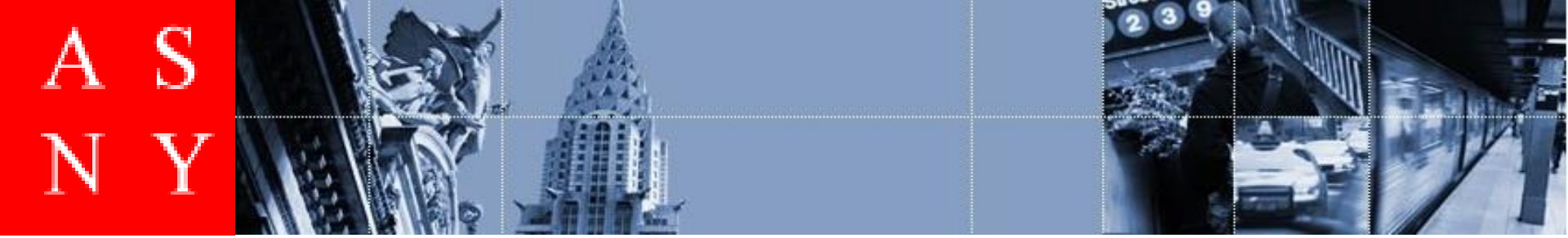

US GAAP LDTI: Market Risk Benefits (MRB)

November 23, 2020

Challenges and Opportunities with Retrospective Valuations

Vincent Carrier-Cote, FSA, CFA, ACIA

Peter Yang, FSA, CFA

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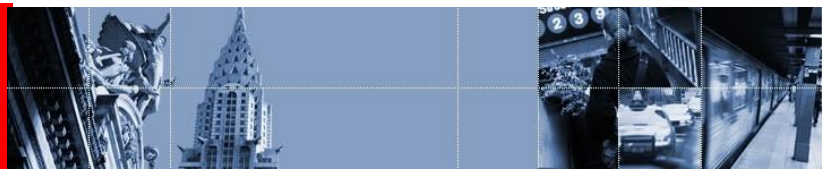
Presenters

Vincent Carrier-Cote

Vincent is a consulting actuary with the Insurance and Actuarial Advisory Services (IAAS) practice of Ernst & Young LLP. He joined the firm in 2015 after graduating from Concordia University's Actuarial Mathematics/Finance Co-op program and is based in New York. Vincent has worked with life insurance clients across the areas of actuarial modeling, financial reporting (including US GAAP LDTI and IFRS 17), retirement income and capital adequacy. He is a Fellow of the Society of Actuaries, a CFA Charterholder and an Associate of the Canadian Institute of Actuaries.

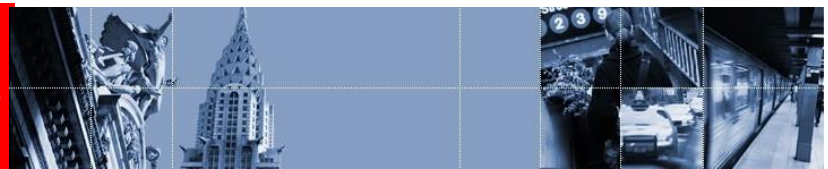
Peter Yang

Peter is a consulting actuary with the Insurance and Actuarial Advisory Services practice of Ernst & Young LLP. He is based in New York. Peter has had a number of engagement experiences in variable annuities, stress testing, financial planning and analysis, hedging, and ALM. He is a Fellow of the Society of Actuaries and a CFA Charterholder



