SOCIETY OF ACTUARIES

Society of Actuaries research

Earnings Emergence for Insurance Contracts Under Possible Future International Accounting Standards

2013 Update

Presented by Tom Herget, FSA, MAAA, CERA

Tokyo, 4 October, 2013

Actuaries
Risk is Opportunity.

Contents

- Project Overview
- Product Results

Project Overview

- Requested by the American Academy of Actuaries to help them respond to the IASB
- Sponsored by the SOA's Financial Reporting Section
- Providing education to SOA members and candidates
- Completed mid-October 2013 ☺
- Twelve products' earnings emergence
- Report to be available on SOA website

The Actuarial Task Forces (ATF's)

- AFLAC
- ARC
- Deloitte (Chicago)
- Deloitte (Hartford)
- Ernst & Young
- KPMG/GGY Axis
- Manulife
- MetLife
- Milliman
- New York Life
- PolySystems
- Towers Watson

Project Manager Ernst & Young

- Rodrigo Careaga
- Mark Freedman & Tara Hansen
- Keith Bucich, Mustafa Dinani, Asad Khalid & Bruce Rosner

SOA Support

- From headquarters: Ronora Stryker & Jan Schuh
- Project Oversight Group (POG) Members:
  - Tom Herget, chair
  - Rowen Bell
  - Rod Bubke
  - John Dieck
  - Steve Easson
  - William Hines
  - Burt Jay
  - Craig Reynolds
  - Henry Siegel
  - Steve Strommen
  - Randy Tillis

Products Studied

- Term Life
- Par Whole Life
- Universal Life (UL)
- Universal Life with Secondary Guarantees (ULSG)
- Single Premium Immediate Annuity (SPIA)
- Variable Universal Life (VUL)
- Variable Annuity (VA)
- Single Premium Deferred Annuity (SPDA)
- Fixed Indexed Annuity (FIA)
- Cancer
- Long Term Care (LTC)
- Medicare Supplement

Deliverables

- New business only
- IFRS balance sheet and profit emergence
- US GAAP (today's US GAAP) balance sheet and profit emergence
- Alternative scenarios
- Observations

Timetable

- October 2011 ATF's recruited
- November 2011 Project Manager selected
- August 2012 Products and Variations selected
- Late 2012 and early 2013 ATF's run cash flows, statutory and US GAAP
- Wait, wait and wait
- June 2013 Read Re-exposure draft
- July 2013 Develop Instructions
- August 2013 ATF's do calculations
- September 2013 ATF's, Project Manager and POG inspect every digit in results
- October 2013 Issue final report – available at http://www.soa.org/Research/Research-Projects/Life-Insurance/research-2013-earnings-emerge-ins.aspx

Key Assumption – Risk Adjustment – Used Cost of Capital

- Risk Adjustment liability equals:

The sum of the present value of the projected required economic capital (EC) for non-hedgeable insurance risk times the Cost of Capital (CoC) rate

$$Risk\ Adjustment_t = \sum_{i=t}^{\infty} PV(EC_i) \times CoC$$

Where

- PV uses a risk-free rate (4% for all durations),
- Cost of Capital rate is 6% for all durations, and
- EC needed in year t is based on a simplified implementation of the Solvency II standard formula

Key Assumption – Cost of Capital calibration

- Cost of Capital based on Solvency II Standard Formula
  - Shocks are calibrated using a Value-at-Risk (VaR) measure, with a 99.5% confidence level (over one year period)
  - The 6% CoC rate represents the shareholder cost to provide funds to cover required capital at a confidence level of 99.5%

- Difficult to relate to U.S. RBC ; risk factors are different under these two approaches
  - EC explicitly captures lapse risk.. RBC does not
  - Calibration levels are likely to be different between RBC and EC
  - Diversification levels could be different too

Key Assumption – Discount Rates

- Assumed a flat yield curve
- Discount rate based on the top-down approach
  - Gross investment market yield (5.5%)
    - Risk free rate – 4%
    - Credit spreads – 1.5%
  - Less expected defaults (60 bps)
  - Less unexpected defaults (10 bps)
  - Discount rate – 4.8%
  - For contracts with discretionary participation features (e.g. UL, SPDA), there is a presumption that a portion of the unexpected defaults are shared with the policyholder through adjustments to the credited rate (unexpected defaults assumed to be 5 bps)
- Base contract cash flows for VA and VUL discounted at risk free rate

Key Assumptions – Other

- Invested Assets – is the same for US GAAP and IFRS
  - Based on statutory reserves plus target surplus
  - Assets not explicitly modeled
- Earnings presented include interest on invested assets (statutory reserves plus target capital)
- Earned interest rate – 4.9% (net of defaults) for all base line projections
- Product profitability – checked for reasonableness using Statutory Internal Return on Investment (ROI)
- All results are pre-tax
- Base studies – actual experience equals expected

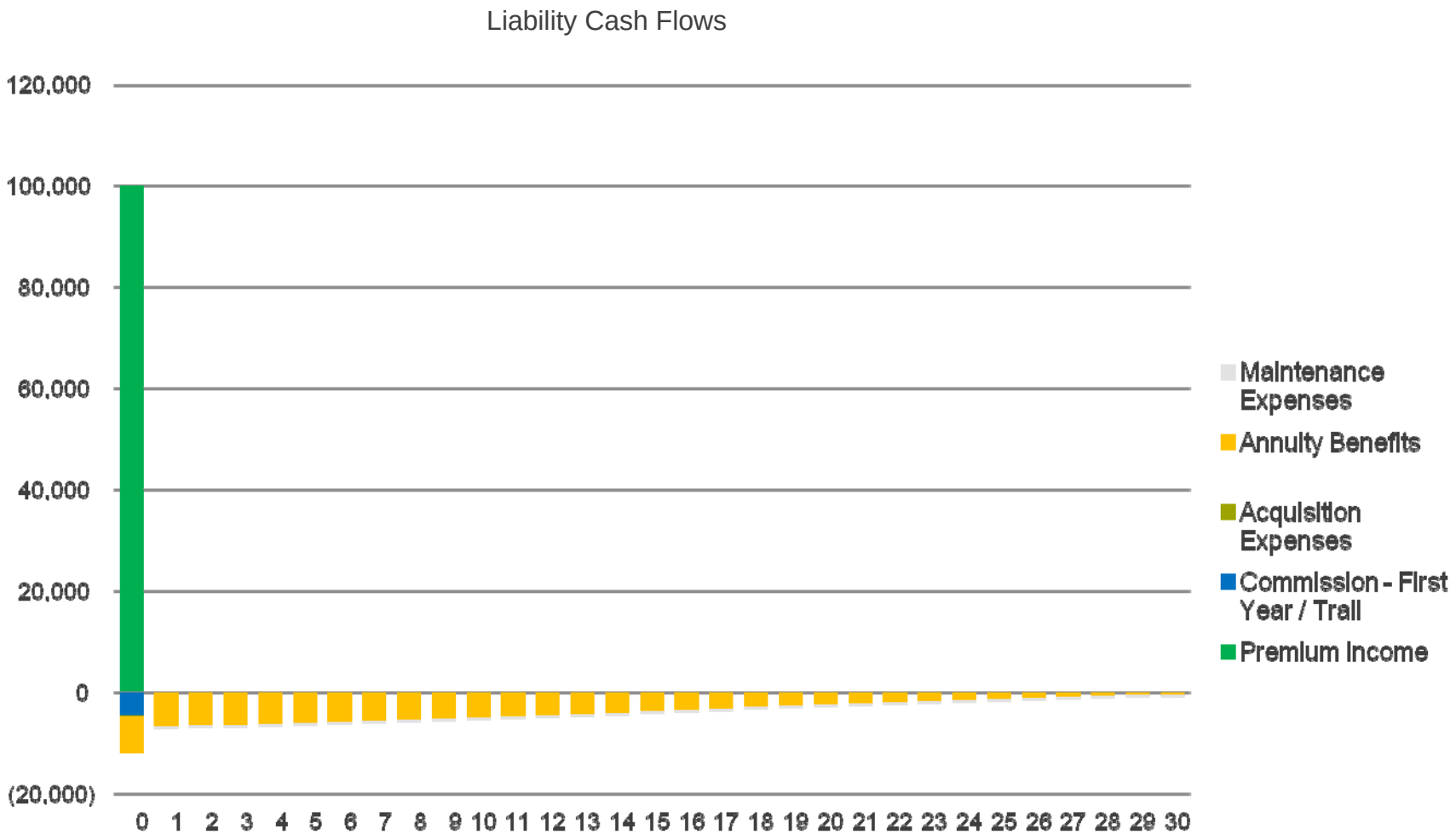
Product Results – SPIA

Key features

- Single premium paid at issue
- Life contingent benefit payments
- Lifetime guaranteed benefit
- Target ROI = 8%

