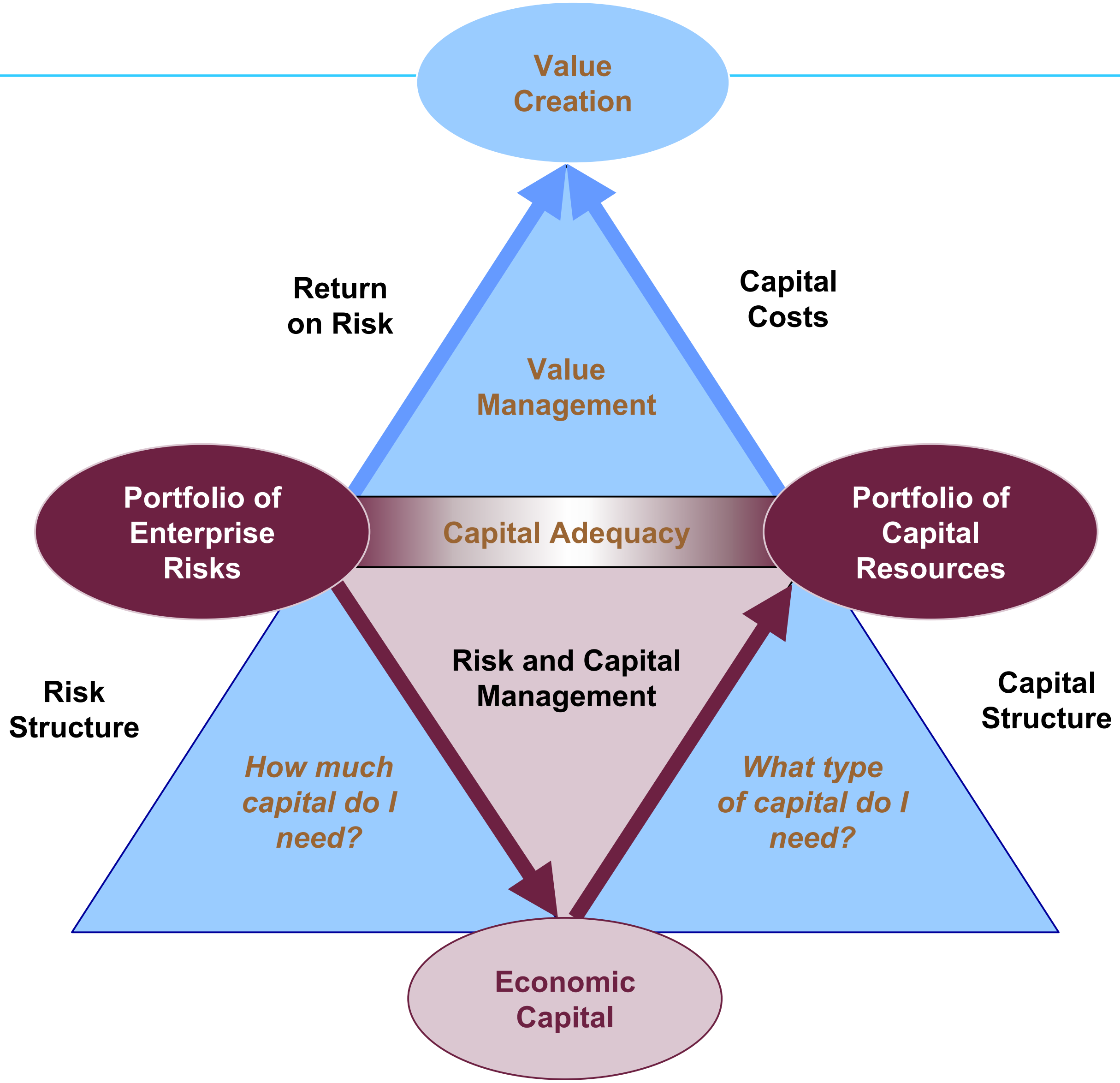
Enterprise Risk Management and Investment Philosophy

- **Asset Allocation Policy** is the primary driver of total investment portfolio return variability and performance over time
  - **Liquidity Metrics** must be incorporated with other total return measures
- **Active Risk Policy** drives relative portfolio performance and significantly enhances performance over time
- **Manager Structure** integrates asset allocation policy and active risk policy to avoid uncompensated risks and capture active manager skill to enhance returns.
- **Active Manager Skill** adds value over time

