An Overview of Capital and Levers Companies can Pull

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Agenda

- Introduction
- What is capital and how is it used?
- Capital management
- So what?

Introduction

With you today

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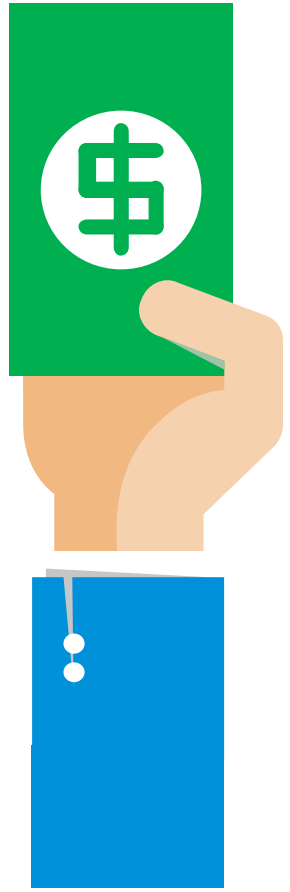
Introduction

Capital strategy answers the fundamental question of how to allocate capital to achieve the best returns; there is immense pressure for insurers' to provide a return comparable to that offered in other financial service organizations. Actuaries have the ability to play key roles at insurance companies through their knowledge of insurance products, interpretive guidance on emerging regulations and the development of robust models. Insurers are now looking more closely at exploring options such as off-shore reinsurance, captives and securitization with a view towards easing the capital strain and increasing the return on equity. This session explores many of the levers that companies can use in the management of capital.

What is Capital and how is it used?

What is capital?

- Capital is a measure of financial strength
- Capital also used for:
  - Selling new business
  - Uncertainty in business volumes
  - Investment freedom
  - M&A activity
- Measurement differs depending on use and the regulator
  - RBC
  - Solvency II
  - Economic Capital
  - Rating Agency Capital



NAIC Risk Based Capital (RBC)

RBC = Risk Based Capital

Prescribed calculation by the NAIC

Consists of multiple elements

Formulaic and factor based (mostly)

$$RBC = \frac{1}{2}\left[C_0 + C_{4a} + \sqrt{(C_{1a} + C_{3a})^2 + C_{1cs}^2 + C_2^2}\right]$$

- C_0 is asset risk for affiliates
- C_{1a} is asset risk for non-common stock
- C_{1cs} is asset risk for common stock
- C_2 is insurance risk
- C_{3a} is interest rate risk
- C_{3c} is market risk
- C_{4a} is business risk

Intervention by regulators at certain capital ratios

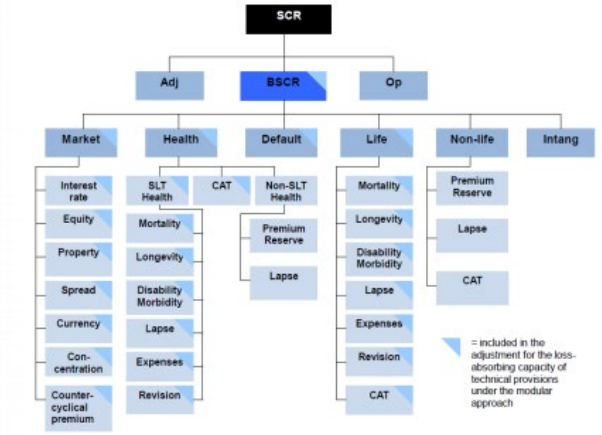
RBC Ratio	Action
200%≤ <250%	Company to perform trend test
150%≤ <200%	Company to prepare and submit RBC Plan
100%≤ <150%	Company to prepare and submit (or resubmit) RBC Plan, Commissioner will issue an order with corrective actions
70%≤ <100%	Commissioner able to take whatever regulatory actions considered necessary to protect policy holders and creditors
<70%	Commissioner to place company under regulatory control