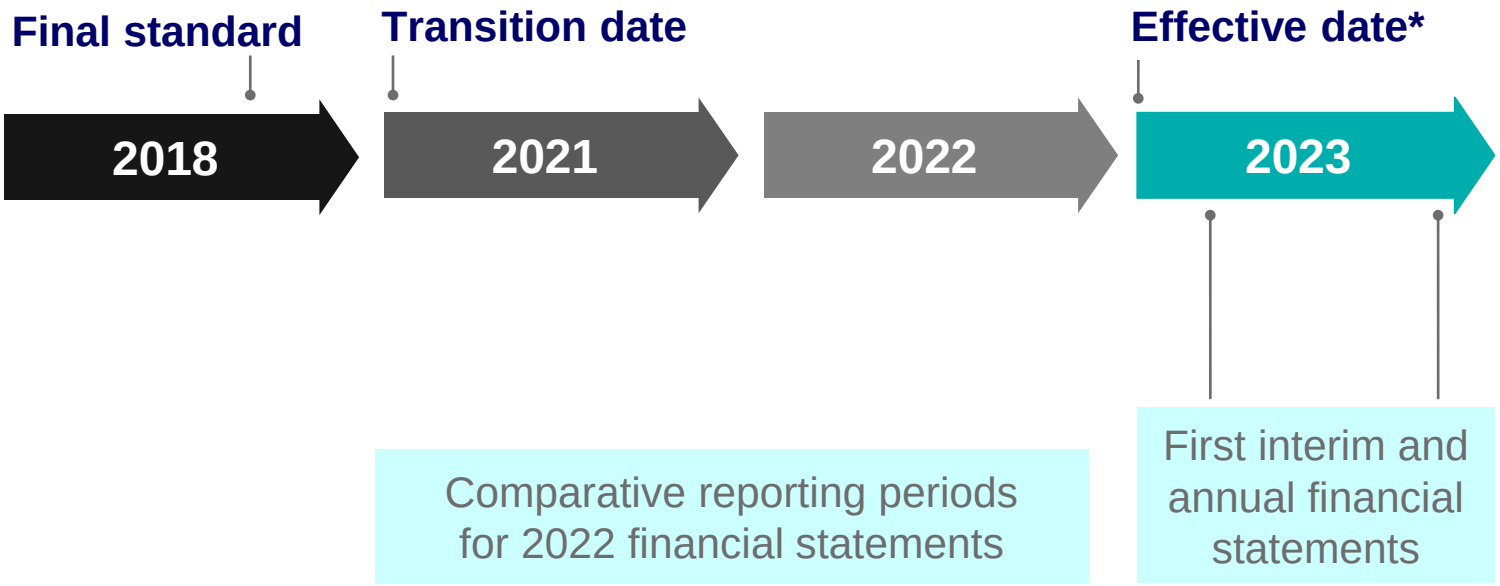
Agenda

- Overview of the requirements
- General process for MRB implementation projects
- Challenges with retrospective valuations
- Financial statement impacts



Overview of the requirements
Timeline

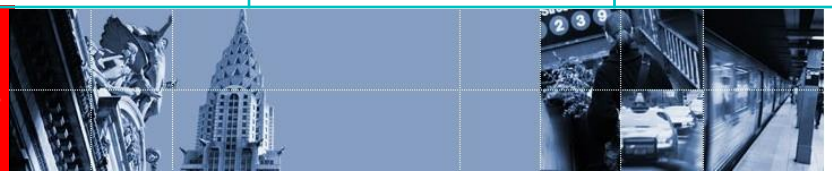
– In August 2018, the FASB issued ASU 2018-12, *Targeted Improvements to the Accounting for Long-Duration Contracts* (commonly referred to as LDTI)