- **An Enterprise Risk Management Approach** is essential to enhance overall corporate financial performance

ERM Value Framework

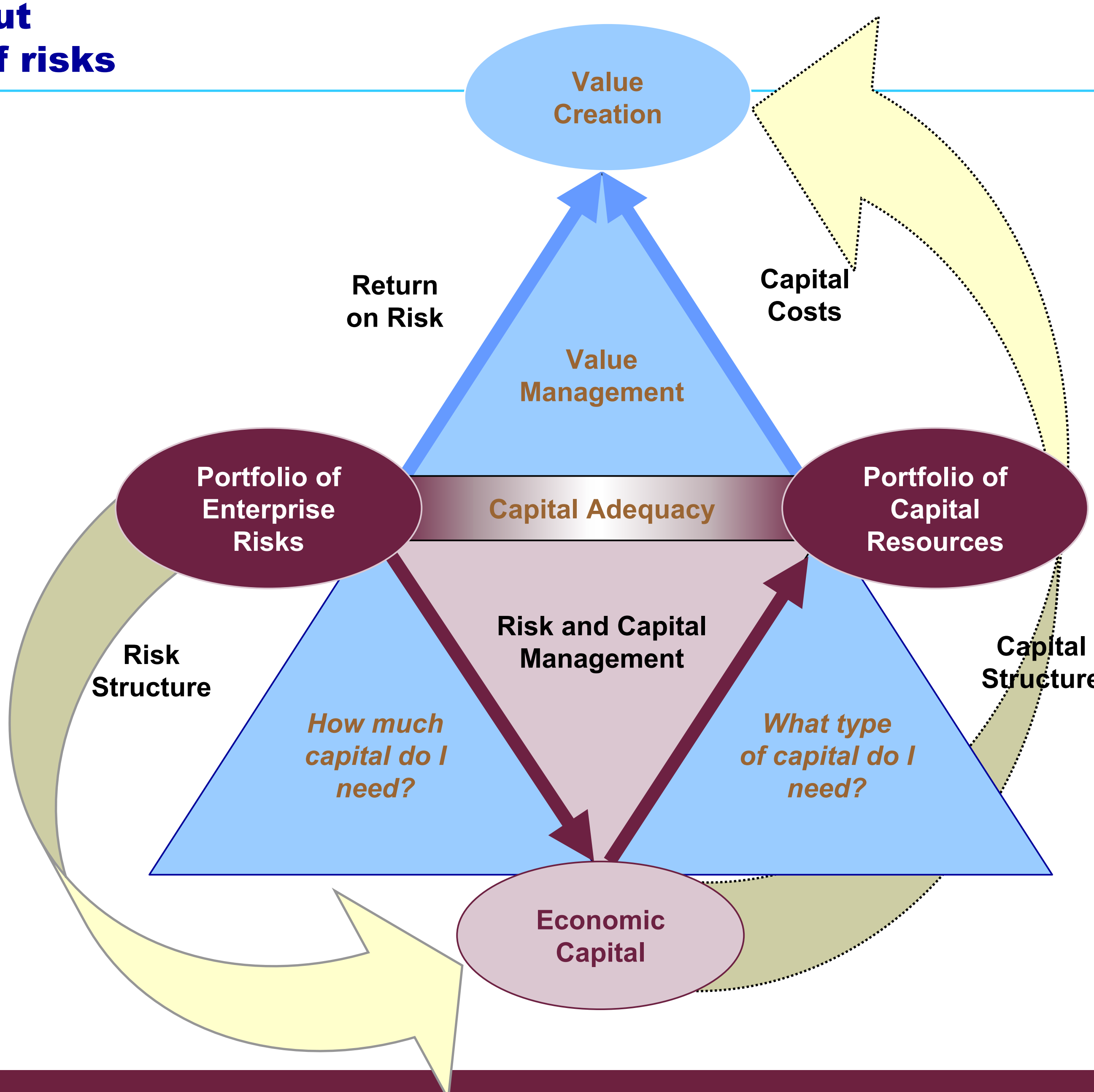
Maximize value by relating a firm's decisions on the risks it takes to decisions on the capital it uses to finance its business