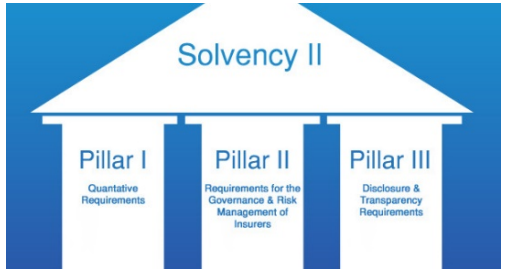
Rating agency capital

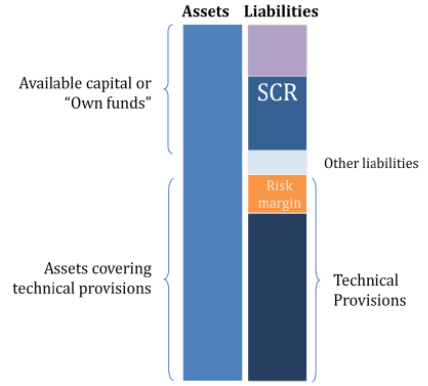
- Used to assess the credit worthiness of companies
- Often a binding constraint on U.S. companies
- Tool provided by rating agency (Moodys etc.)
- Effects the cost of borrowing on debt that is issued
- In the current environment companies may hold lower capital as the cost of borrowing is so low

Solvency II

- Capital requirements for insurance companies registered in Europe (covers non-European entities if they roll up into European parent)
- Adopted by European parliament in 2014 and effective from 1/1/2016.
- 99.5% tail risk (1 in 200 year event)
- Calculation is risk based and requires stress runs to be performed (standard formula, PIM, IM)
- Three pillars
- Diversification of risks

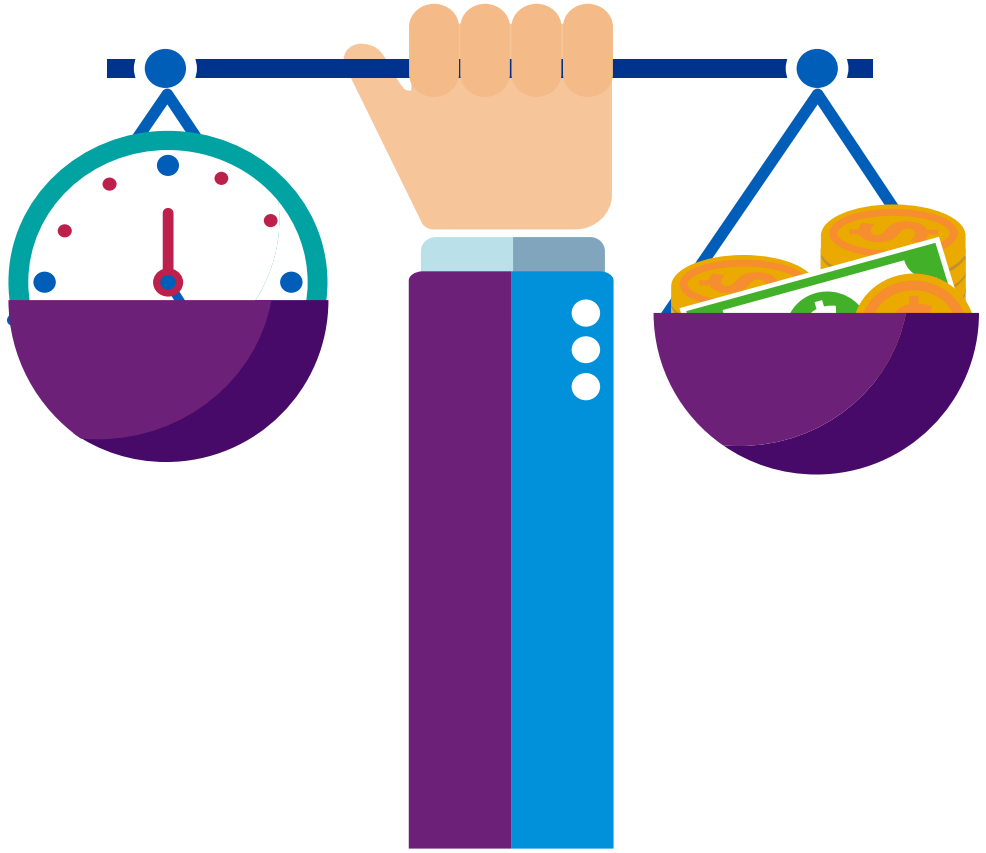






Economic capital

- Similar to SII
- Designed to reflect the risk appetite of the company
- Assumptions are realistic
- Not a required disclosure item
- Used for internal planning and hedging



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Capital Management

What is capital management?

