53 - Risk and Capital Management under Multiple Valuation Bases

2019 Valuation Actuary Symposium

Session 53: Risk and Capital Management Under Multiple Valuation Bases

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Agenda

- Capital and Valuation Frameworks
- Attribution between Frameworks
- Examples
- Implications for Risk Management

Capital and Valuation Frameworks

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Financial Reporting Frameworks

	US Statutory	US GAAP LDTI	IFRS	Embedded Value
Authority	NAIC, states	FASB	IASB Local regulators	CFO Forum (MCEV) or company's own view
Applies to	US domiciled insurers	Publicly traded US companies	Companies domiciled in countries which adopted IFRS	All companies who choose to calculate
Aggregation Level	Legal entity	Group	Group (HQ location) Legal entity	Group (may exclude non-insurance)
Assumptions	Mostly prescribed, except PBR and VACARVM	Mostly company's best estimate	Mostly Company's best estimate with some potentially prescribed	Company's best estimate
Frequency	Annual	Annual	Varies per local regulator	Varies. Quarterly is common
Discount Rate	Prescribed	Upper medium grade fixed-income instrument yield	Top-down or bottom-up approach, potentially prescribed by regulators	Depends on methodology

Risk and Capital Frameworks

	US RBC	Solvency II	ICS	Economic Capital
Authority	NAIC, states	EIOPA	IAIS (standard setting)	Internal ERM department
Applies to	US domiciled insurers	EU	Internationally Active Insurance Groups	All companies who choose to calculate
Aggregation Level	Legal entity	Group (HQ location) Legal entity	Group	Group
Risk Calculation	Prescribed factor-based, formulaic	Prescribed stress scenarios or factors (or internal model)	Prescribed stress scenarios or factors	Stress testing or stochastic modeling
Risk Horizon	Approximates runoff	1 year	1 year	1 year or Runoff
Confidence Level	n/a	99.5%	99.5%	Varies
Correlations	Prescribed, 0% or 100% (mostly)	Prescribed	Prescribed	Varies

Attribution between Frameworks

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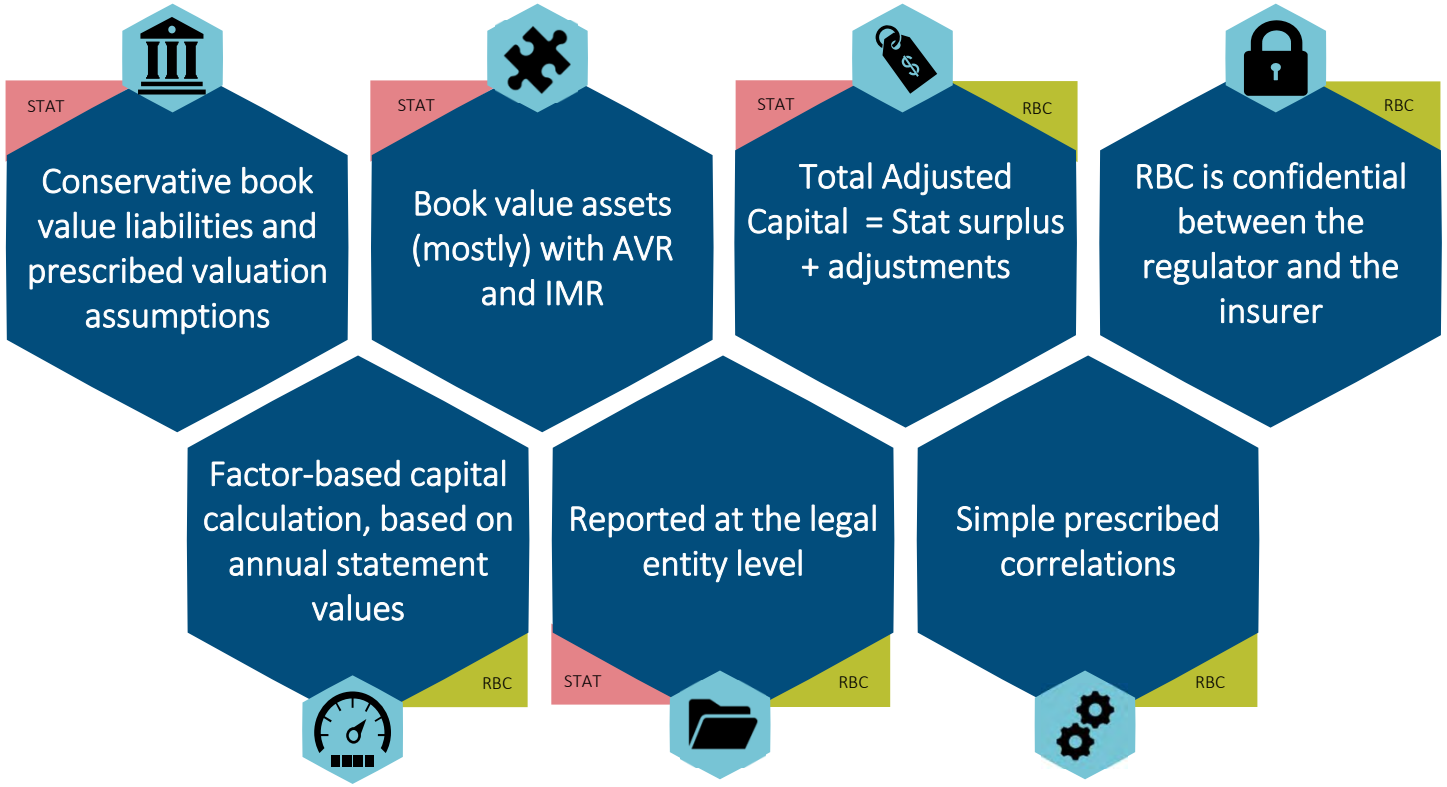
Key Features of US Stat and RBC