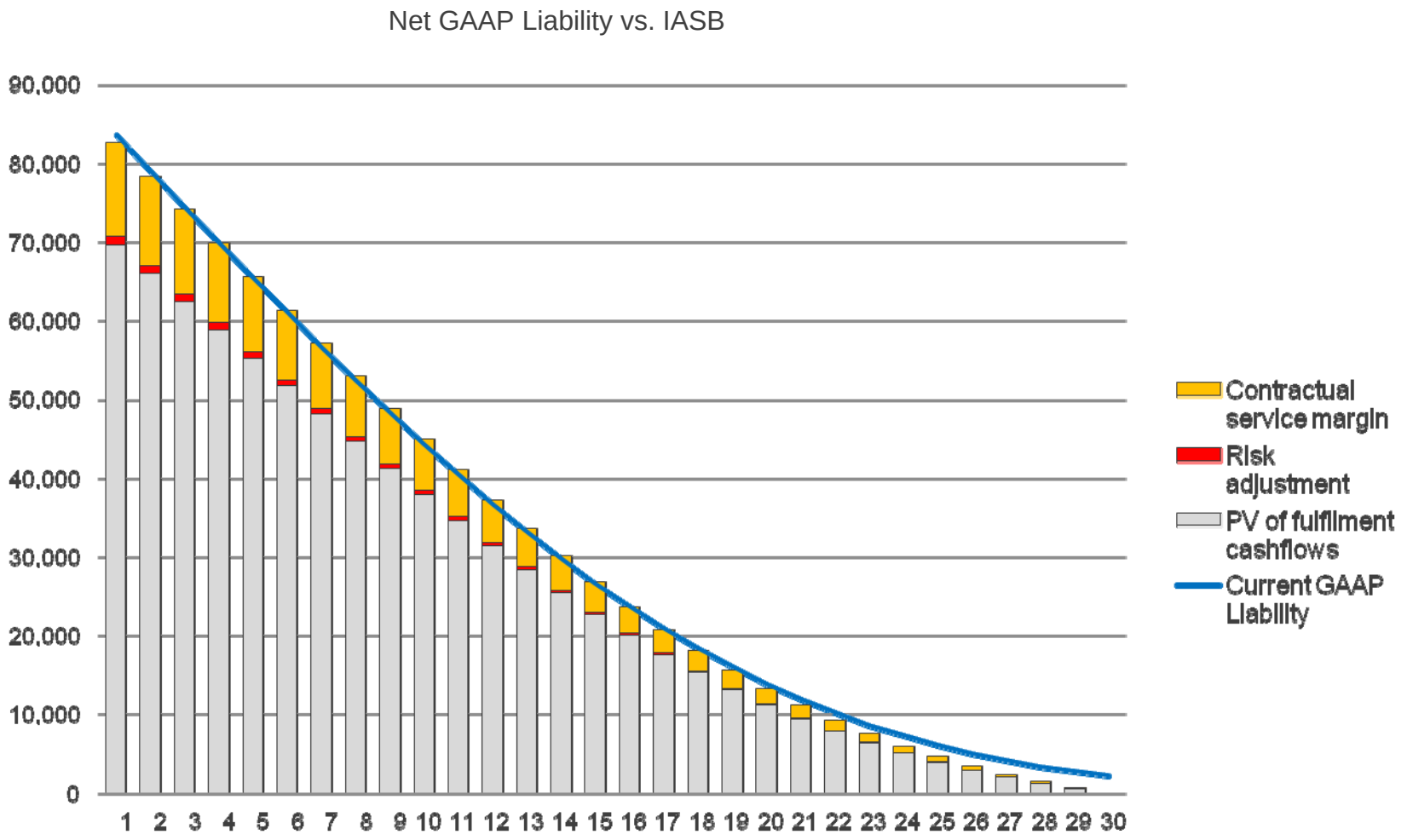
SPIA

Fulfillment Cash Flows - Baseline



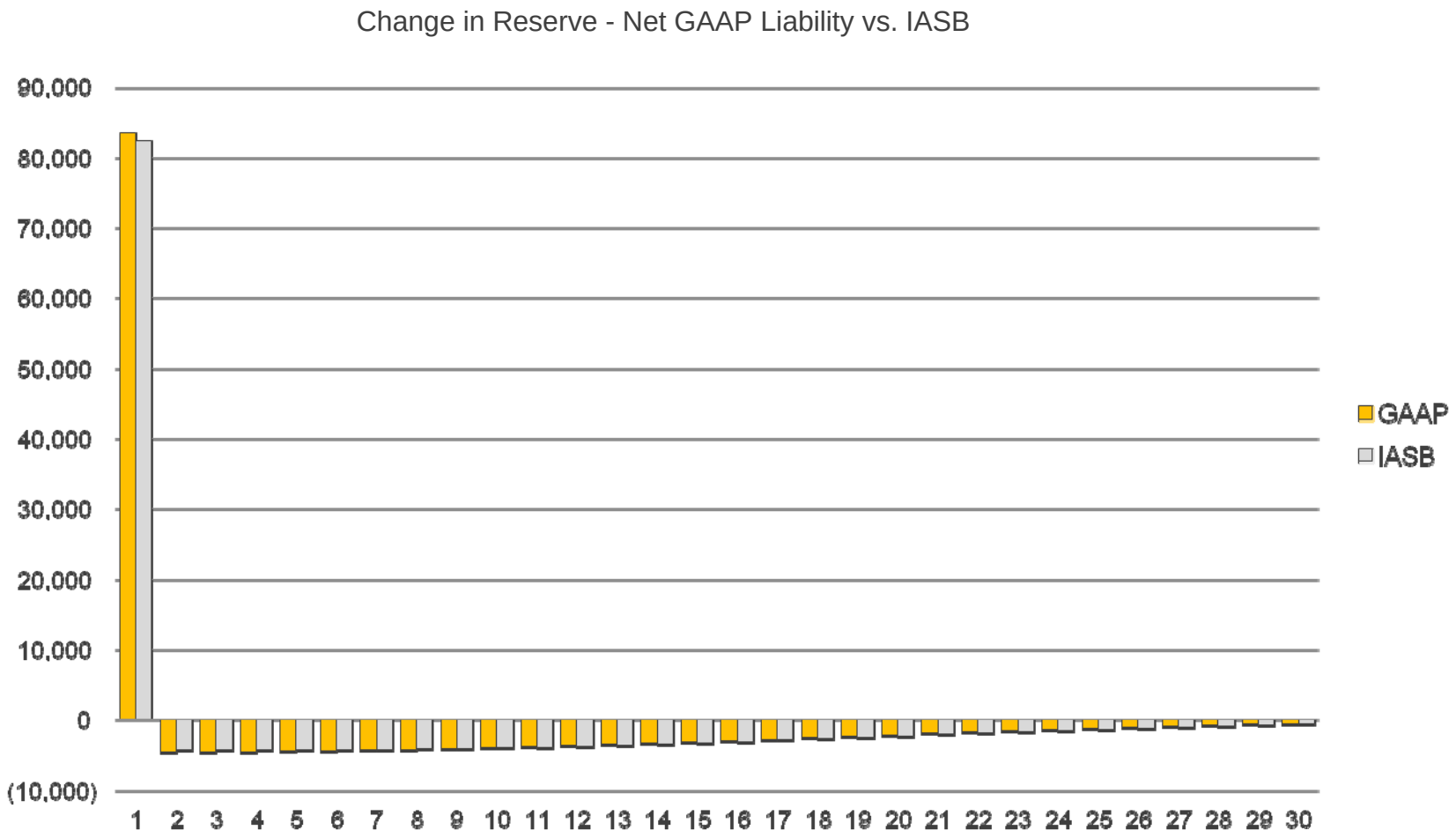
SPIA

Reserve Comparison - Baseline



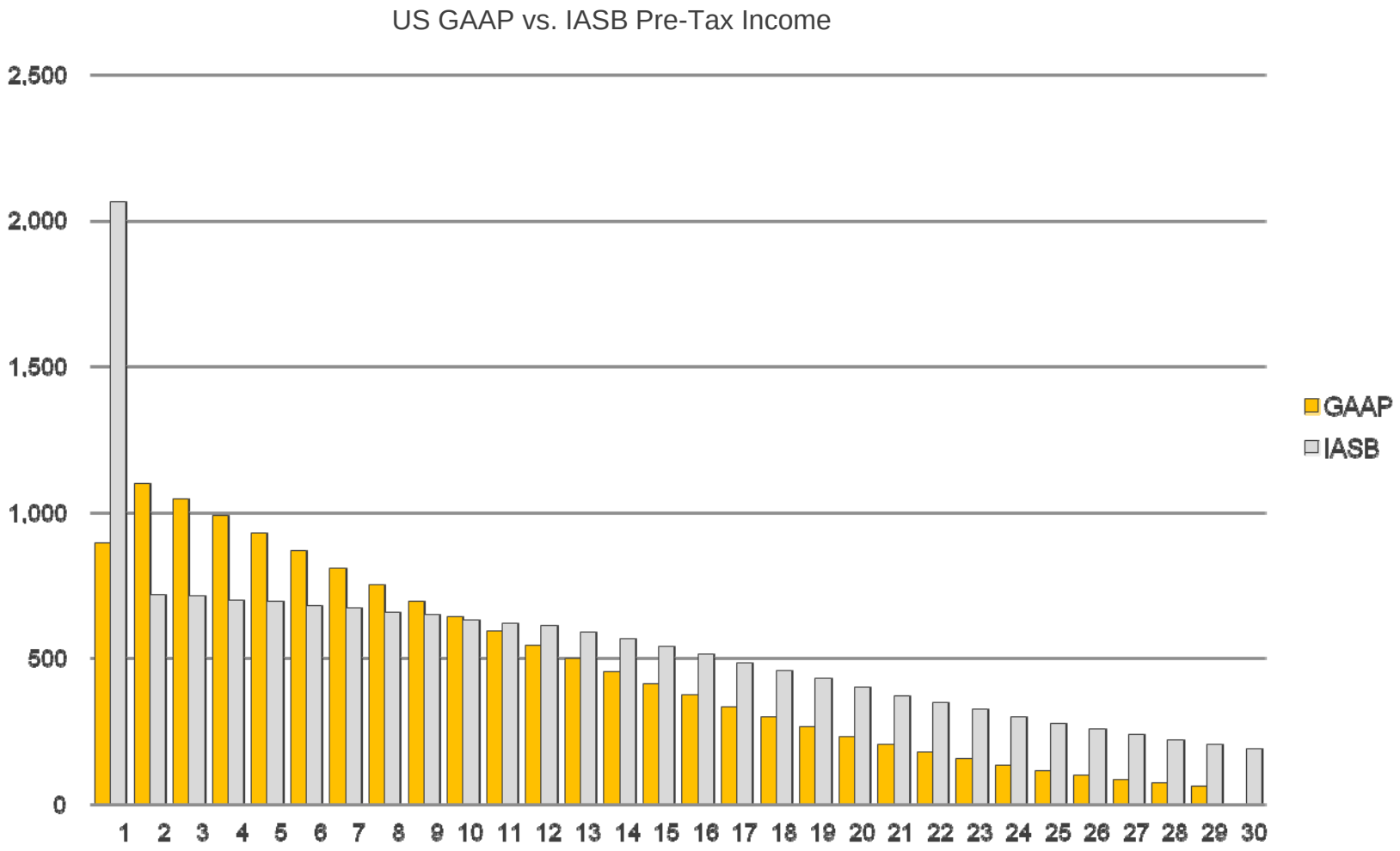
SPIA

Change in Reserves - Baseline



SPIA

Profit/Loss Emergence - Baseline

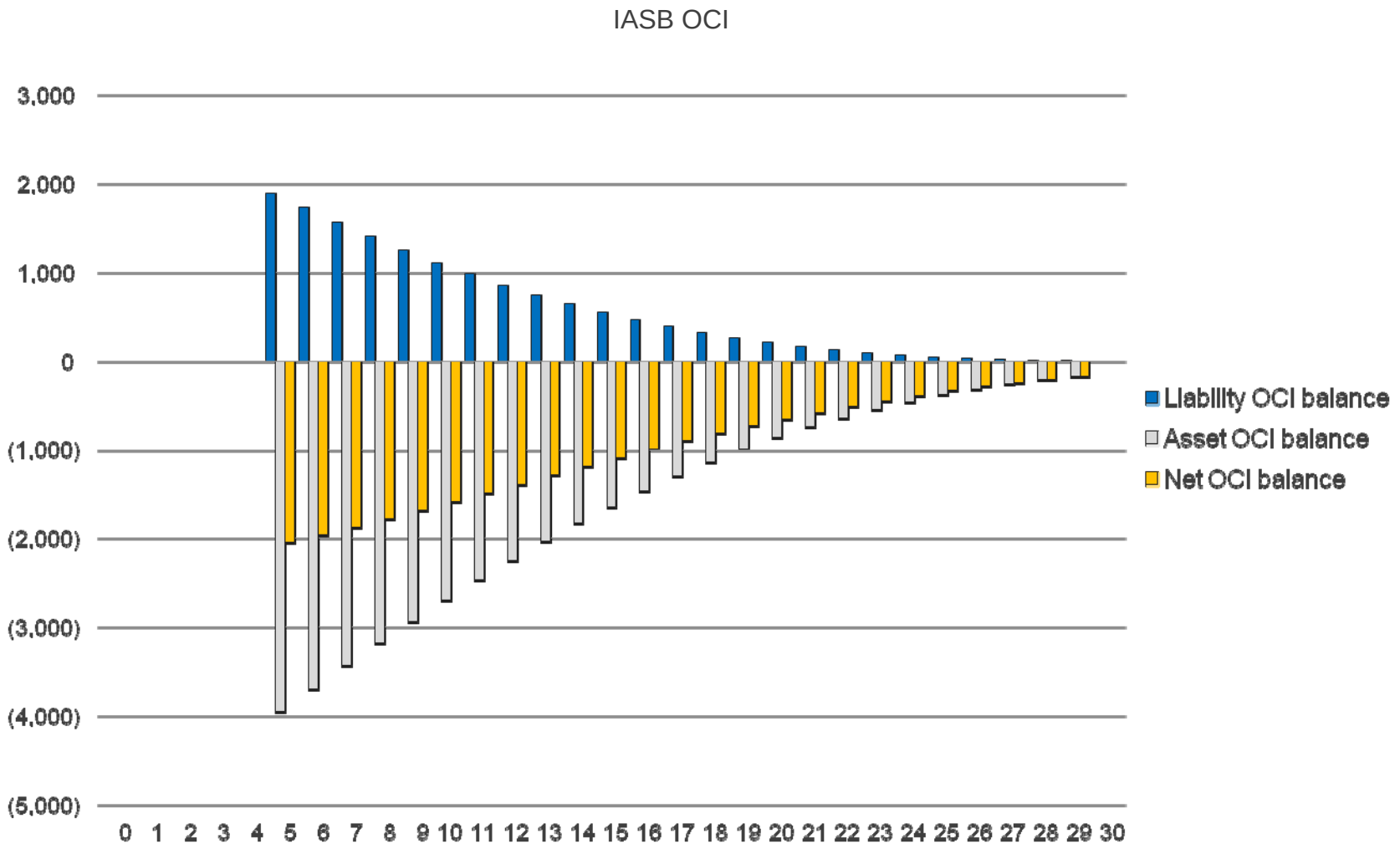


SPIA interest rate shock sensitivity test

- In year 5, credit spreads increase 200 basis points
- 100 are due to illiquidity, 100 to expected default
- Asset discount rate goes from 4.9 to 6.9%
- Liability discount rate goes from 4.8% to 5.8%
- Look at impacts on OCI

SPIA

Interest Rate Shock - Sensitivity



SPIA – Key Observations

- Total liability under IASB is similar to US GAAP liability. Difference likely due to:
  - Use of PADs under US GAAP
  - Development approach for discount rate

- Profit emergence driver is different under US GAAP and the proposed IASB standard:
  - Release of PAD under US GAAP vs. release of margins under IASB
  - Note – year one P/L difference not yet explained

- OCI impact on liabilities and assets is different under the interest rate shock scenario; this example produces a -$2,000 OCI

Product Results – SPDA

Key features

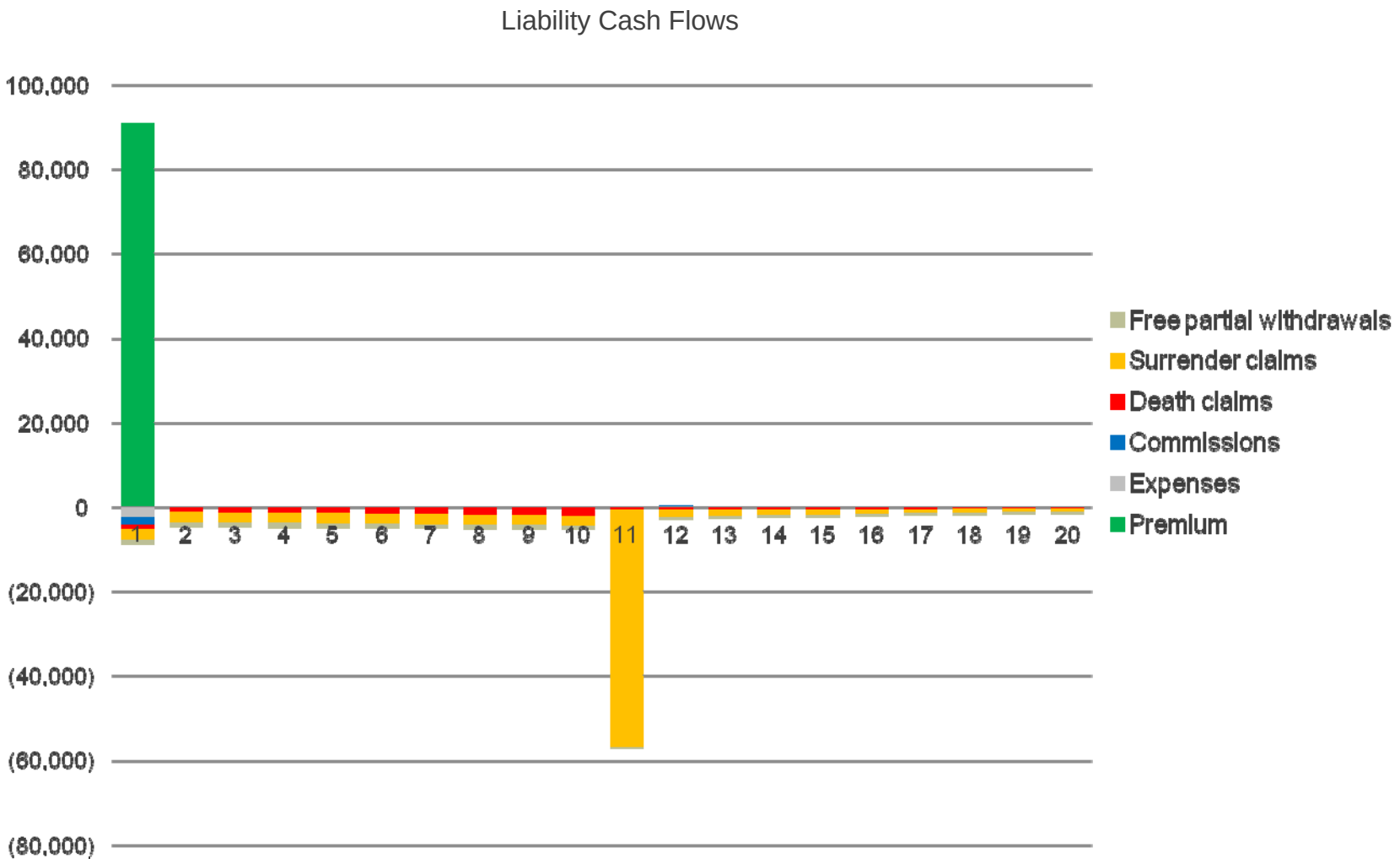
- Single premium paid at issue
- Death benefit = Fund value
- Surrender benefit = Fund value - surrender charge
- Guaranteed credited rate = 1%
- Trailer commission (% fund value) paid in year 12
- Target ROI = 15%

Key assumptions

- High lapses after surrender charge period expires
- Assumed 100% lapse in year 20
- Annuitization deemed immaterial (and not modeled)