- Employ efficient strategies to lower overall capital required to held by the organization
- Reduce risk taken on by the organization
- Profit retention
- Investment gains
- Domicile and locations

Captives

What is a captive?

— At the most simplistic level a captive is a reinsurance company which is wholly owned by the insurance company who cedes business into it.

Why use a captive?

— Avoid having to go to the market for reinsurance, pricing can be on an economic basis rather than market basis, and no additional premiums for bespoke coverage.

Where are they registered?

— Captives can be established anywhere but often they are set up in “offshore” locations (or in states that have lower regulatory requirements) with lower surplus requirements.

Interesting captive fact

— The term “captive” comes from the use of a manufacturing company setting up its own insurance to cover its captive mines.

Captives

Captives used to reduce capital requirements.

Company A	Captive B
— Company A sells policies to individuals — Holds capital at required levels — RBC ratio target 300+% — Increasing intervention when RBC ratio <200%	— Identify jurisdiction that has lower capital requirements — Establish Captive B to which the business can be ceded — Hold lower capital requirements

- State regulators may not approve of the reinsurance in this way and not recognize it which would negate any benefits
- For small blocks of business the set up can be prohibitive

Captives

Captives used to release redundant reserves, e.g. term products or fixed index annuities.

Company C	Captive D	Reinsurer E
— Company C sells policies to individuals (e.g. 10 year term) — Holds reserves at state required levels (e.g. XXX) — Reserves are in excess of expected claims on an economic basis	— Create Captive D to which the term business can be ceded — Hold assets equal to economic reserve (e.g. VM-20) — Establish a credit note to cover the difference with reinsurer	— Establish XOL treaty with Reinsurer E — Covers the additional payouts above economic reserve held by Captive D — Low premium as expected claims are reduced compared to directly reinsuring the business
XXX reserve $400m	VM-20 reserve $220m	Surplus note $180m

— State regulators must approve of the transactions
— Corporate structure can become complex due to increased number of entities

Captives

Pros	Cons
Enhanced capital position	Need to establish new companies
Brings increase to assets or decrease to liabilities	Potential regulatory hurdles
No third party taking margins	

How is an actuary involved

— Investigating different jurisdictions

— Pricing of internal transfers

— Establishing reserves and capital requirements in captives

Hedging

What is it?

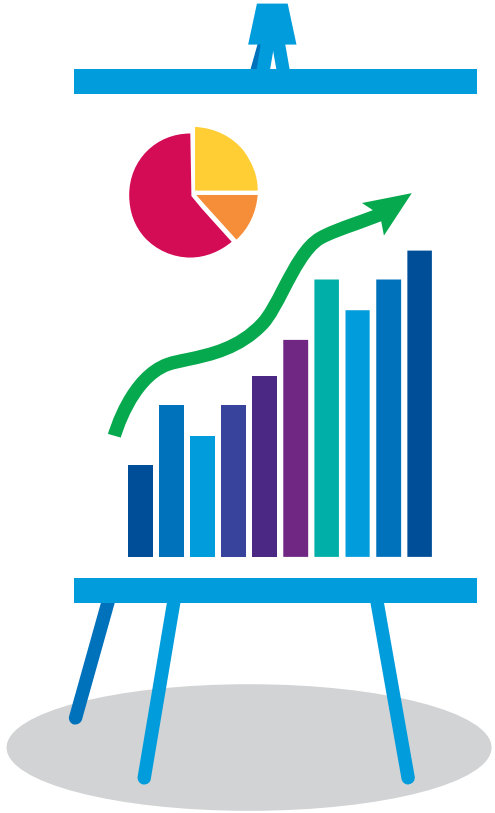
— Purchasing financial instruments that will offset losses from insurance cash flows and protect asset values

Why do it?

— Certain life insurance products are sensitive to market movements and not hedging these would expose companies to large levels of risk

What products?