“Quirks” of US Stat and RBC

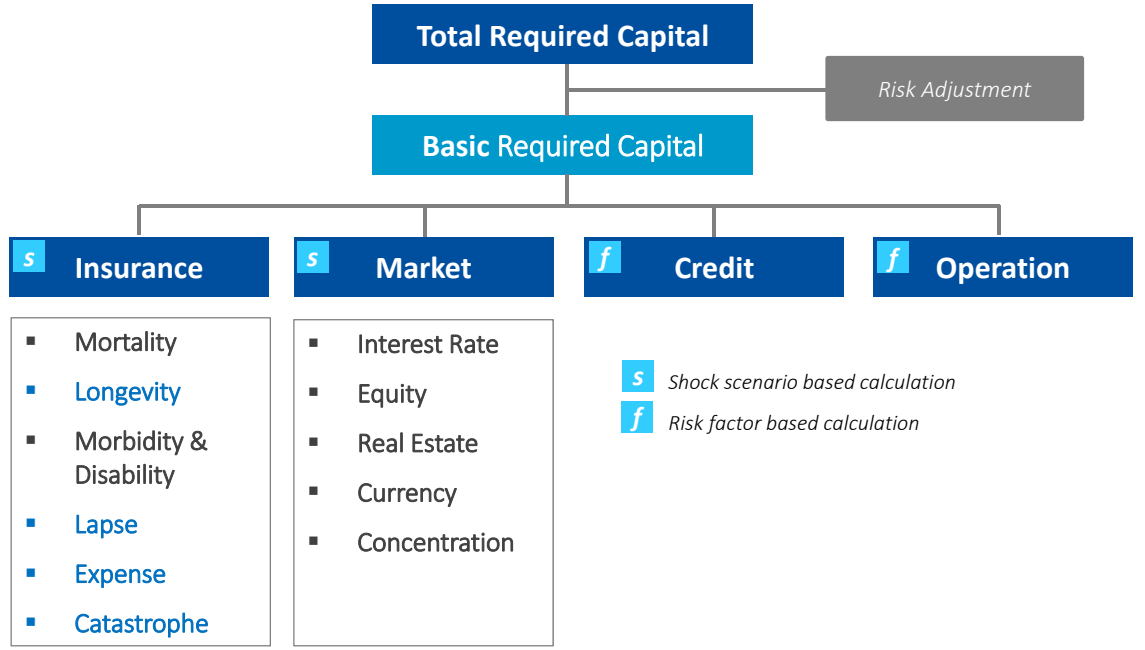
US Stat has several notable characteristics that do not necessarily match economic or cash flow views