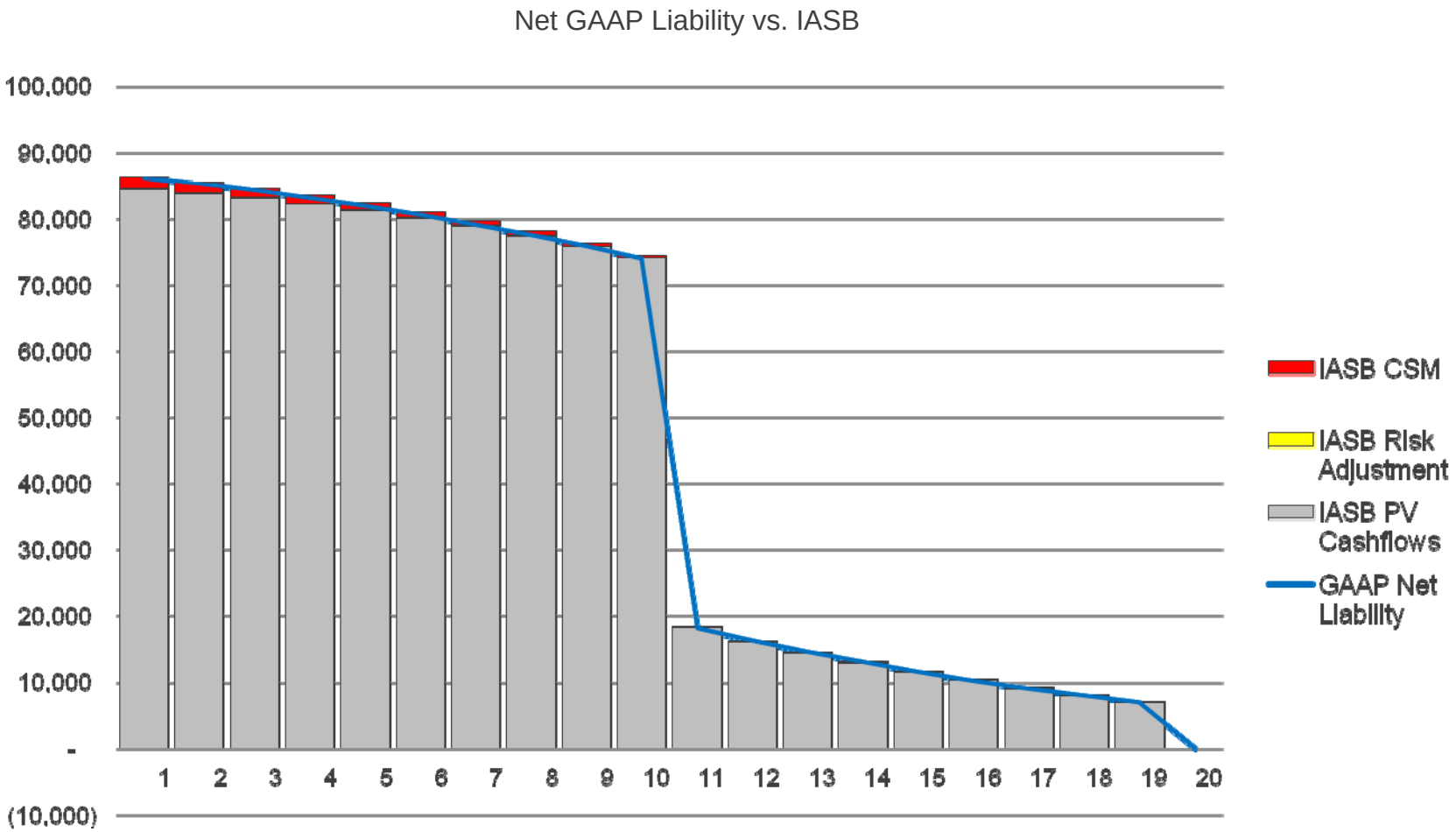
SPDA

Fulfillment Cash Flows - Baseline



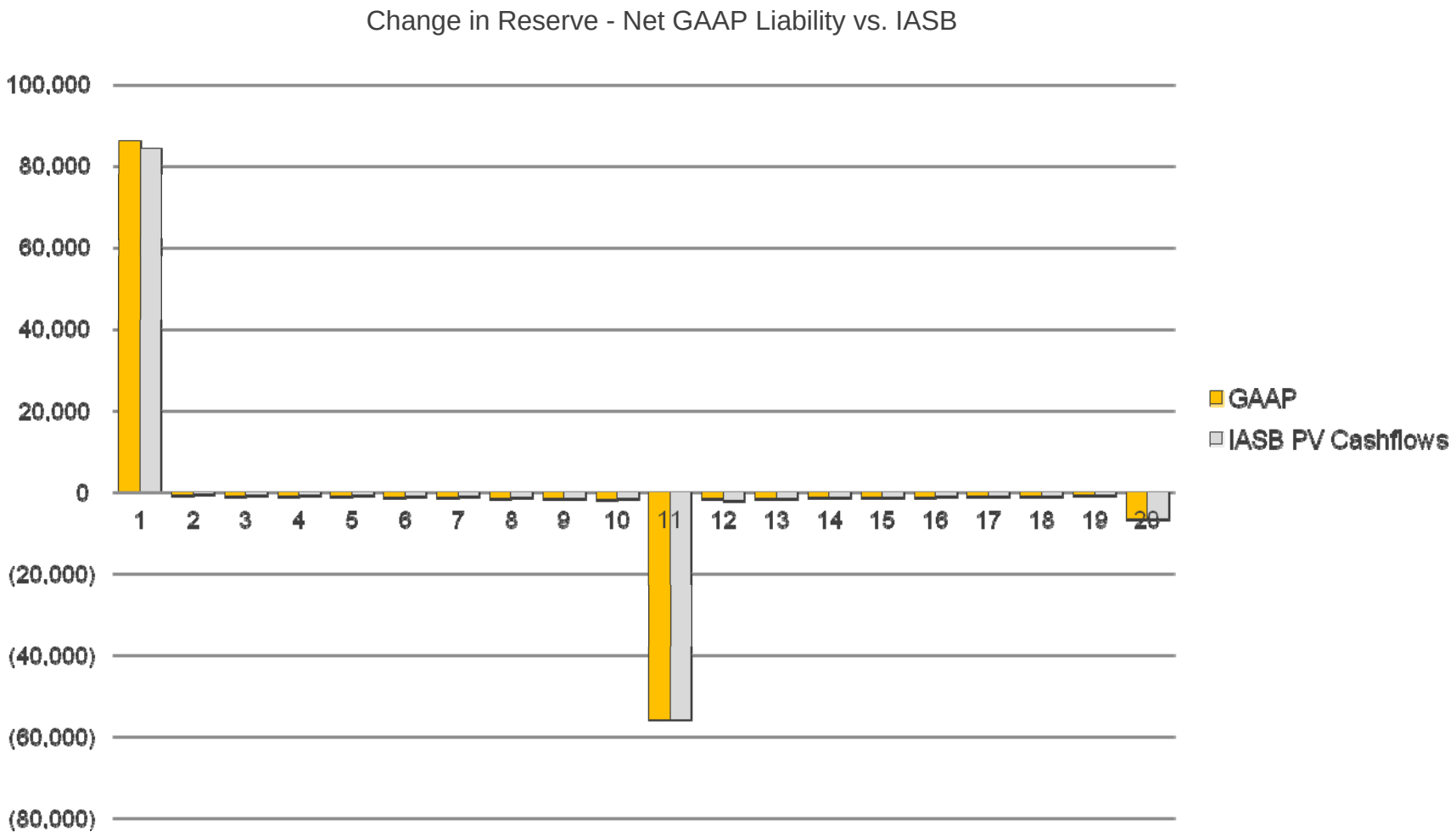
SPDA

Reserve Comparison - Baseline



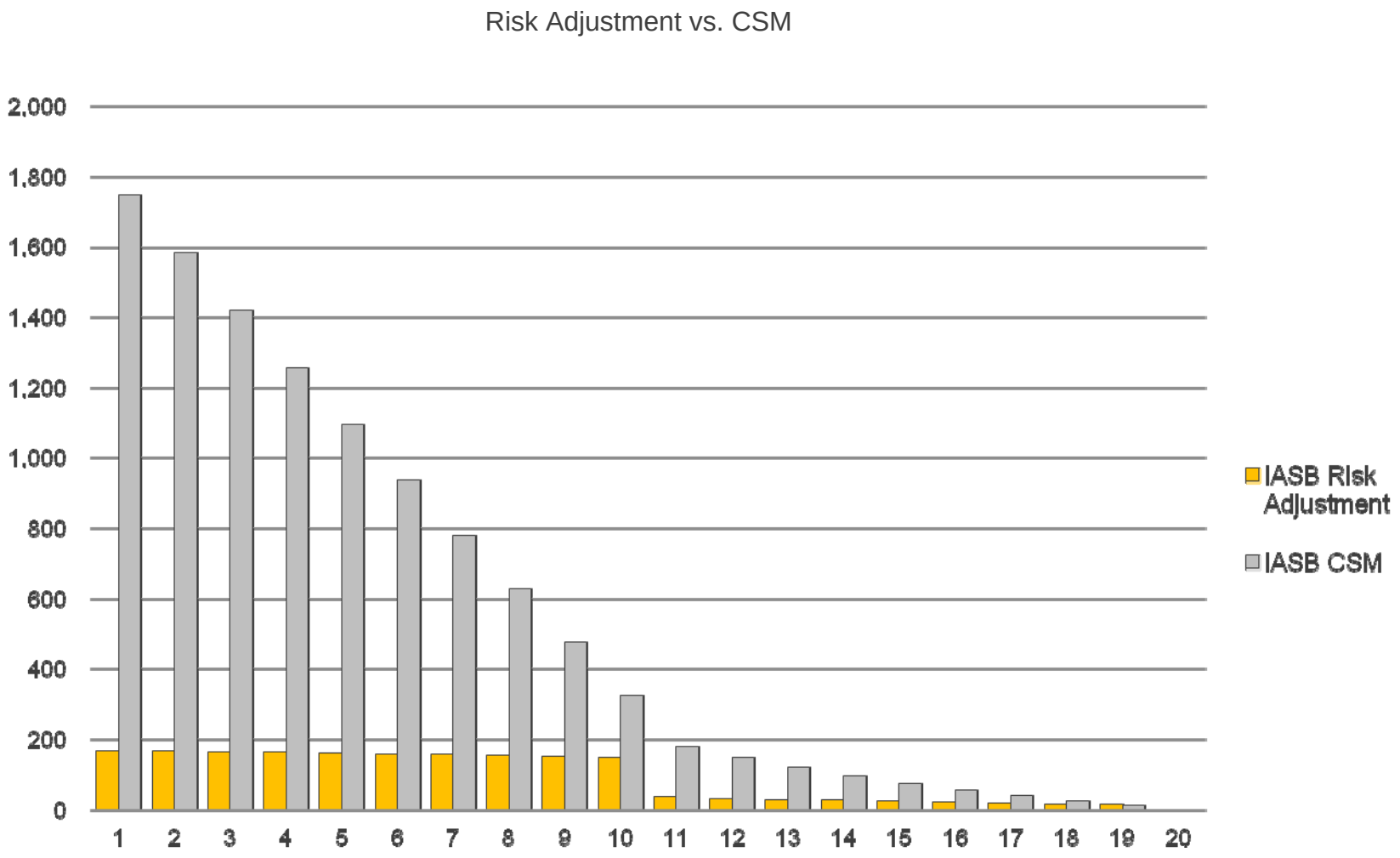
SPDA

Change in Reserves - Baseline



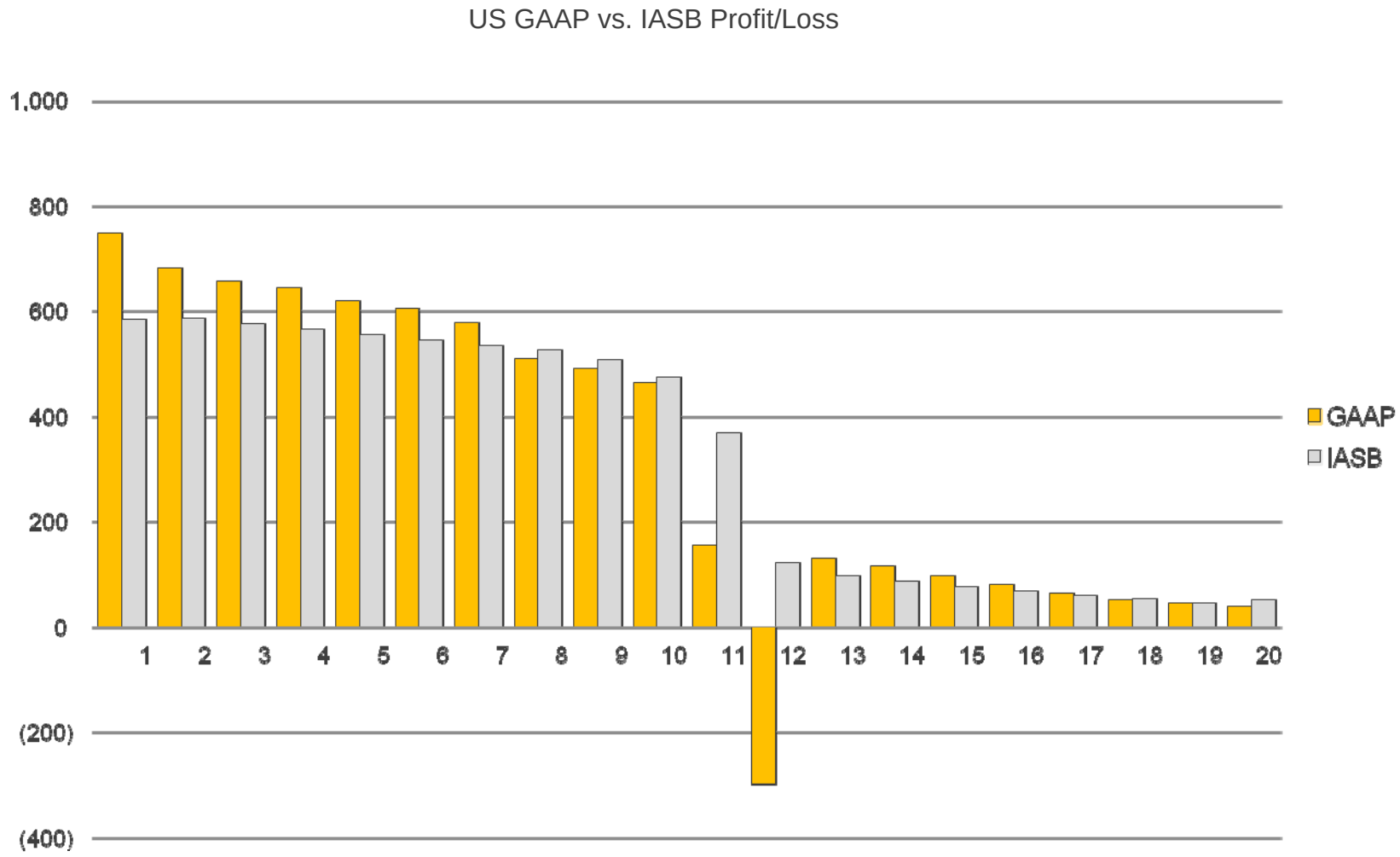
SPDA

Risk Adjustment & CSM - Baseline



SPDA

Profit / Loss Emergence - Baseline

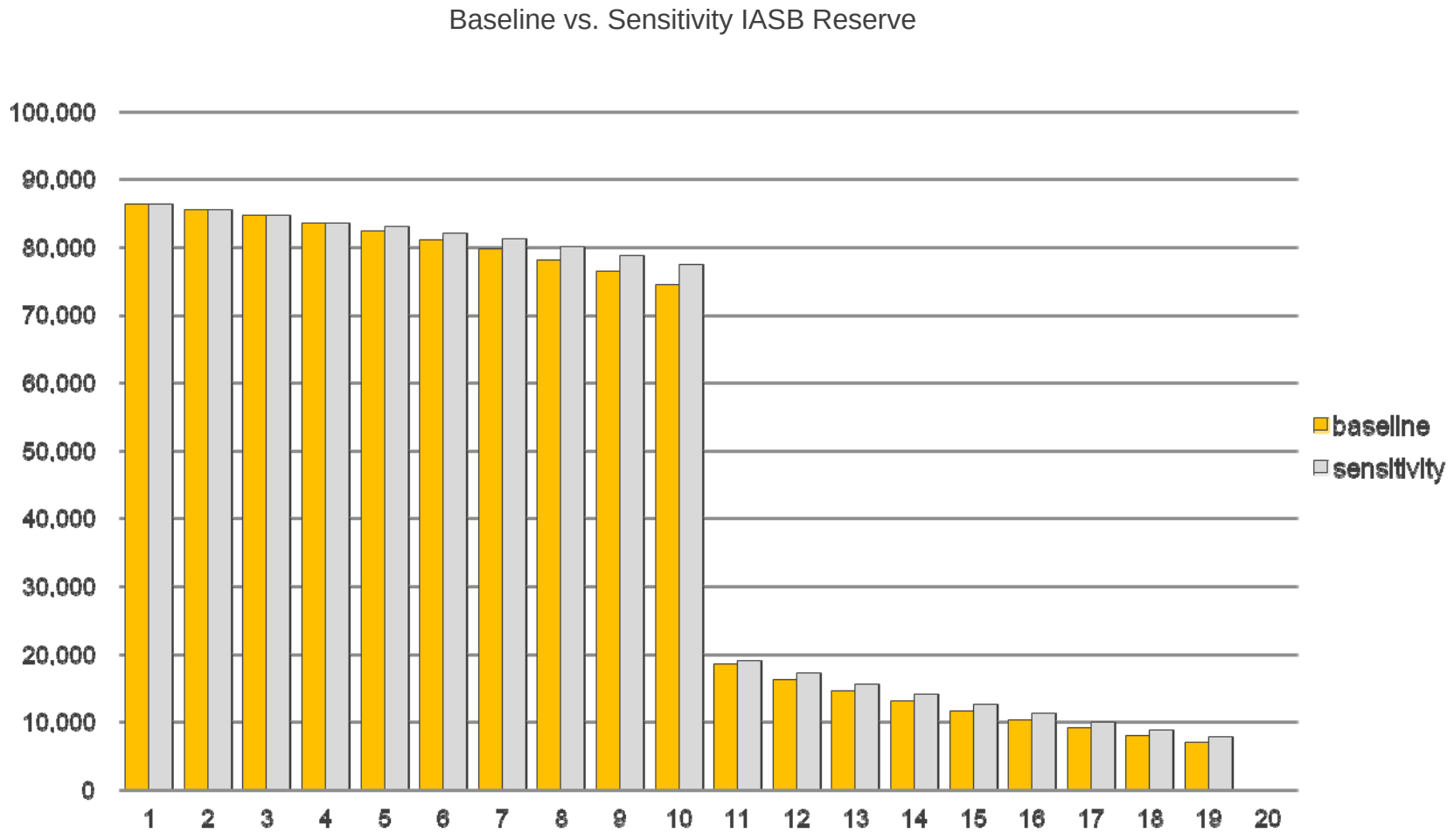


SPDA interest shock sensitivity

- In year five, credit spreads increase by100 basis points; no change in defaults
- All the increase is passed on to policyholder
- The discount rate increases by 100 bps
- Result: present value of cash flows increases slightly