— Any product is exposed to market movements to some degree as even though liabilities may not change the assets backing the reserves do! Products like variable annuities with GMxBs and index linked annuities are particularly susceptible as the liabilities move with market changes



Hedging

An example of how liabilities move for different products under different circumstances

	VA with GMxB	Indexed annuity	Term life
Market decrease	— SA value decreases — GMxB more in the money — Future fee income decreases — Liability reserves increases	— Account value decreases — Liability decreases	— Liabilities unchanged — Assets are typically bonds, value decreases if interest rates up
Market decrease plus high volatility	— As above — Plus higher range of future returns — Higher cost of hedging — Liability reserve increases	— As above — Higher cost of hedging	— As above
Market increase	— SA value increases — GMxB less in the money — Future fee income increases — Liability reserves decreases	— Account value increases — Liability increases	— Liabilities unchanged — Assets are typically bonds, value increases if interest rates down

Hedging

How do companies reduce this volatility? The answer is hedging!

— There are two main types of hedging strategy
  - Option hedging
  - Delta hedging

— The hedges provide an offsetting payment to the liability

Hedging

	VA with GMxB	VA hedge	Net position
Market decrease	— SA value decreases — GMxB more in the money — Future fee income decreases — Liability reserves increases	— Value of hedges increases — Options are in the money	— Payoff on hedges cancels out increase in liability and reduction in fee income
Market decrease plus high volatility	— As above — Plus higher range of future returns — Higher cost of hedging — Liability reserve increases	— As above	— As above
Market increase	— SA value increases — GMxB less in the money — Future fee income increases — Liability reserves decreases	— Value of hedges decreases — Options expire worthless	— Increase in liabilities cancels out the loss on the hedges

The effectiveness of a hedging program can be significant to the final position. Basis risk can be a significant issue whereby hedges and liability movements are not that same. Also, certain products can provide an “internal” hedge, e.g. VA and FIA.

Hedging

Pros	Cons
Protect capital position in stress events	Costs in good markets (options expiring worthless)
Can internally hedge products with little “cost”	Hedging strategies are complex to develop and can be difficult to explain to the Board
Offset losses in liability reserve movements	Exotic product may not have a natural hedge in the market

How does an actuary fit in?

- Understanding liability movements that need to be hedged
- Designing products that take advantage of internal offsets
- Developing models to project cashflows that need to be hedged and their deltas
- Communicating the hedging strategy to other parts of the company

Reinsurance

What is it?

— Taking an insurance policy on the risks that the company has taken on, i.e. insurance on insurance already written

Why do it?

— Control the risk that the company is exposed to

— Control costs

— Internal vs. External reinsurance

Reinsurance

What options are there?

— Proportional reinsurance
  - The reinsurance company takes on a share of the risk
  - The reinsurance entity may benefit from economies of scale and a large pool of risk

— Non-proportional reinsurance
  - Covers defined amounts, e.g. 100k – 200k per policy
  - Stop loss may cover aggregate claims to help in high claim scenarios, e.g. all claims above 500m in a given year

— FinRe
  - Designed less for risk transfer and more targeted to financial aims
  - loans made by the company which rank after all other payments, only payable if the company is profitable

Reinsurance

Pros	Cons
Easy to set up	Margin taken by reinsurer
Brings increase to assets or decrease to liabilities	Exposure to default risk

How is an actuary involved

- Product and feature development
- Reserving and capital calculations
- Risk assessment
- Pricing of transactions

Business mix

- Capital requirement vary depending on the product
- Level of risk is different
- Some business is on a Best Estimate basis and others are on a conservative basis (e.g., VM-20 and XXX)

Business mix

- Examples of businesses with offsetting risks
  - VA with no guarantees vs. VA with GMWB vs. VA with GLWB
  - Whole life vs. payout annuity
- Reducing guarantees available to policyholders
- Par business
- Diversification benefits
  - Offsetting risks, WL and POA give both sides of longevity risk

Business mix	Covariance benefit on RBC from C2 and C3 Risk
Entity with $20b of reserves of only life (or only annuity) business	0
Entity with $20b of reserves with 90% annuities and 10% life business	$20m – $25m
Entity with $20b of reserves with 10% annuities and 90% life business	$25m – $30m
Entity with $20b of reserves with 50% annuities and 50% life business	$60m – $70m