Category	Quirk	Materiality	Comments
STAT	• AVR and IMR		• AVR and IMR change timing of when asset gains and losses affect surplus
RBC	• Longevity risk		• Currently not included in RBC, but the NAIC is in the process of developing a longevity risk component
	• C-1 factors		• Generally accepted that C-1 factors do not perfectly match the riskiness of the asset
	• Common stock		• All common stock and mutual funds receive the same 23.7% RBC factor, with weighted average beta adjustment
	• C-4 general business risk		• C-4 requirement is 2% of life and annuity premiums, which creates distortions, especially for single premium products

Small Medium Large

US RBC vs. Solvency II or ICS -Like

ICS



US RBC

f C2 Insurance

f C3 Interest Rate

f C1 Market

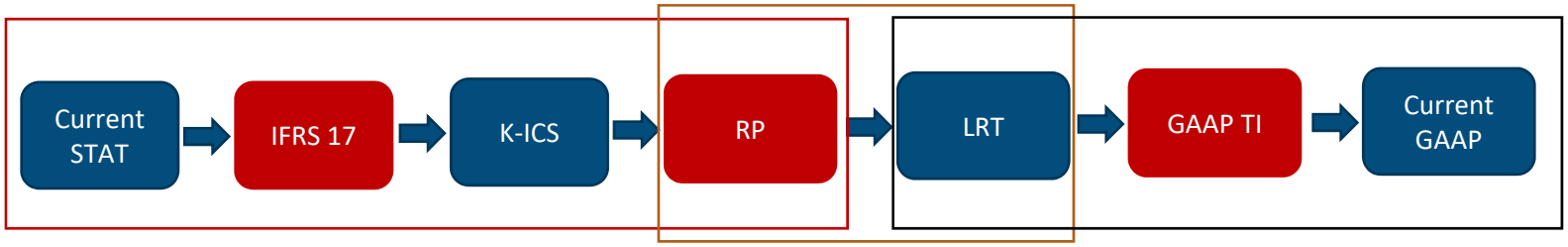
f C1 Credit

f C4 Business

Connecting Multiple Liability Frameworks

Simple illustrative example of connecting different liability frameworks

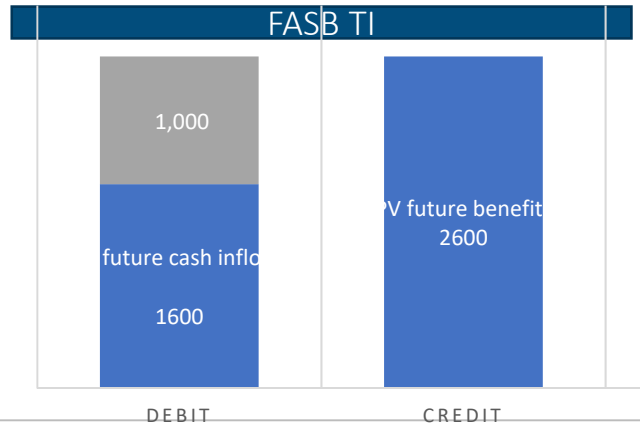
- Reserve mechanism (NPV vs. GPV and margin at issue), discount rate, level of aggregation, assumption, and expense treatment largely explain the differences
- Current Stat to IFRS 17 change could be significant based on the fundamental reserve mechanism difference and also depending on the IFRS 17 transition methodology chosen, policy loan, years in business, discount rate and etc.
- Best estimate liability (BEL) portion under IFRS 17, ICS, RP (Prudential internal BEL), US GAAP loss recognition test and US GAAP LDTI could be similar for premium and benefit cash flows
- Separate account treatment varies and could have significant impact
- It is essential to create a process and system to produce results efficiently and consistently