SPDA

Reserve Comparison – Interest Shock Sensitivity

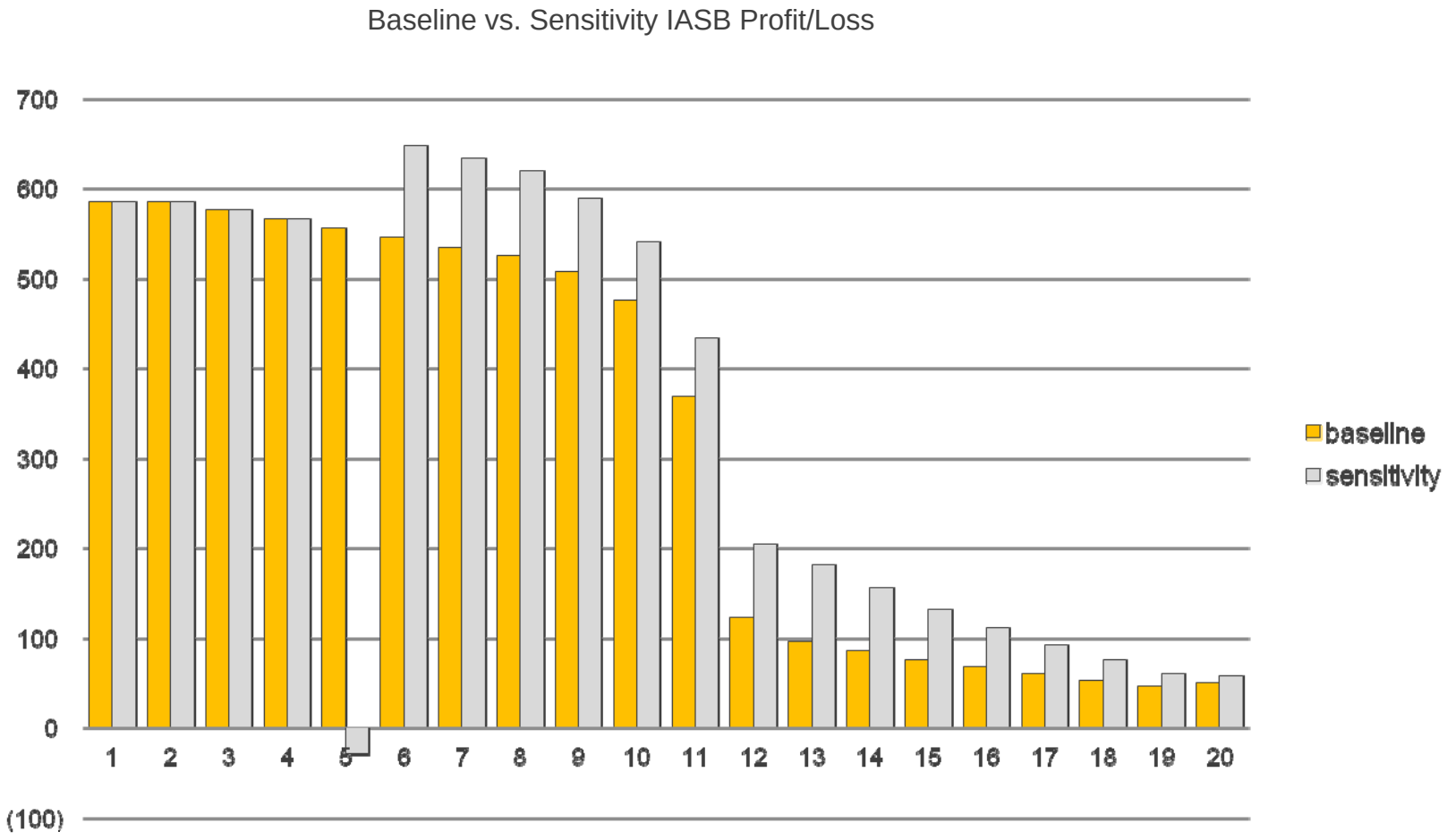


SPDA interest shock sensitivity – P/L & OCI

- Under this ED, all asset-dependent cash flows run through P/L
- Assume surrenders and withdrawals are asset-dependent (85% of cash flows)
- Assume death benefits and expenses are not asset-dependent (15% of cash flows)
- Increase in asset-dependent component of liability directly decreases income, but additional reserve established in year 5 is released in future years, resulting in higher income

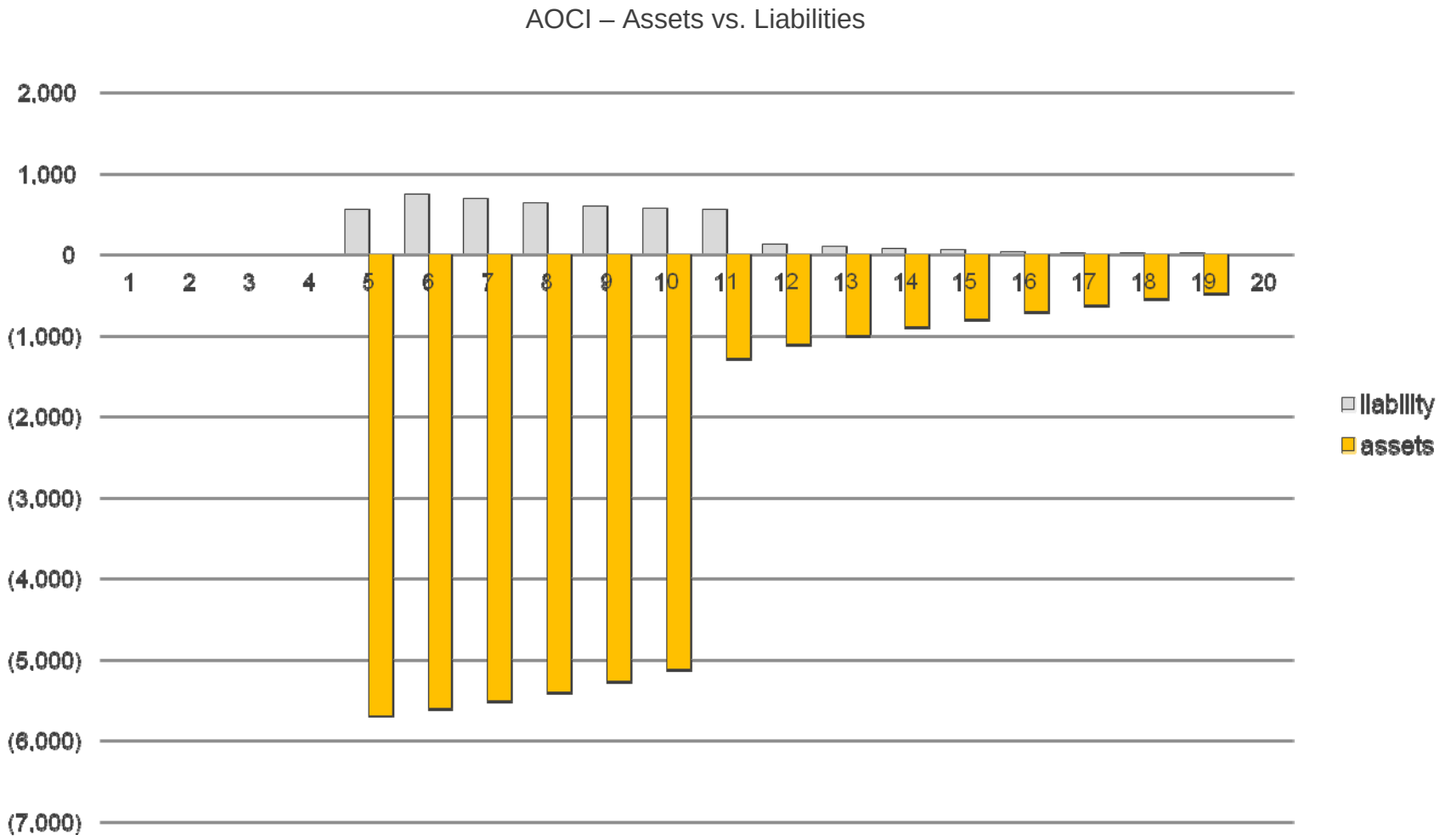
SPDA

Profit / Loss – Interest Shock Sensitivity



SPDA

Accumulated OCI – Interest shock Sensitivity

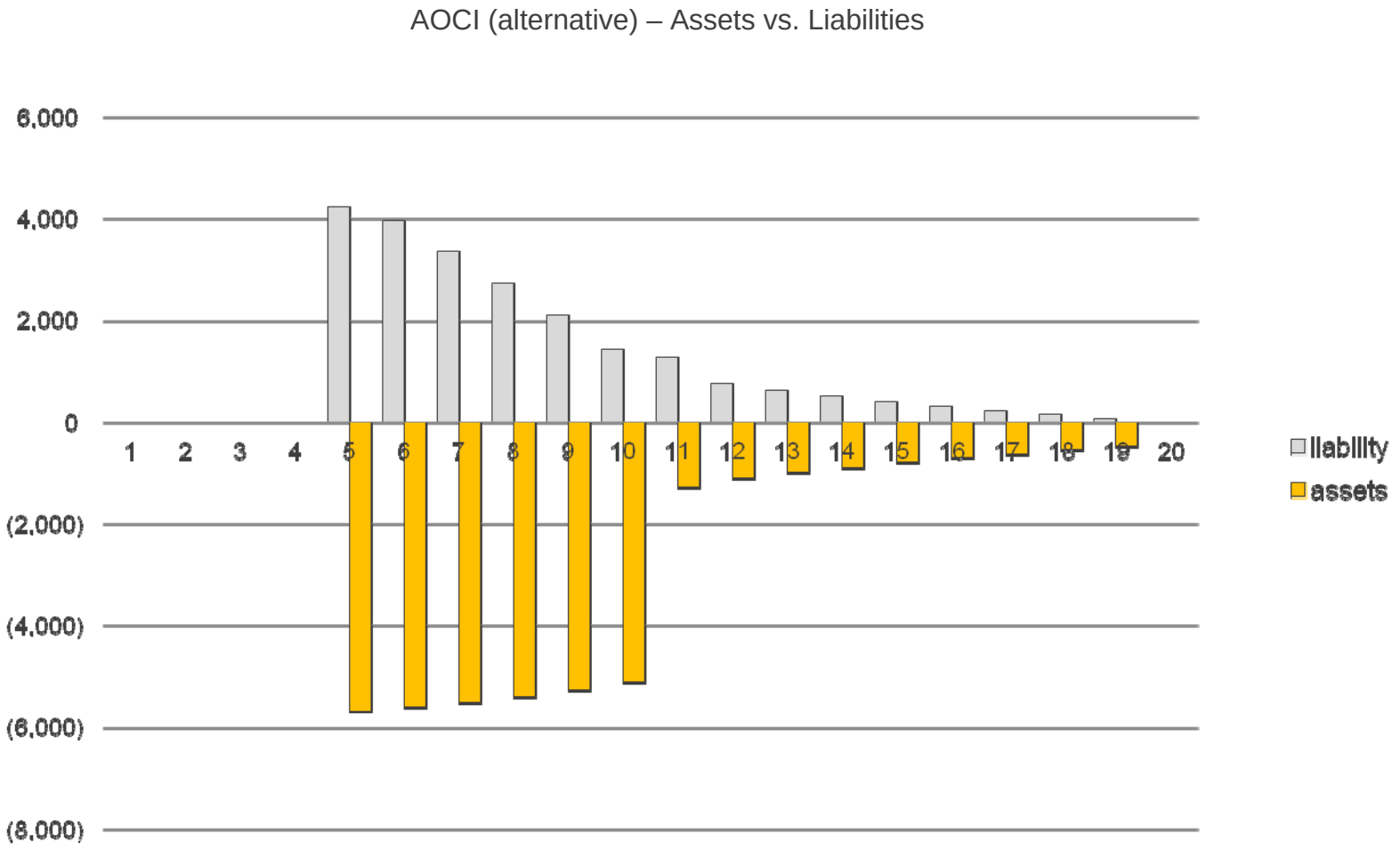


SPDA interest shock sensitivity – extreme case OCI

- Instead of 15%, assume 100% of liability cashflows are non-asset dependent
- So the entire impact of increase in interest rates goes through OCI
- Liability OCI increases from 600 to 4100

SPDA

AOCI (alternative) – Credit Spreads Sensitivity



SPDA

Key Observations

- Total liability under IFRS is very similar to US GAAP net liability (Reserves less DAC)
- Slower profit emergence pattern under IFRS likely due to slow release of Risk Adjustment
- Losses under US GAAP in year 12 due to non-deferrable trailer commissions. Loss avoided under IFRS.
- Designation of asset-dependent cash flows is important