Business mix

Pros	Cons
Increase capital margin	Complexity of multiple products
Can bring balance to portfolio and de-risk	Additional staff and costs

How is an actuary involved

— Product and feature development
— Marketing material
— Reserving and capital calculations

Securitization

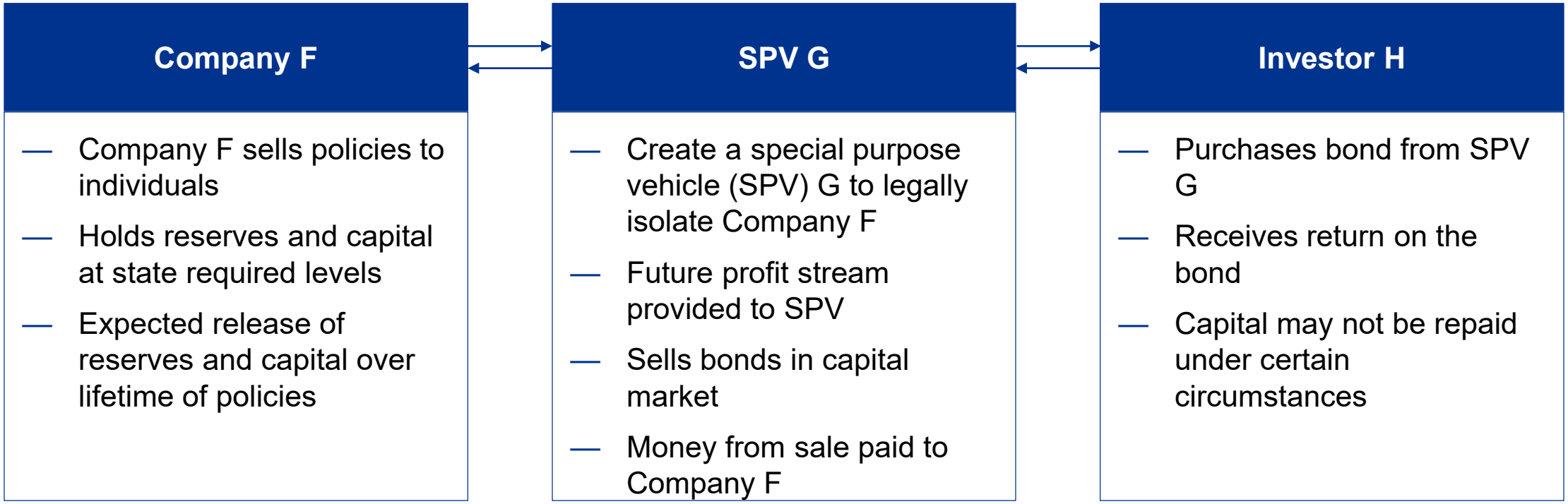
What is it?

— Taking the expected future cash flows that companies will achieve over the future and turning them into investment instruments

Why do it?

— Life insurance products are often long in duration.
— The profits on a policy might be realized over 40 years, providing a bond like payoff but tying up capital in the short term.
— Releasing the capital in this way allows the company to convert the future stream of payments into capital that can be used now for other opportunities

Securitization



Catastrophe bonds are an example of this[1]

1: https://www.privatedebtinvestor.com/losses-likely-for-world-banks-coronavirus-linked-bonds/

Securitization

Pros	Cons
Money in the door	Sacrificing future profits for gains now
Gain access to financial markets	Complex legal structures
Ability to sell more new business	

How is an actuary involved

— Establishing reserves and capital requirements
— Assessing the risks
— Determining the yield to offer on the bonds
— Providing marketing material

So What?

What next?

— Each company is different, and what works for one might not work else where

— Things to consider in terms of capital drivers include:

- Operating mode
- Outsourcing / shared services
- Capital needs
- Risk appetite
- Stakeholder expectations
- Regulatory framework
- FP&A
- Need for dividends
- Tax considerations
- Growth targets
- Portfolio of products
- Different metrics and measurements
- ALM
- Pricing

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Questions?

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