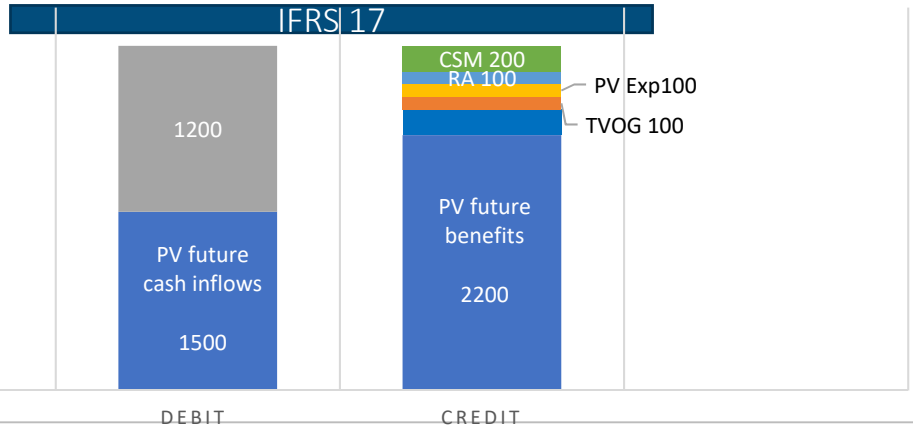


US GAAP LDTI and IFRS 17 Transition Liability

Simple illustrative example of transition liability

- Discount rate could be different
- GAAP uses net to gross ratio while IFRS 17 uses CSM as a plug
- The number of cohort under IFRS 17 could be less than LDTI potentially due to issue year and product aggregations



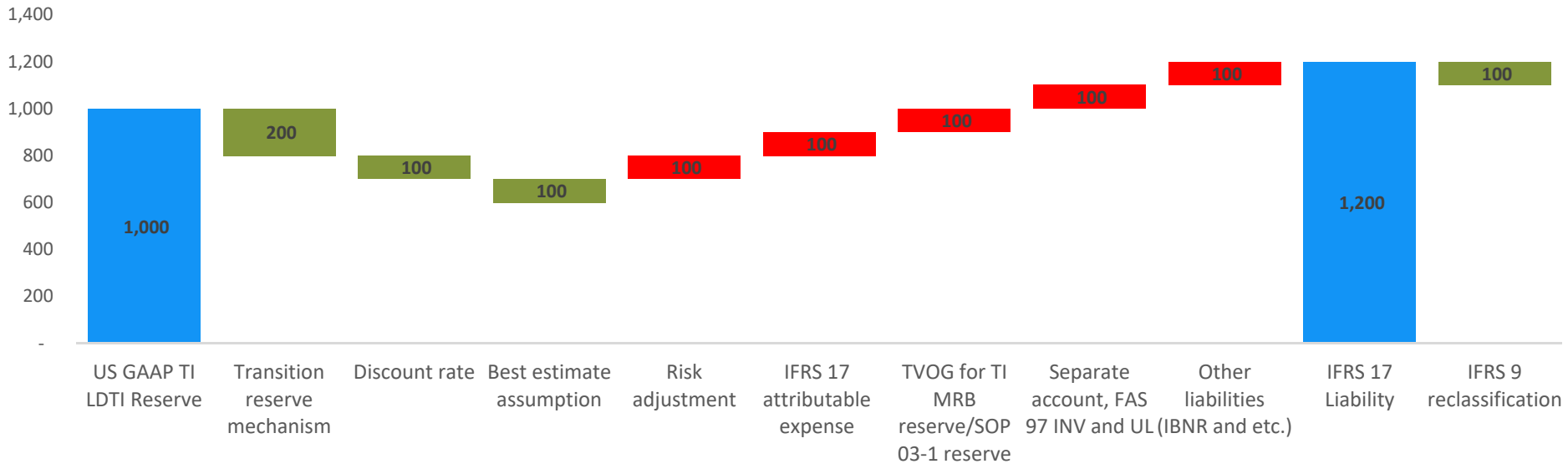


Net to Gross ratio NTG= 100% =
(PV benefit 2600 - Pre TI reserve 1000)/PV prem 1600
TI reserve at transition = 2600 - 100% * 1600 = 1000

Transition IFRS 13 fair value liability = 1200
Transition IFRS 17 fulfillment CF = 1000 = 2200 – 1500 + 100 + 100 + 100
Transition CSM = 200 = IFRS 13 – IFRS 17 fulfillment CF
IFRS 17 reserve at transition = 1000 + 200 = 1200

Transition Liability Attribution Example

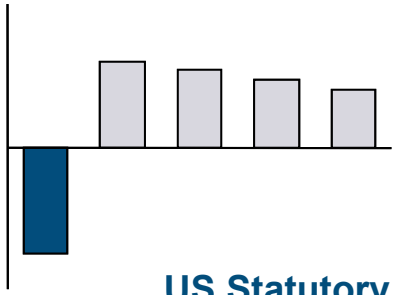
Simple illustrative example of transition liability