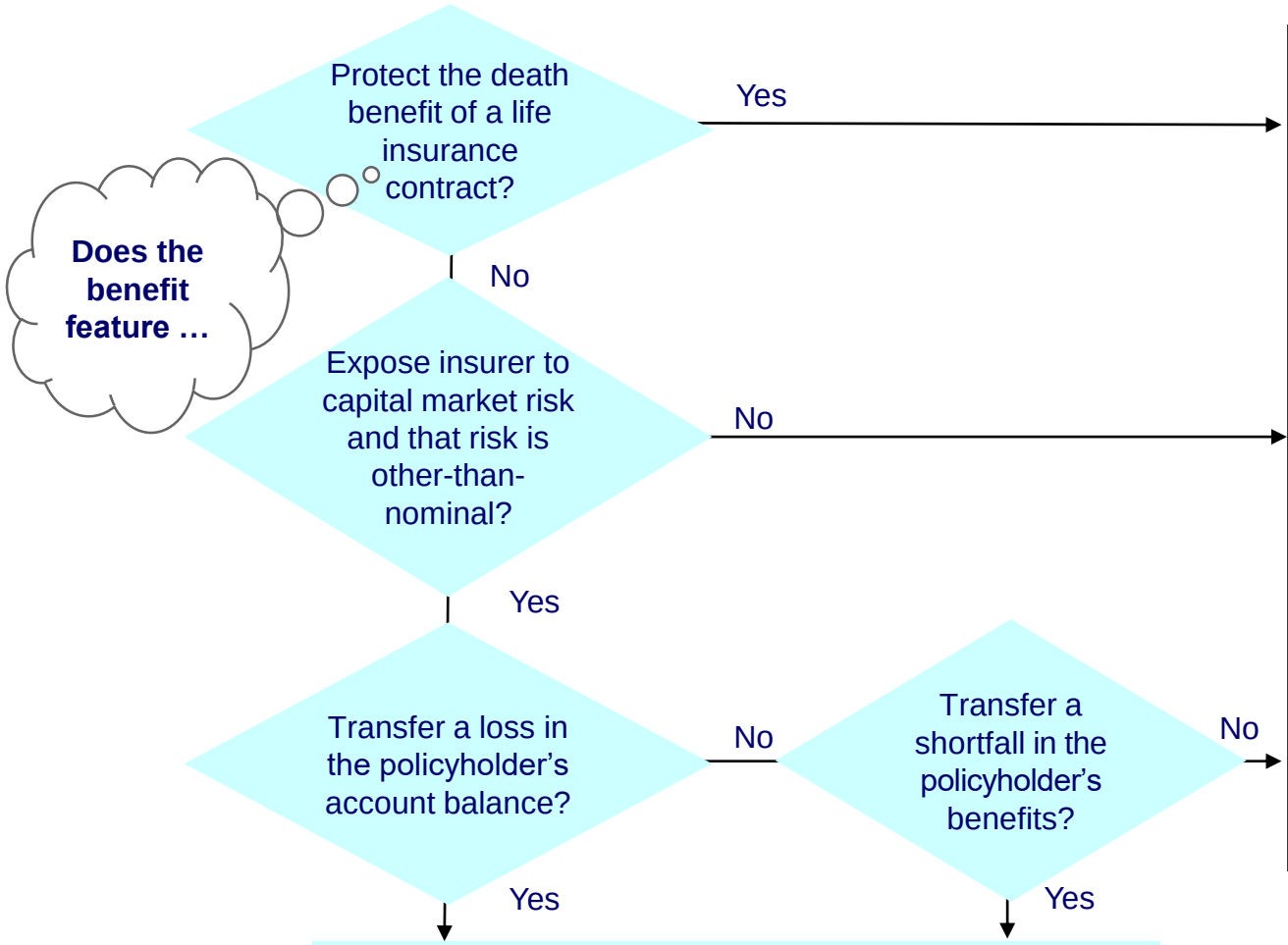
* This is the effective date for public business entities (PBEs). The effective date for non-PBEs is fiscal years beginning after 15 December 2024 and interim periods the following year.

Overview of the requirements
Summary of key changes

	FASB's intent	Products affected	Targeted improvements
Liability for future policyholder benefits	Improve the timeliness of recognizing changes in assumptions Modify the discount rate used	Non-par traditional long-duration and limited payment contracts	► Requires cash flow assumptions and actual experience to be updated on a cumulative catch-up basis (i.e., retrospective); recognized through earnings ► Requires discount rate assumption to be updated using the upper-medium-grade fixed-income instrument yield each period; recognized through other comprehensive income (OCI) ► Eliminates loss recognition testing
Market risk benefits	Simplify and improve accounting for certain market-based options or guarantees associated with deposit contracts	Deposit products with certain benefit features (e.g., variable annuities, fixed index annuities)	► Creates new classification for these features ► Requires features to be measured at fair value with changes recognized in income (except for own credit spread effect)
Deferred acquisition costs (DAC)	Simplify the methods to amortize DAC	All products except certain investment contracts	► Simplifies DAC amortization (a constant basis over the life of the contract) ► Eliminates impairment testing
Disclosures	Improve the effectiveness of disclosures in interim and annual financial statements	All long-duration products	► Adds significant new granular disclosures ► Adds disaggregated tabular reserve rollforwards ► Adds qualitative disclosures about significant inputs, judgments and assumptions