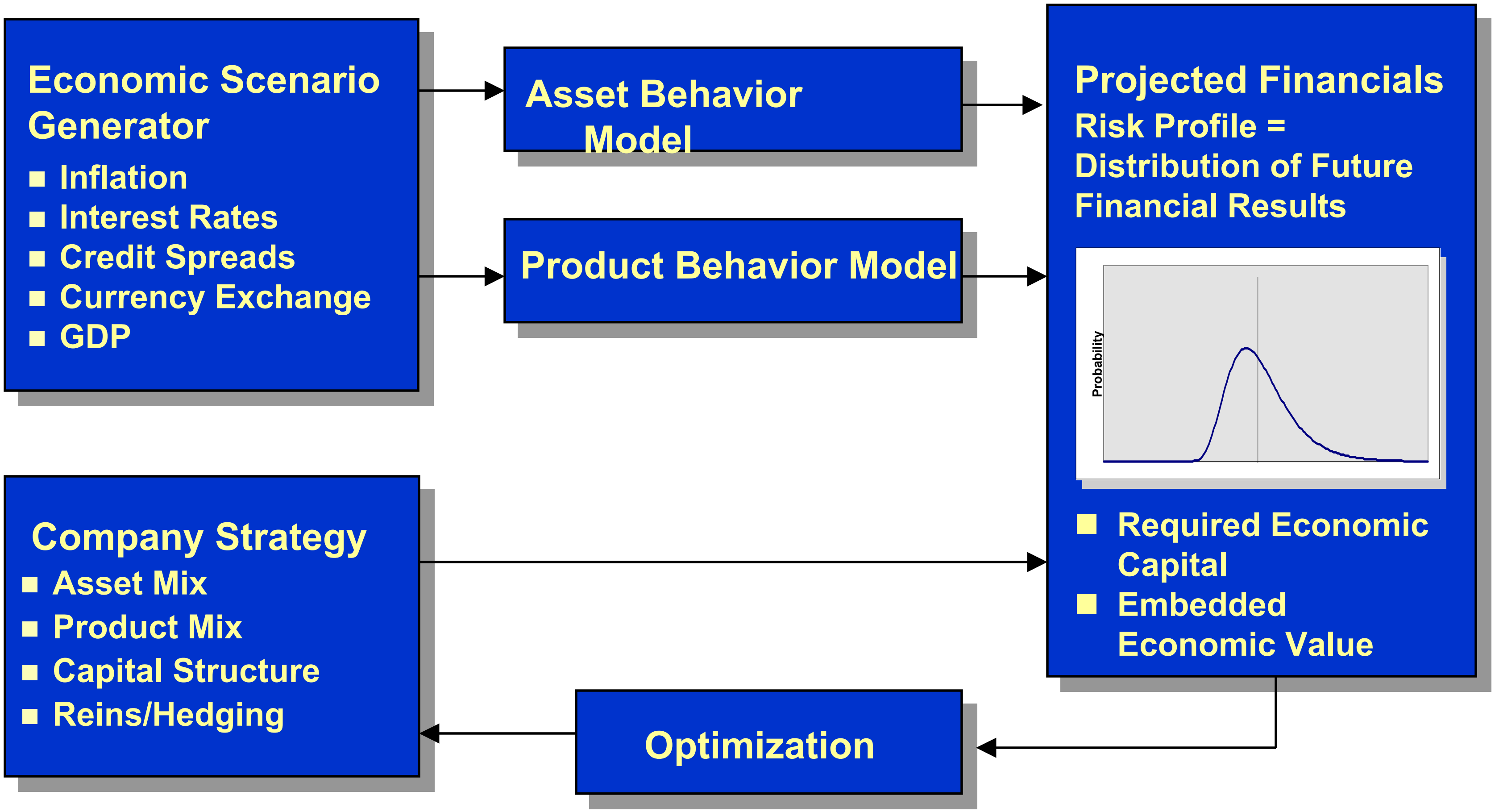
Decisions about the portfolio of risks

Evaluating alternative asset strategies must take into account the entire portfolio of risks

While changing the mix of assets does not create value in an asset-only context, it may if liability and asset behaviors are linked



The best way to evaluate the asset-liability linkages is via a financial model that is driven by economic scenarios



Conclusions from client asset strategy projects provide rigorous quantitative support to intuition