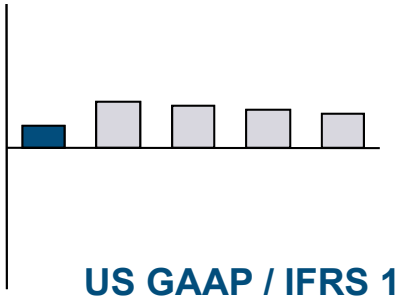
Note: For simplicity, lock-in rate and current rate for TI are assumed to be the same. There are other differences but omitted for discussions to simplify the discussion points

Profit Recognition on New Business

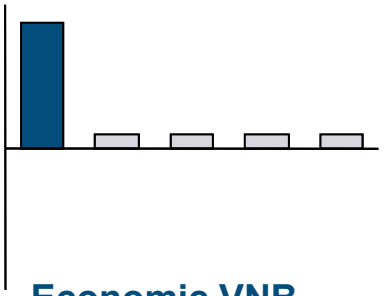
Simple illustrative example of profit emergence of new business



US Statutory
NB Strain from required capital, acquisition expense, etc.



US GAAP / IFRS 17
Reduced NB strain for acquisition expense



Economic VNB
No reserve strain

The total lifetime profits under any framework are the same; the difference is the timing of profit emergence:

- Under US Stat reporting, a loss emerges in the year of issue due to large new business strain
- US GAAP and IFRS 17 have mechanics to defer acquisition costs instead of expensing them in the year of issue
- Economic based valuation do not have an initial reserve constraint like US Stat, US GAAP and IFRS 17
- Capital requirement needs to be contemplated per US RBC, ICS, Solvency II or internal economic capital

Examples

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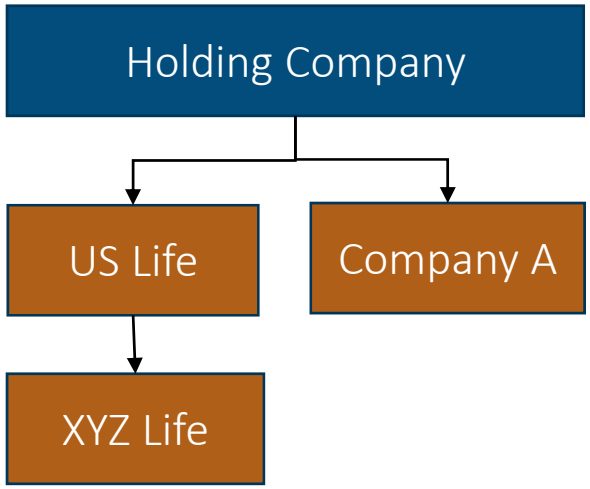
Examples

- Sample company will complete several transactions
- We picked interesting outcomes that may differ across bases – and we'll explain why
- Transactions are illustrative, not precise
- Consult your favorite actuary or accountant for specific guidance and considerations

Our Example Company

- Holding Company based in the US

- 3 insurance companies:
  - US Life
  - Company A
  - XYZ Life



Example Company: US Life

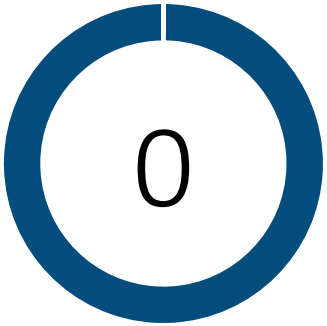
- US domiciled life insurer
- $25 billion assets, $24 billion liabilities, $1 billion surplus
- For simplicity, surplus = TAC
- Most assets are in corporate bonds, with some equities
- RBC ratio of 350%
- Owns 100% of XYZ Life, a company in Country X

Scenario A: Risky Reinvestments

- US life company has $1 billion in S&P500 index fund
- Opportunity to invest $1 billion in private equity in a collection of startups
- Company will exit the S&P index fund in order to enter into the private equity

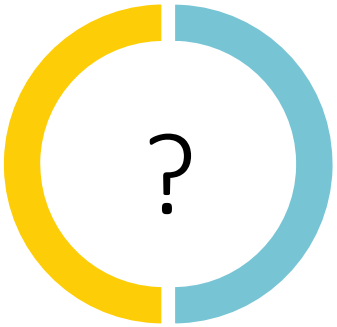
Scenario A Impacts

RBC Ratio



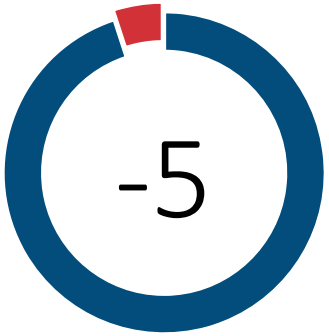
RBC assigns the same factor to private equity as to the S&P 500