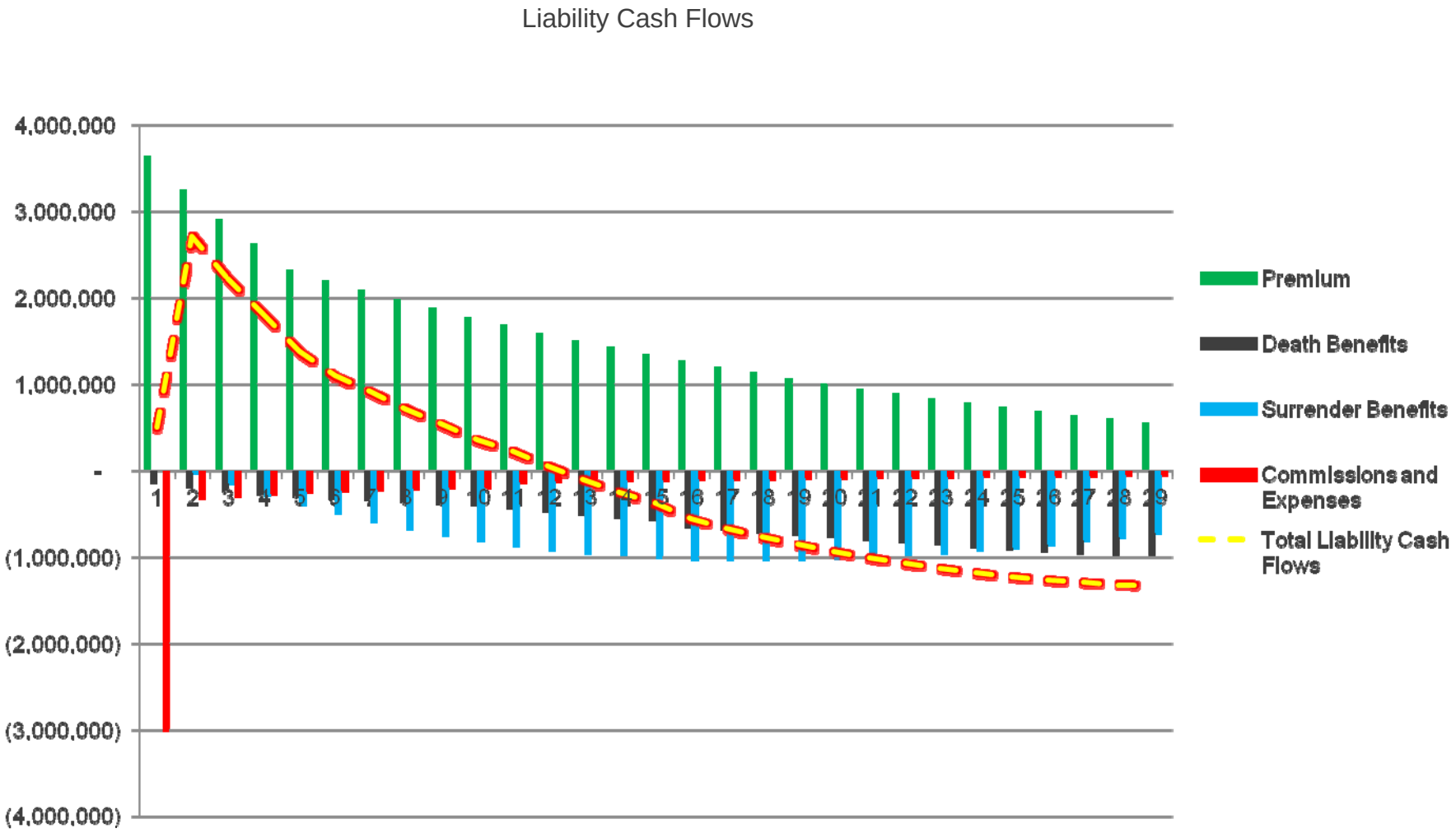
Product Results – Universal Life

- Key features
  - Level premium product
  - Minimum crediting guarantee = 2%
  - No secondary guarantees
  - Target ROI = 8.5%