- What is the least risky investment strategy for a multinational property catastrophe insurer?
  A. Match risk-free assets by currency to expected losses by currency
  B. Match risk-free assets by currency to PMLs by currency
  C. Match diversified assets by currency to expected losses by currency
  D. Put everything in US treasury bills

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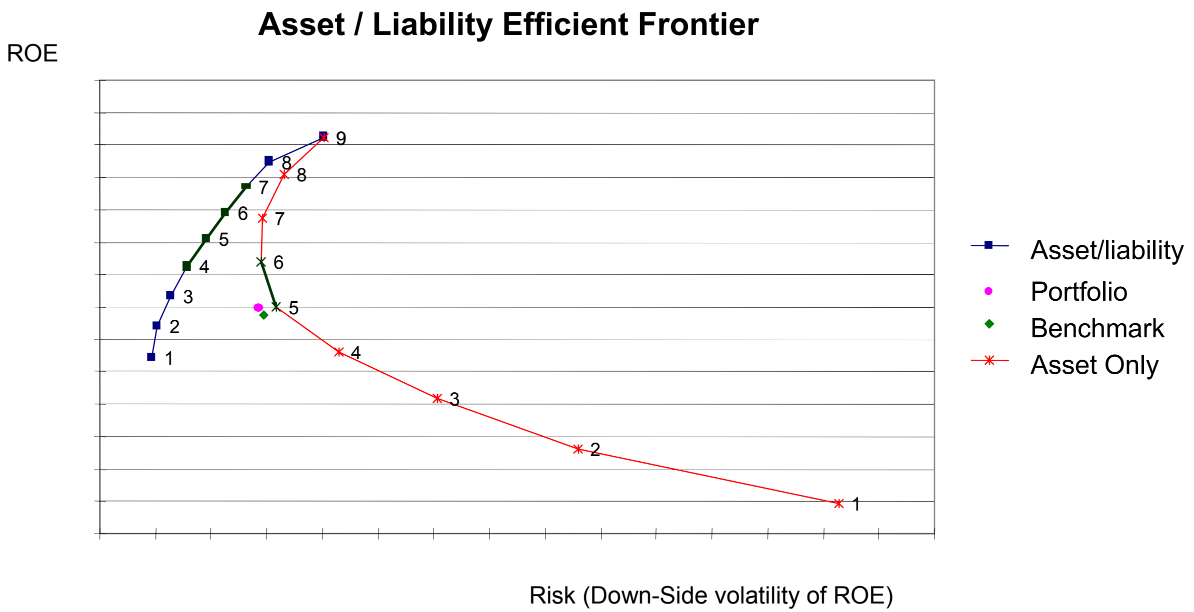
- For a multinational property catastrophe insurer, the minimum risk position is not to match the currency of assets to the currency of expected liabilities
  - Because catastrophe losses are infrequent, one never gets any benefit from matching
    — Most of the time the events don't happen and it would be less risky to be in native currency
    — If the events do happen, the assets in the event currency are only a fraction of those required to settle the claims

The ALEF approach gives different answers than the traditional asset-only approach

- Applying modern portfolio theory to the the total insurance portfolio — assets and liabilities — better facilitates achieving corporate financial objectives



The chart plots an asset-only efficient frontier (red) in a risk/reward framework using ROE as the reward measure. Essentially all of the asset-only efficient portfolios are riskier than the asset/liability efficient portfolios for a given level of reward.

Uses for stochastic reserve indicators

- Often, we only focus on ranges of ultimates
- At any point in time, however, operational focus is on a shorter term
- Stochastic analytical techniques can provide valuable information to those operational questions:
  - What are my likely cash needs in the next 12 months?
  - What factors cause liquidity difficulties, where the cash needs increase without a commensurate increase in available cash?

Summary

- Leverage and the form of payment of claims (cash), create the importance of liquidity in P/C insurance
- Liquidity risk is as much a risk of underperformance of assets as it is a risk of bankruptcy; however, perceived liquidity shortages can contribute to further problems
- Liquidity risk should be managed in an integrated asset/liability framework, taking into account key factors (operating cash position, inflation-sensitivity of liabilities, real world constraints, etc.).
- Liquidity risk may be part of the Chief Risk Officer's job, as the risk is inherently a combination of the investment function and the liability assessment function.
  - However, CIO's may think it's their job
- Like other risks, actuaries should lead the efforts to quantify the situation and also to use the quantitative analysis intelligently.