GAAP



GAAP impacts will vary based on whether the private equity is held at fair value, the equity method, or consolidated

EV



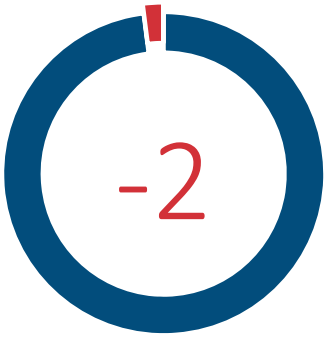
Assets are valued on a market basis, minimizing point-of-sale impacts. Additional risk increases the cost of capital

Scenario B: Mortality Deterioration

- US Life experiences a steady increase in mortality rates relative to expected

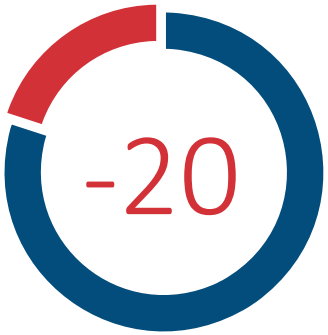
Scenario B Impacts

Stat



Stat reserves (except PBR) continue to use prescribed assumptions, but may require a cash flow testing reserve if impact is severe

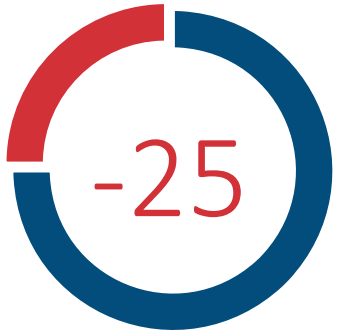
GAAP



With LDTI, recognize a large loss upon updating the future mortality assumption used to calculate reserves

A difference between EV and GAAP is the discount rate

EV



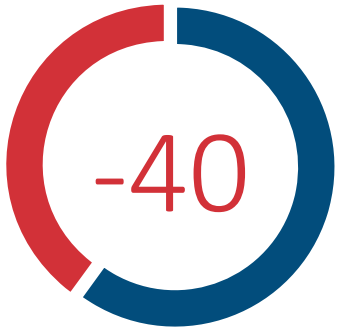
ANW takes a hit from lower than expected earnings. VIF is reduced from business runoff and assumption updates

Scenario C: Big sales year

- US Life enters the SPIA market and immediately has sales of $1 billion

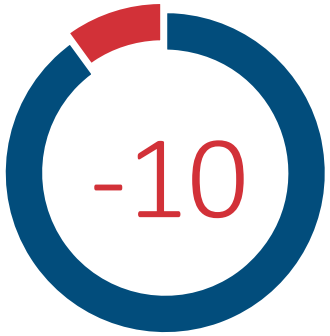
Scenario C Impacts

Stat



Stat surplus strain may vary based on valuation rate and pricing; acquisition expenses are not deferred

GAAP



Small loss is recognized for expenses that cannot be deferred in DAC

EV

EV reflects an immediate gain from profitable sales (may be reduced depending on ability to reflect credit spreads)

Implications for Risk Management

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Understand Your Metrics

- Stat, GAAP, Economic, etc. behave differently under different scenarios. Management needs to be comfortable with these behaviors
- Others can act as constraints (e.g. even if you manage to economic capital, you still have to hold minimum RBC)

Connect to Risk Appetite

- Maximum risk concentration by type of risk
- Maximum risk concentration by product/entity/region
- Minimum probability of achieving target earnings
- Minimum liquidity ratio

Updates may be needed when accounting regimes change

Optimization

- If you want to optimize results, price on that basis!
- EV can be a leading indicator for future Stat and GAAP results

Controls and Risk Management Tools

- Group risk governance requirement
  - ICS and Solvency II require more specific group risk governance and control
- Understanding of the differences of assumptions between frameworks and creating consistencies if applicable
  - Discount rates
  - Level of aggregation
  - Stress size, diversification effect, and approach
- Creating process and system to be able to efficiently handle valuations, reviews and sign-off under multiple framework and creating analytics for attributions
- Allocating actual and modeled results into cohort (product group) or entity level will become more important
- Being ready for volatility in results through stress and sensitivity tests
- Using measures such as reinsurance, hedging, product design and business combination