- Key assumptions
  - Assumed 100% lapse in year 30

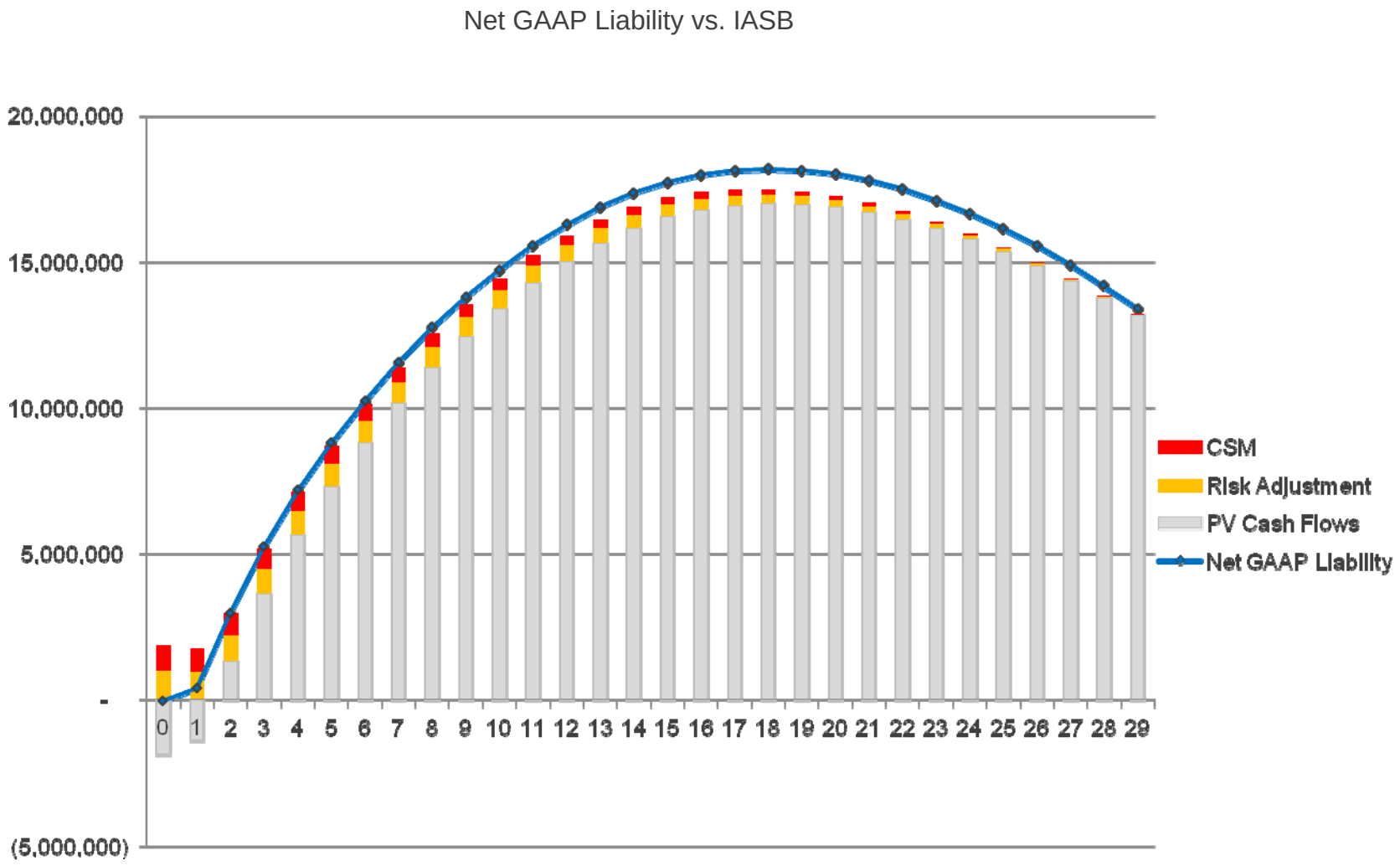
Universal Life

Fulfillment Cash Flows - Baseline



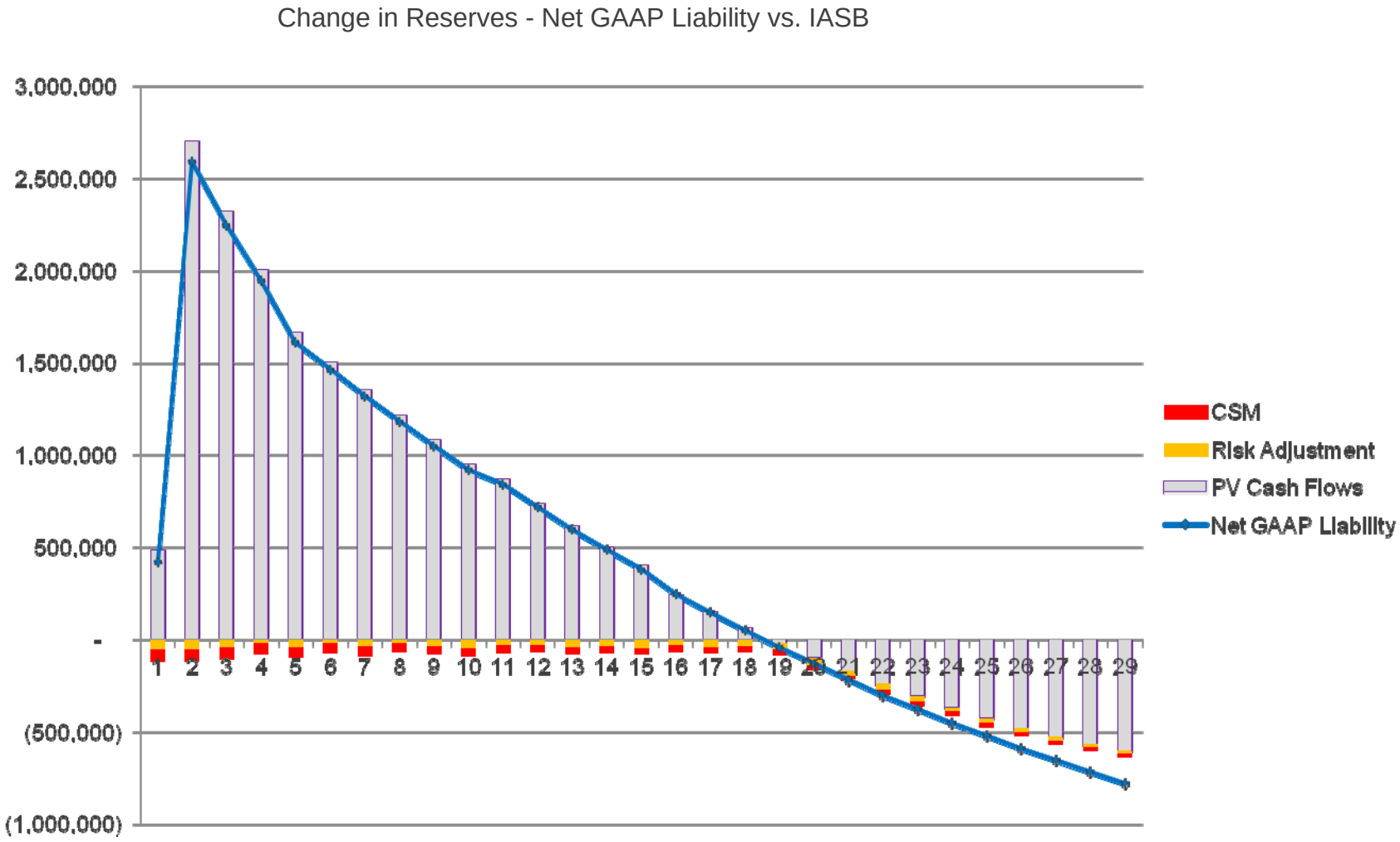
Universal Life

Reserve Comparison - Baseline



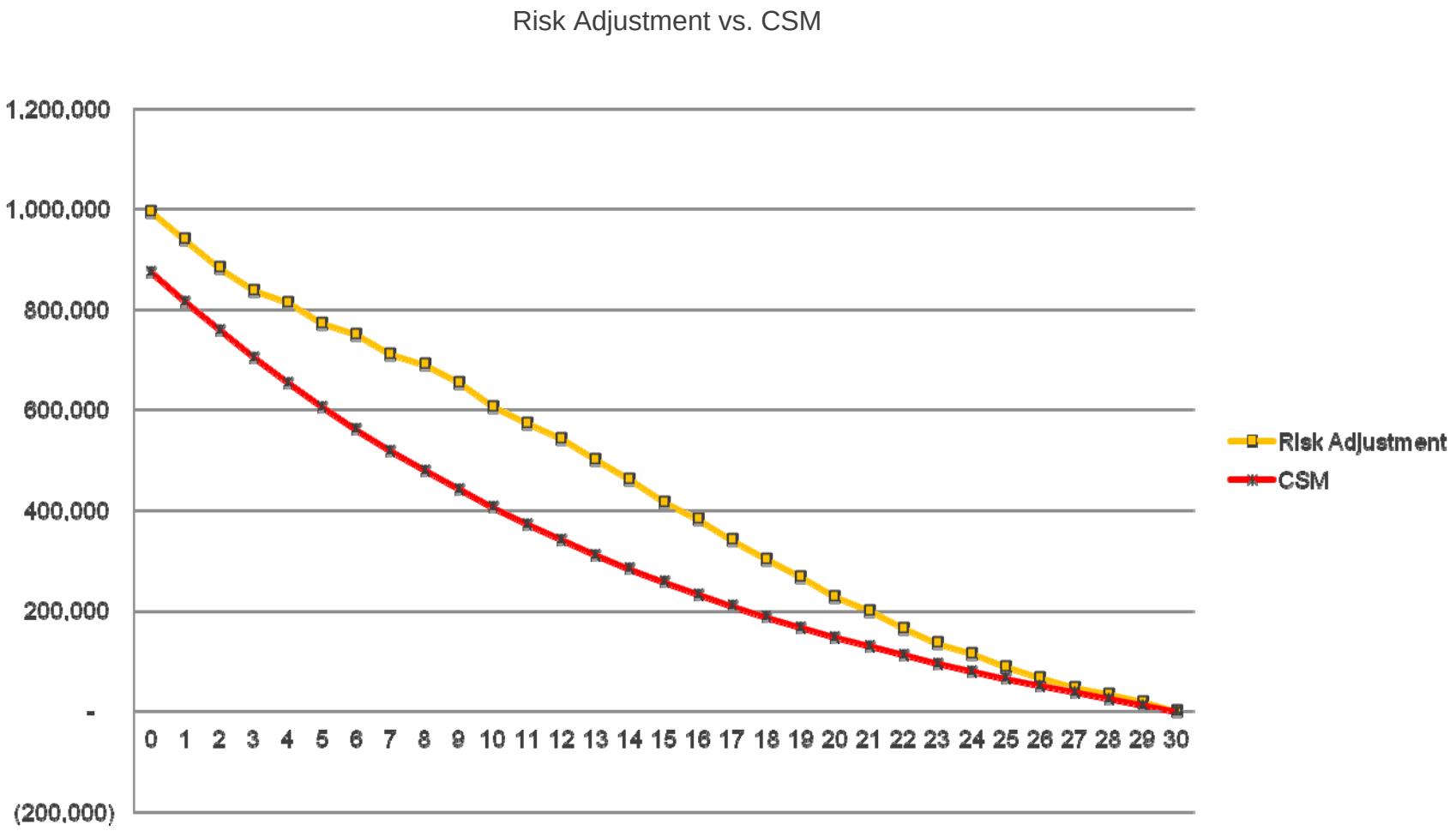
Universal Life

Change in Reserves - Baseline



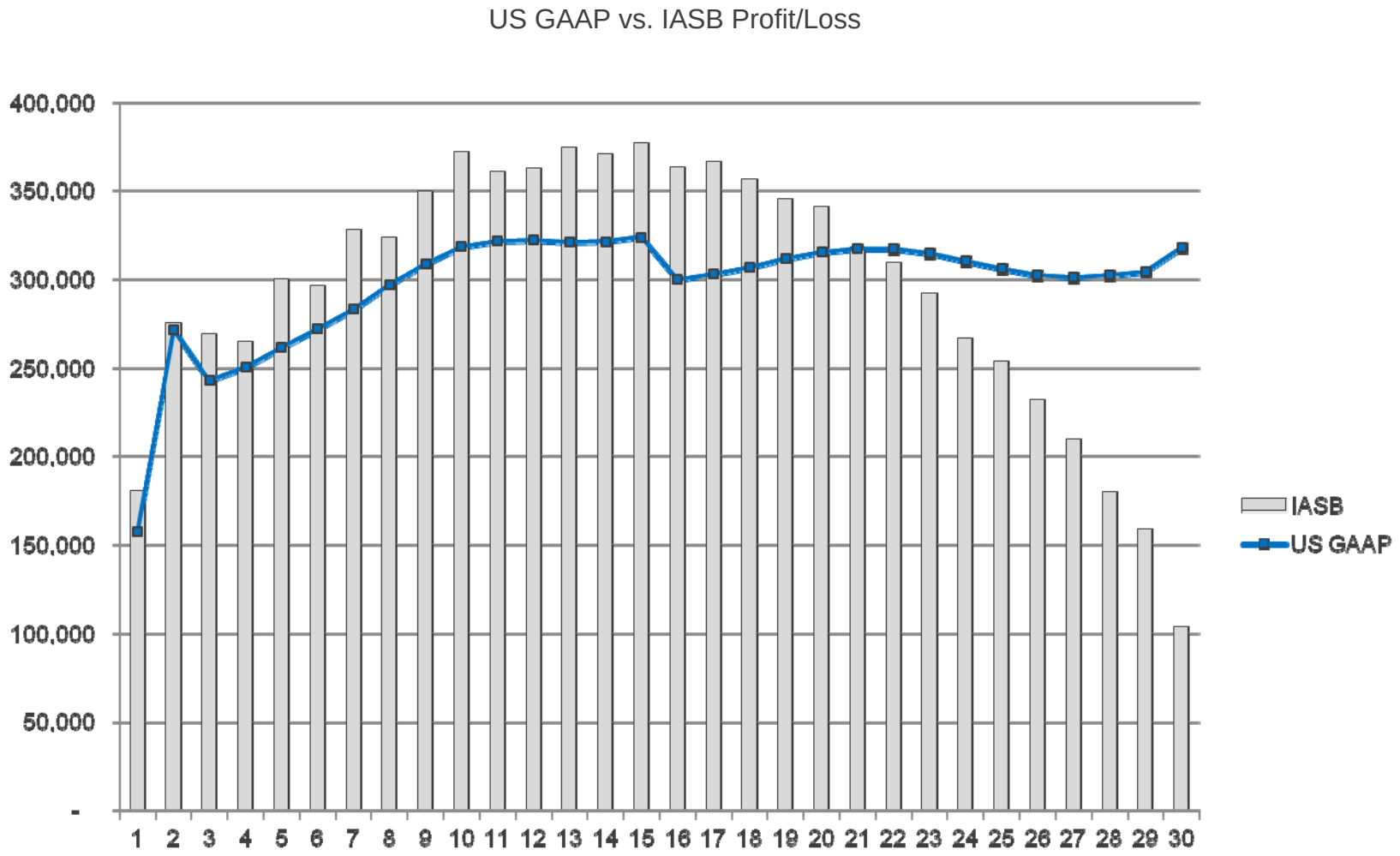
Universal Life

Risk Adjustment and CSM- Baseline



Universal Life

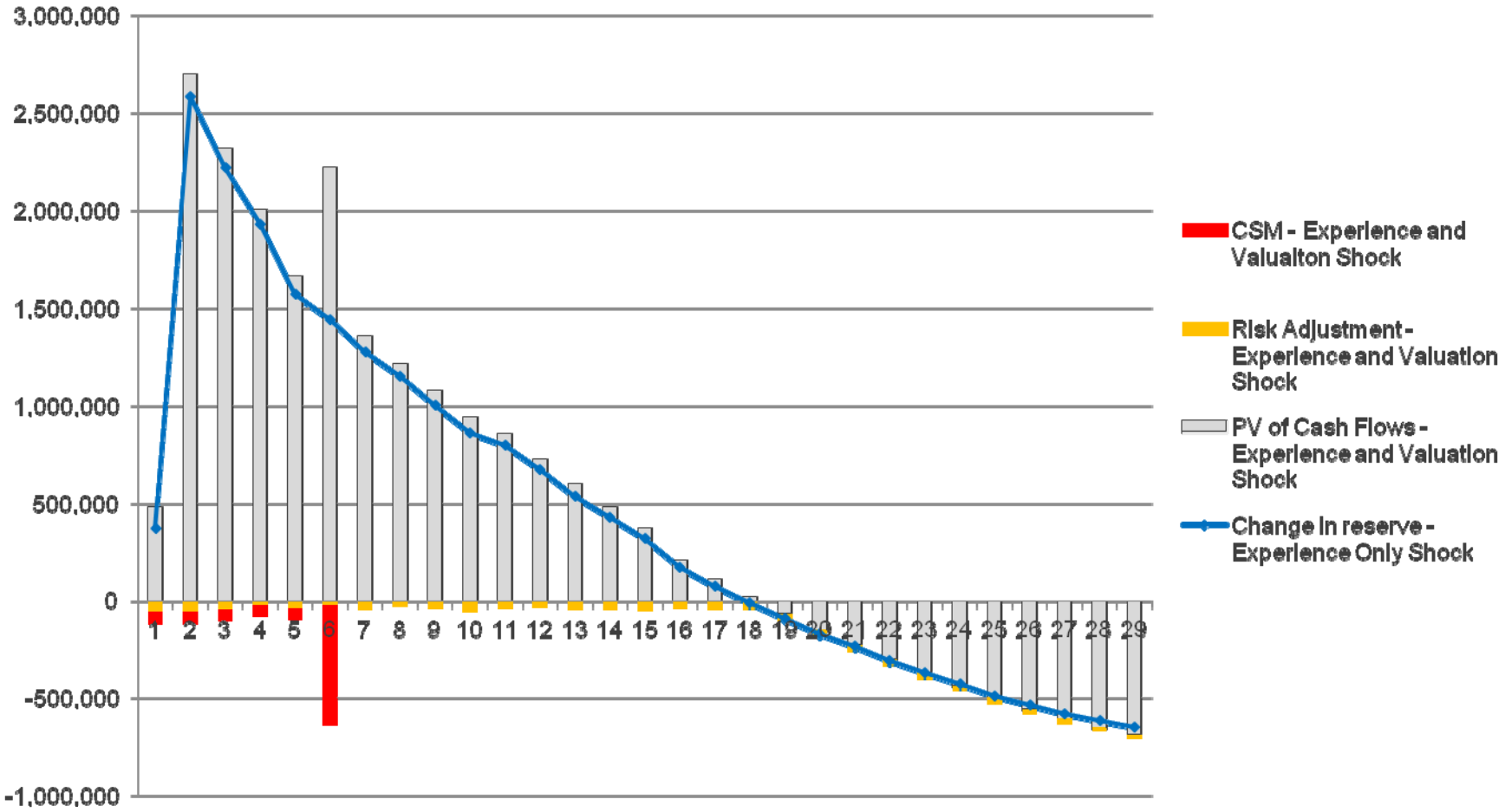
Profit/Loss Emergence - Baseline



Universal Life

Change in Reserve - Mortality Shock Sensitivity

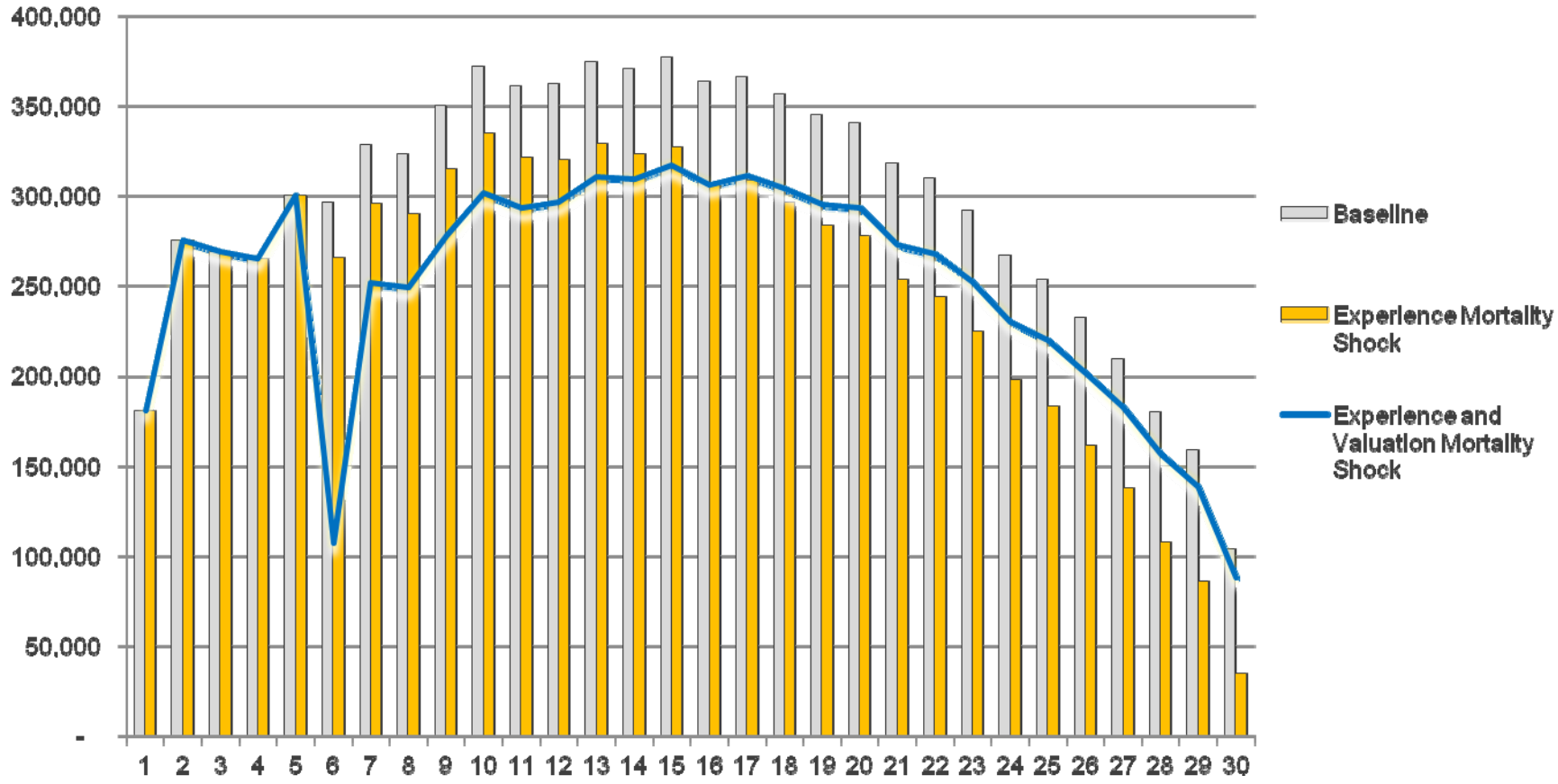
Experience vs. Experience & Valuation Mortality Shock Scenarios



Universal Life

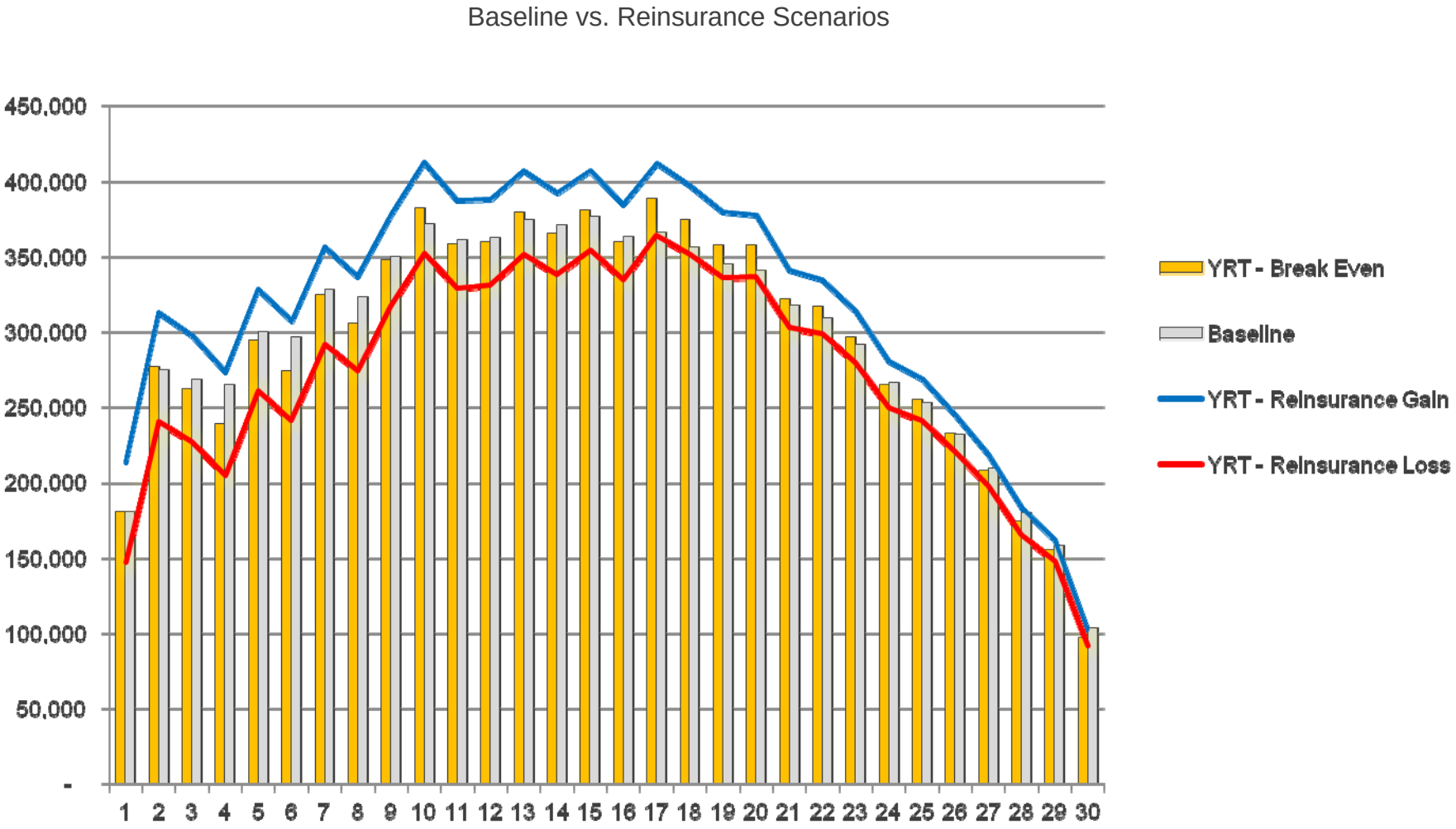
Profit/Loss - Mortality Shock Sensitivity

Baseline vs. Mortality Shock Scenarios



Universal Life

Profit/Loss – Reinsurance Sensitivity



Universal Life

Key Observations

- Net GAAP Liability is larger than IASB reserve
- Profit emergence drivers are different under US GAAP and the proposed standard:
  - Level % of profit margins vs. implicit and explicit margins
  - It appears that the CSM release accelerate profit emergence under IASB
- Unlocking the CSM for changes in valuation assumptions will partially mitigate volatility
- Extensive field testing must be conducted to understand business implications from reinsurance