A few more scenarios

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Scenario D: Reinsure the block

- Holding company wants to improve capital metrics and risk profile by ceding to reinsurers
- US Life obtains 90% coinsurance on a large block of ULSG business

Scenario D Impacts

RBC Ratio

RBC is “ceded” to the reinsurer

GAAP

GAAP earnings may decrease, but earnings will be less volatile

EV

Reduction in cost of capital, partially offset by lower earnings in VIF

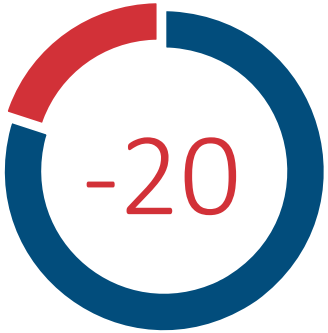
Scenario E: Sale of XYZ Life for cash

- US Life owns 100% of XYZ Life, a company in Country X. XYZ has $120 million surplus under local accounting standards.
- Sale price = $100 million
- Proceeds received in cash and invested in AAA bonds

Scenario E Impacts

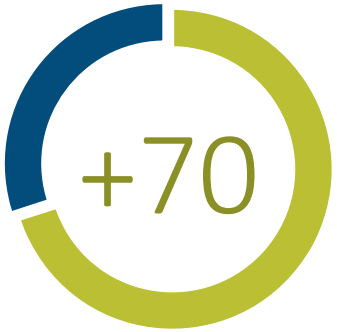
GAAP impacts are difficult to predict because of consolidation

Stat Surplus



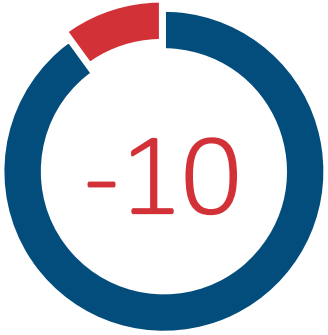
Surplus decreases because the sale price is $20 million lower than the previous value of the subsidiary

RBC Ratio



TAC increases by the $100 million sale price; RBC ratio increases due to TAC increase and low risk of AAA bonds

EV



Assumption of rationale sale prices implies outgoing VIF is negative, offset by reduction in ANW Cost of capital on retained business increases from lost diversification benefits

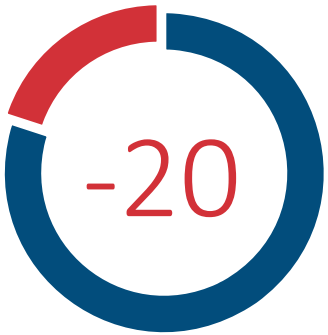
Scenario F: Sale of XYZ Life for stock

- US life company owns 100% of XYZ Life, a company in Country X. It has $120 million surplus under local accounting standards.
- Sale price = $100 million
- Proceeds received in the form of $100 million of stock in LARGECo, the privately-held purchaser
- After the transaction, US Life will own 10% of LARGECo

Scenario F Impacts

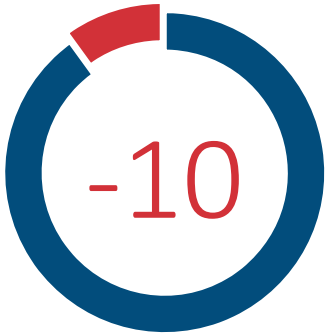
How might impacts be different if the ownership percentage is higher?

Stat Surplus



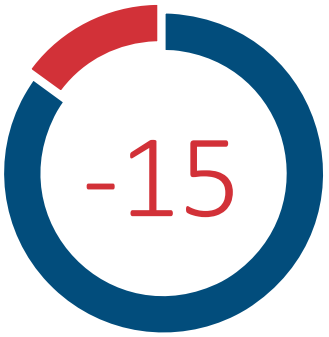
Surplus decreases because the sale price is $20 million lower than the previous value of the subsidiary

RBC Ratio



TAC increases by the $100 million sale price; but RBC ratio decreases due to high RBC factor on common stock and concentration risk

EV



Compared to Scenario E, Higher capital requirement, offset by higher expected yield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