Product Results – Cancer

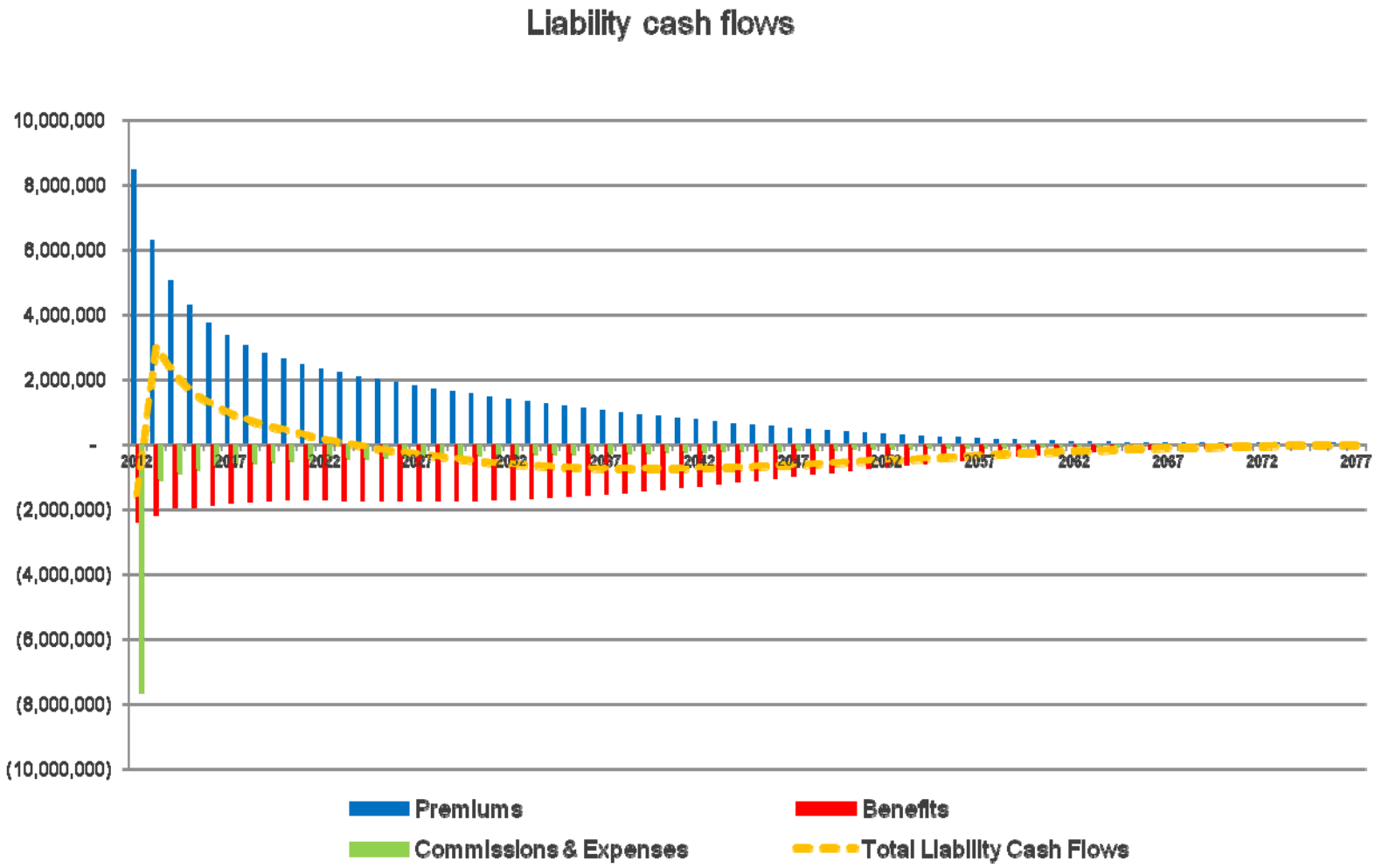
Key features

- Level premiums (rate increases possible)
- Guaranteed renewable
- Benefits related to diagnosis, screening, and length and severity of treatment (no lifetime maximum amount)

- Key assumptions
  - Higher lapses in the early durations
  - Cost of claims increases in the latter periods

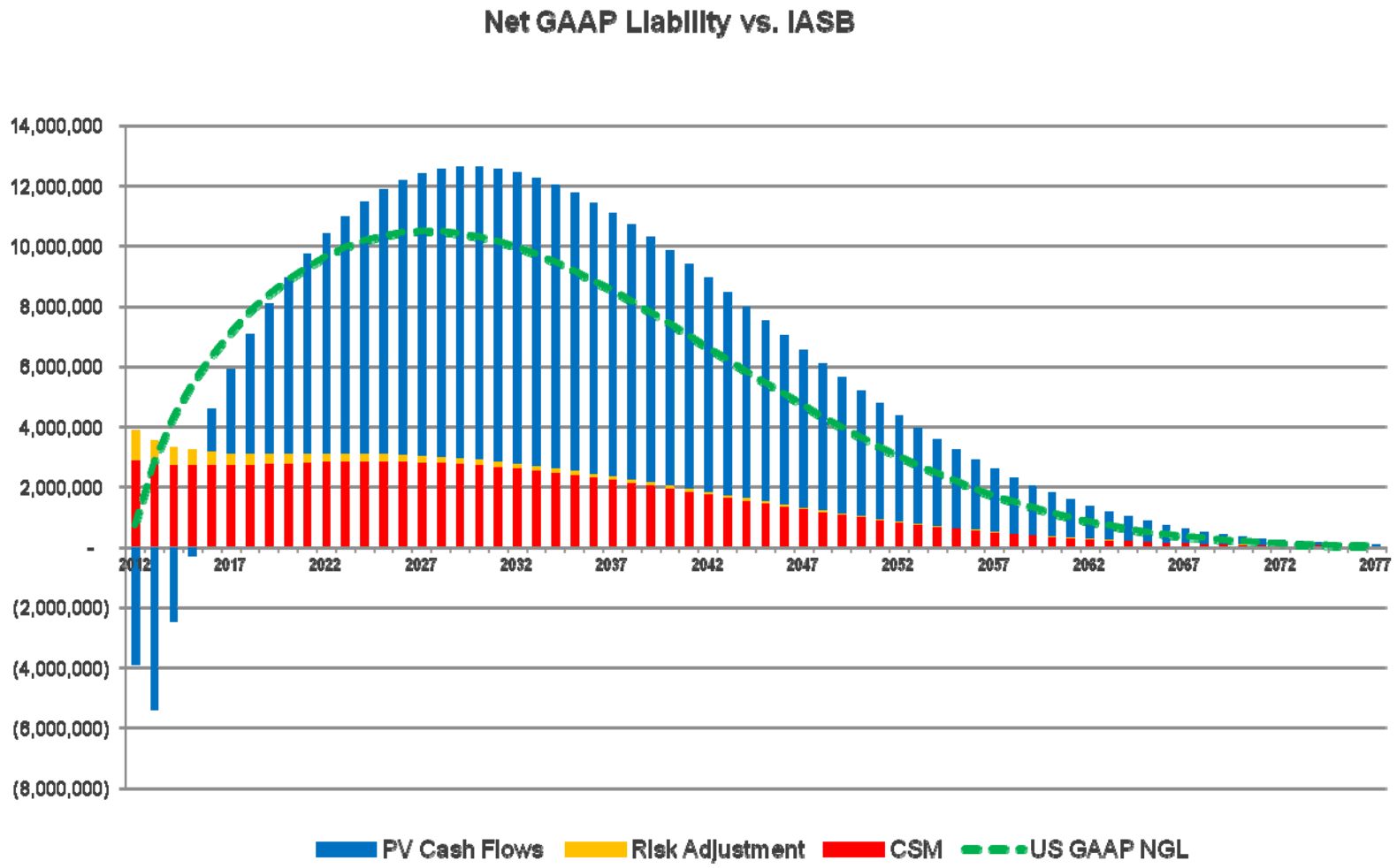
Cancer

Fulfillment Cash Flows - Baseline



Cancer

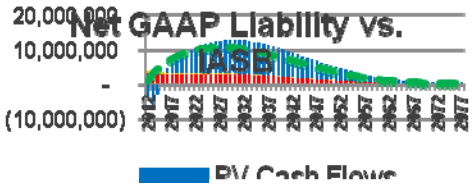
Reserve Comparison - Baseline



Cancer

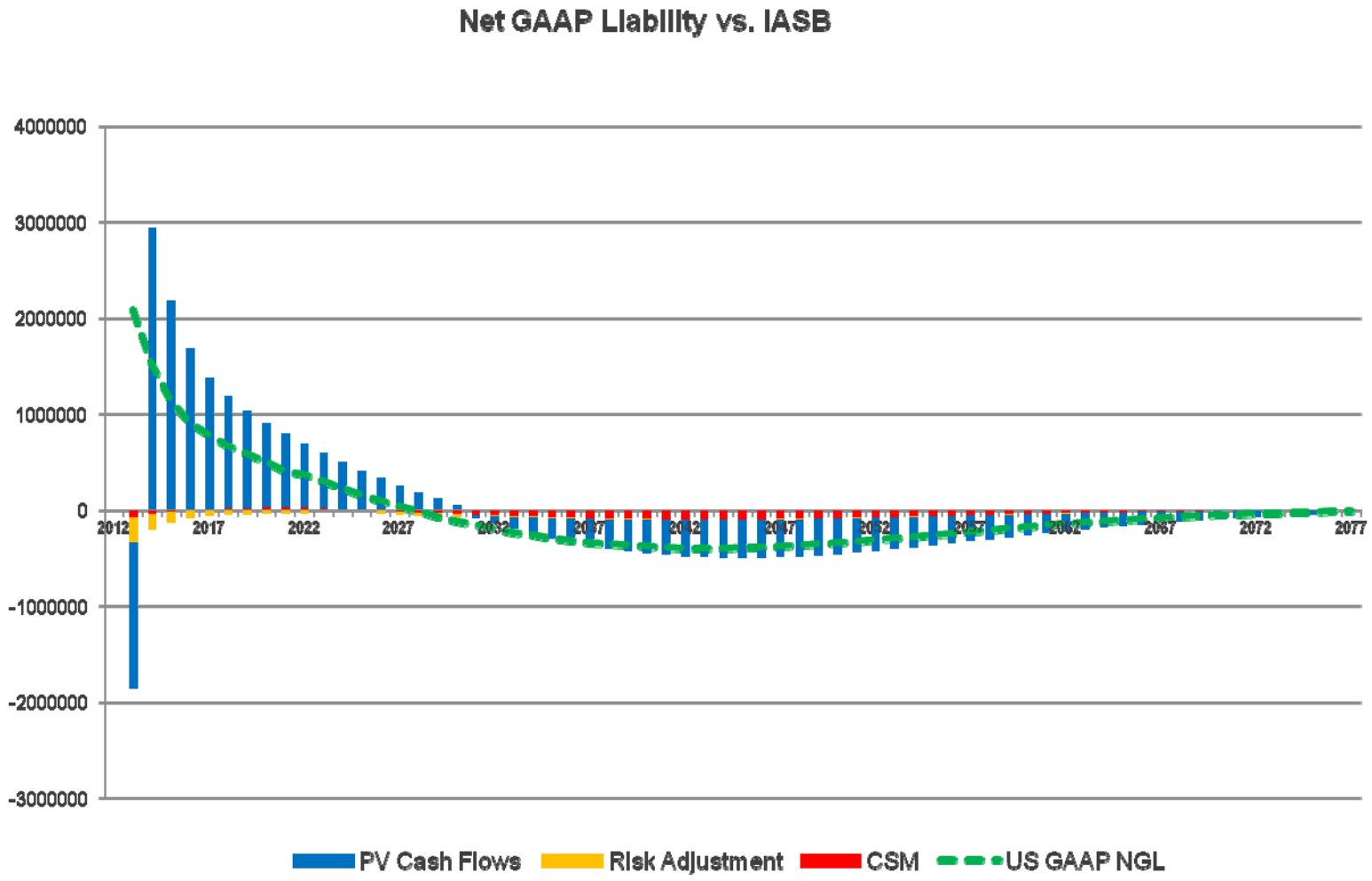
Reserve Comparison - Baseline

- This slide shows the components of the liability under US GAAP and IASB. A few components that are noteworthy here:
- The Risk Adjustment is calculated as a flat percentage of the annual premiums. In retrospect, the company might have been able to select a better driver more in line with the risks
- The large Risk Adjustment decrease in the early years shows the higher lapses that would be experienced in the early durations for this type of product.
- The Contractual Service Margin is based on the present value of benefits. Similar to the earlier slide where we showed the benefits are back-loaded, the CSM demonstrates a similar relationship.
- The present value of cash flows is negative in the early periods before growing and showing a humped reserve run-off as would be expected for Cancer.



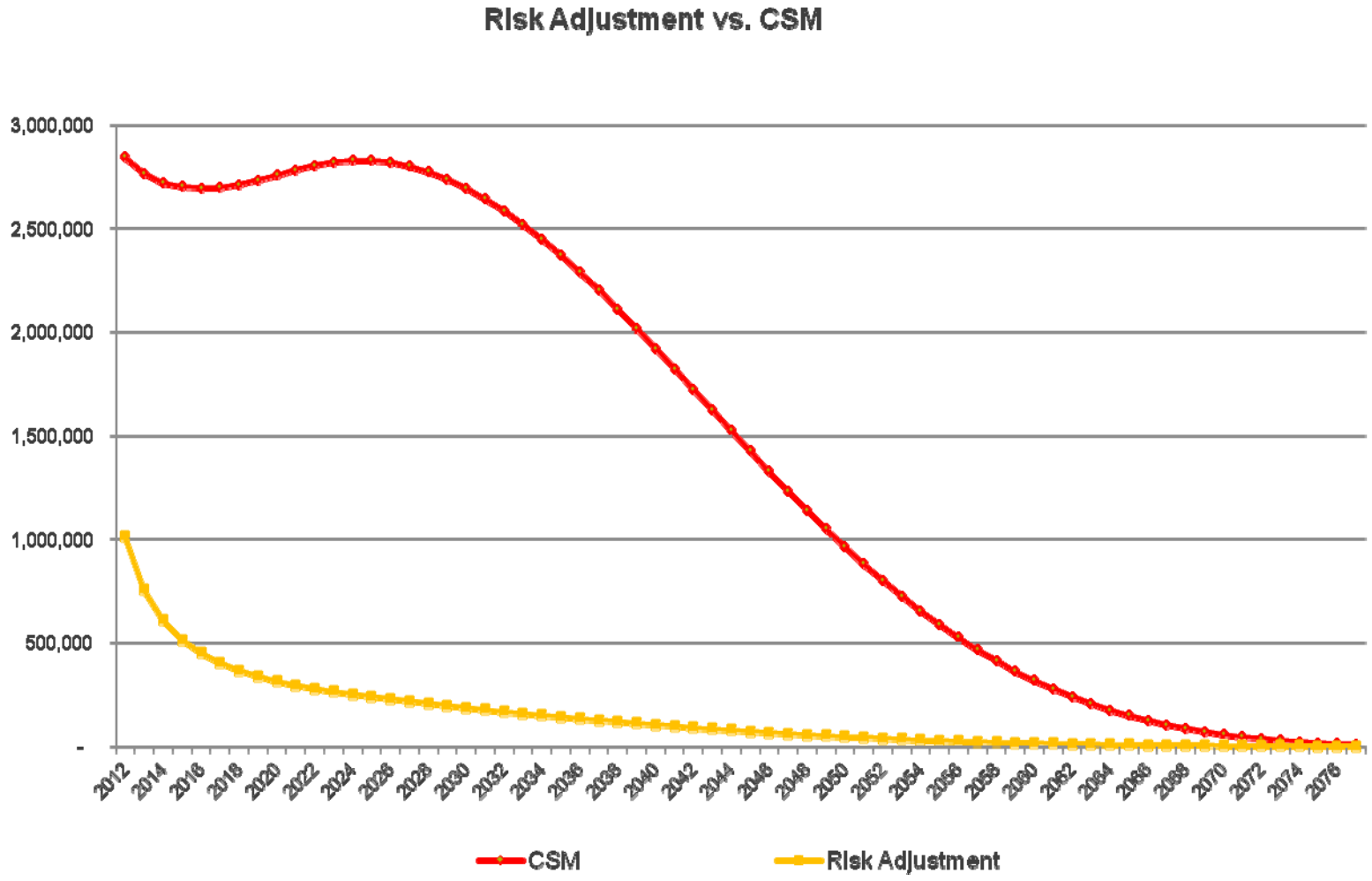
Cancer

Increase in Reserves - Baseline



Cancer

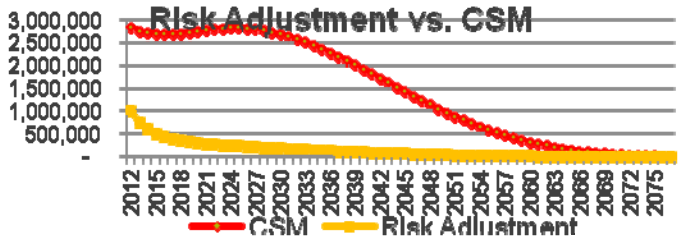
Risk Adjustment and CSM – Baseline



Cancer

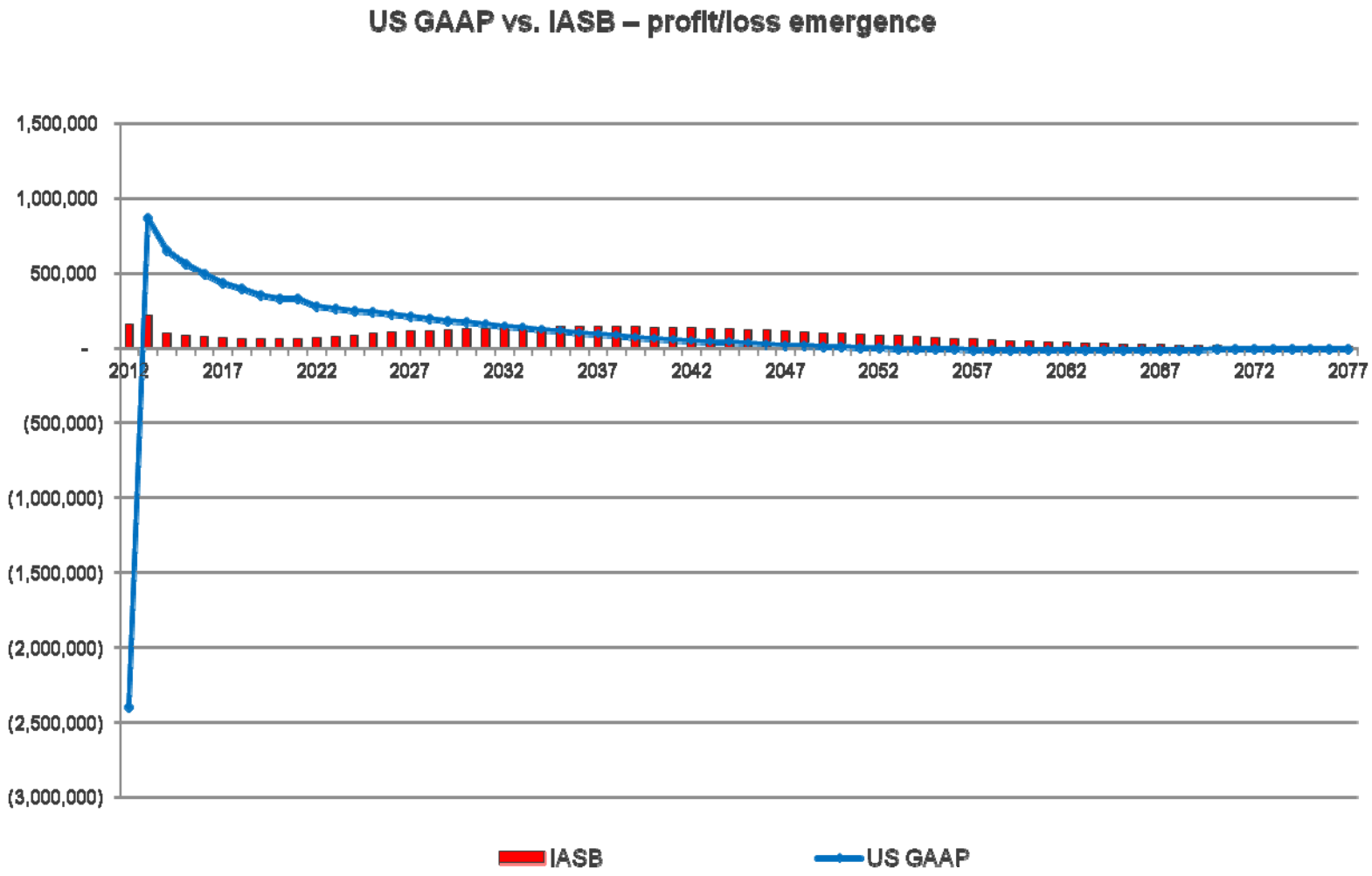
Risk Adjustment and CSM – Baseline

- For risk margin, the steep decline in the early periods is a function of the higher lapses in these durations.
- The CSM follows the pattern of the benefit stream. Not much amortization occurs until later years, when more claims are expected to be incurred. The growth in the CSM is due to interest accreted.



Cancer

Profit/Loss Emergence – Baseline



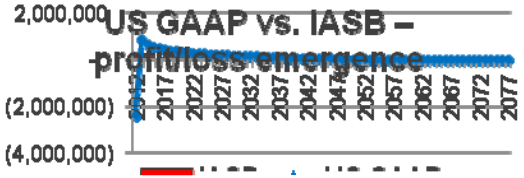
Cancer

Profit/Loss Emergence – Baseline

The main driven behind the difference in income streams is non-deferrable expenses.

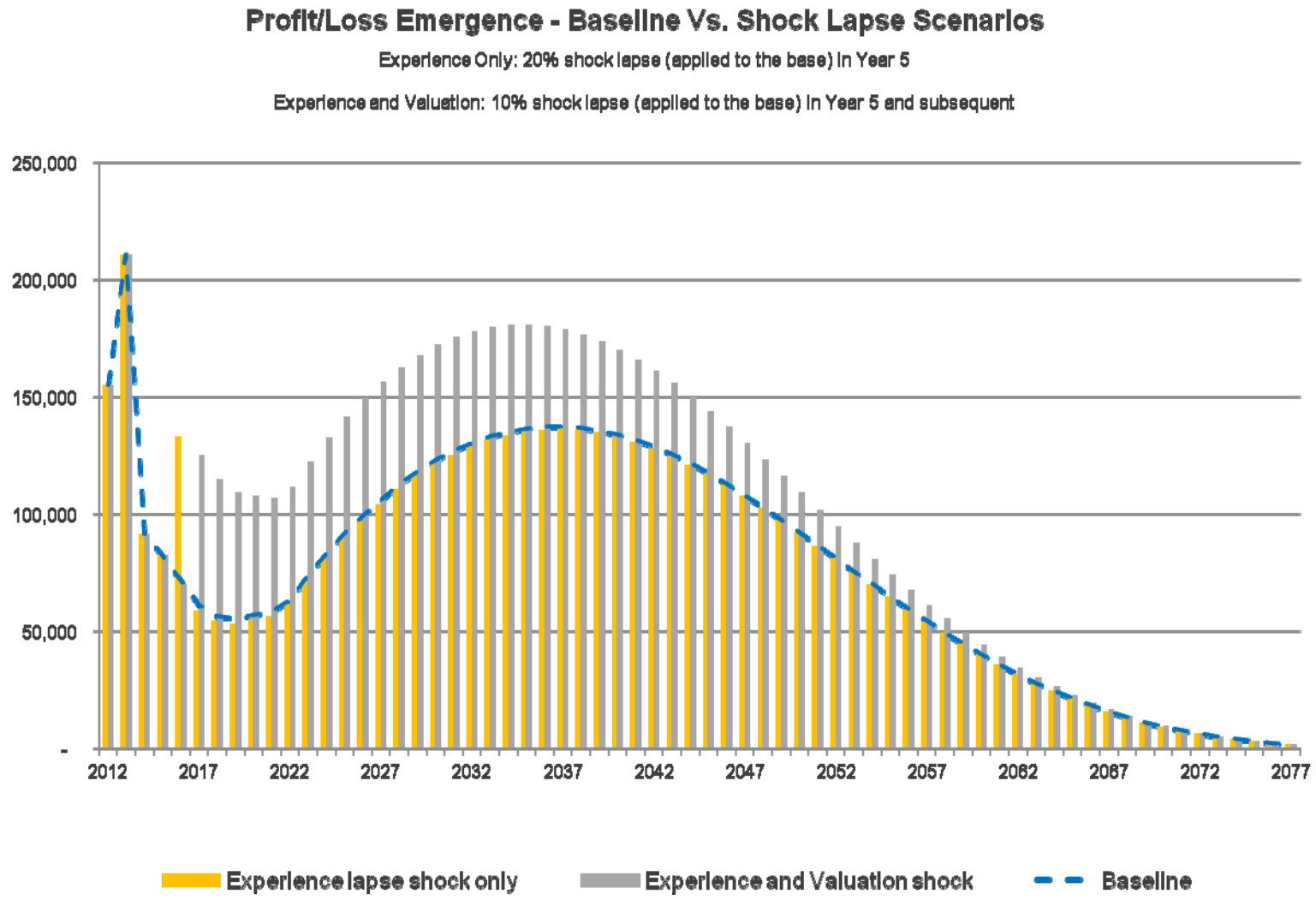
The Company only capitalizes approximately one-third of the acquisition expenses and commissions. The income under GAAP reverses after time 0. In total, the income is equal between US GAAP and IASB.

Under IASB, “all” expenses are reflected in the initial measurement of the liability and consequently the CSM.



Cancer

Profit Emergence



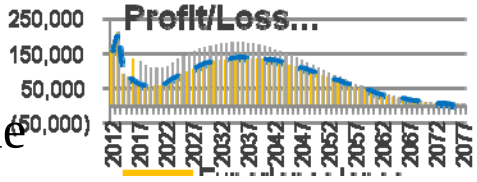
Cancer

Profit Emergence

The Cancer product is lapse-supported. Additional lapses would result in higher income, especially in the early durations. This is evident in the shock lapse scenarios.

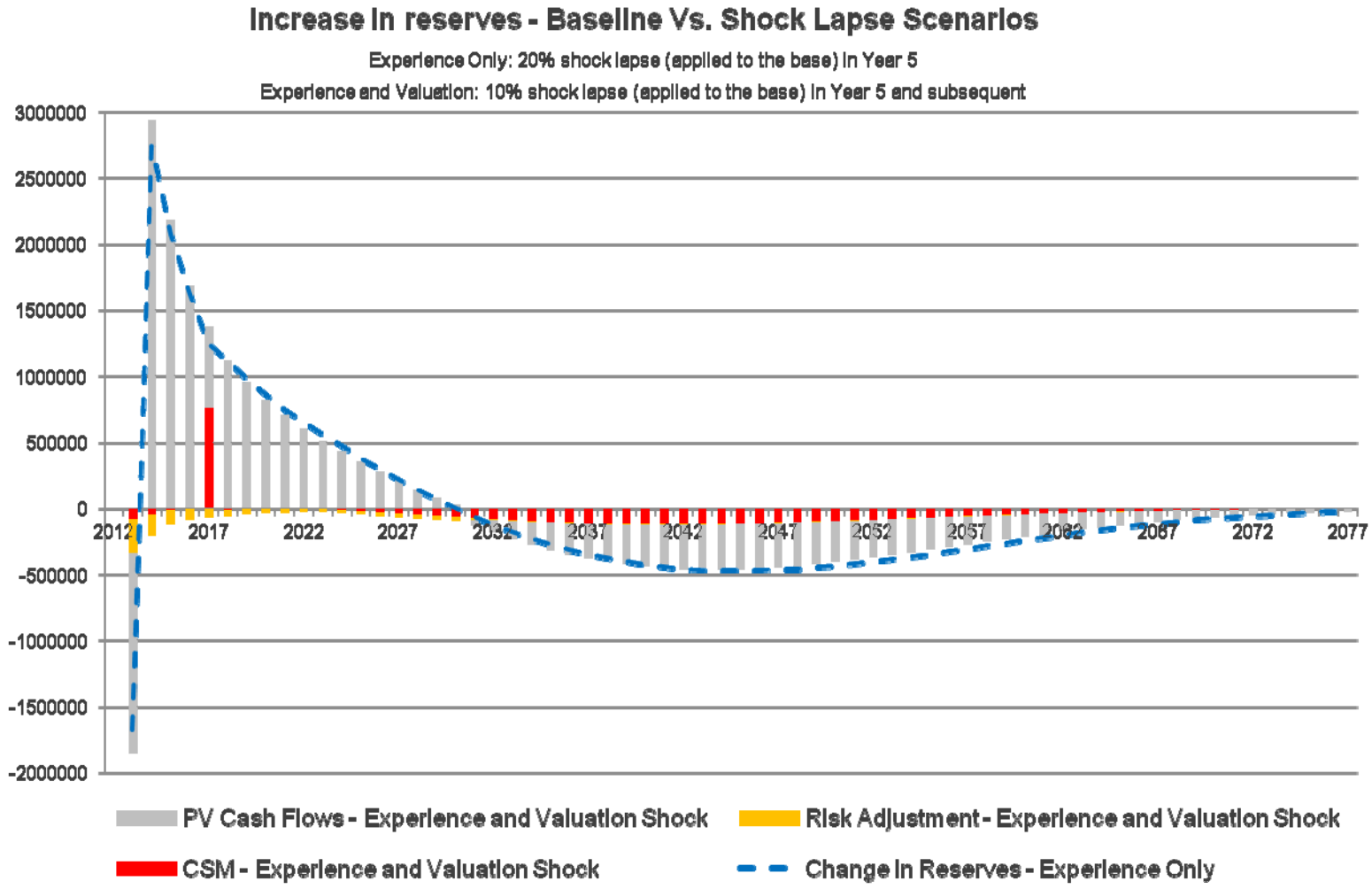
For the experience only scenario, which represents a 20% shock lapse applied to the base, the income decreases at that time and subsequently. It is hard to notice from the graph but it is approximately 3% - 4%, close to net effect of the additional lapses.

For the experience and valuation scenario, which represents a 10% shock lapse (applied to the base) in year 5 and subsequent, there is no change in income in year 5 as there are two offsetting pieces. The present value of cash flows decreases while the CSM is also unlocked, to represent more liberal assumptions. The subsequent graph shows this as well as the effect of the higher CSM in subsequent periods.



Cancer

Increase in Reserves



Cancer

Key Observations

- Difference in profit emergence between US GAAP and IASB is driven by non-deferred commissions and expenses.
  - All expenses were included under proposed standard, whereas a small proportion was accounted under US GAAP
- Cancer is lapse-supported. Unlocking of lapse assumptions (increased level of lapses) had an offsetting impact on present value of cash flows (decrease) and an increase to CSM. The CSM then is released through income over time
- Risk adjustment, modeled as a function of premium, may not reflect the riskiness of this type of product