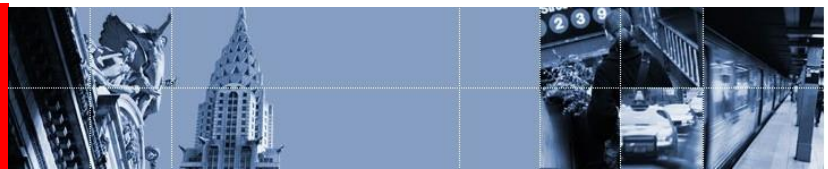
General process for MRB implementation projects
Scoping



- Measure market risk benefits at fair value
- Subsequent measurement changes related to instrument-specific credit risk recorded in OCI
- All other changes in fair value recognized in earnings
- Compound multiple market risk benefits in a single contract

General process for MRB implementation projects
Scoping

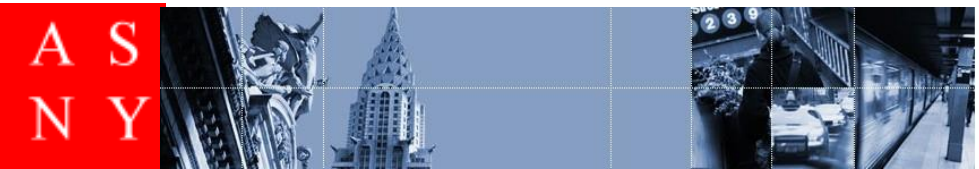
Benefit feature description	Does the benefit feature: Protect the death benefit of a life insurance contract?	Expose the insurer to capital market risk?	Result in other-than-nominal capital market risk?	Transfer a loss in the policyholder's account balance?	Transfer a shortfall in the policyholder's benefits?	Accounting Model
Guaranteed minimum benefits (GMXBs)	×	✓	✓	✓	✓	Market risk benefit
Indexed crediting rate	×	✓	✓	×	×	Not market risk benefit possibly embedded derivative
No lapse guarantee on an insurance contract	✓	N/A	N/A	N/A	N/A	Not market risk benefit possibly additional insurance liability



General process for MRB implementation projects
Measurement methodology

- Measured at fair value
  - Consider the guidance in ASC 815-15
- Subsequent measurement changes related to instrument-specific credit risk recorded in OCI
- All other changes in fair value recognized in earnings (net income)
- Compound multiple market risk benefits in a single contract
- Establish accounting policies for determining appropriate valuation approach (i.e., non-option or option-based)
  - Non-option: fair value at contract issuance is zero, determine attributed fees* so the present value (PV) of expected fees is equal to the PV of expected benefit payments
  - Option-based: determine fair value at contract issuance (using all applicable fees – can be positive or negative), set up a host offset at inception and amortize over the life of the contract
- Determine the fees attributed to market risk benefits (under non-option approach)
  - Rider fees
  - M&E fees
  - Total attributed fees should not exceed total contract fees or assessments collectible from the policyholder

* References to attributed fees and attributed fee ratio in this presentation assume the use of the non-option valuation approach. There is no concept of attributed fee ratio under the option-based approach.

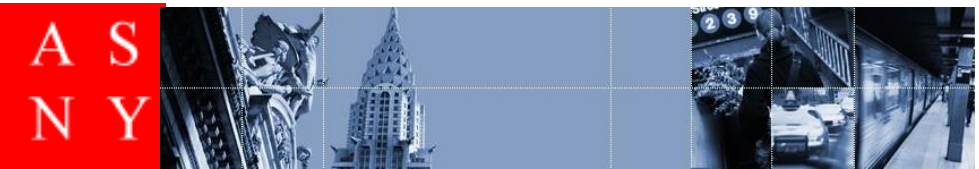


General process for MRB implementation projects
Modeling

- Retrospective valuation
  - One-time exercise to calculate attributed fee ratio at contract inception
  - Using “at-issue” environment (actuarial assumptions, in-force population, capital market information)
  - Develop historical own-credit risk methodology

- Prospective valuations
  - Calculate fair value of MRB at transition date (and every valuation date going forward) using locked-in attributed fee ratio
  - Similar to current fair valuation of embedded derivatives under FAS 133/157
  - MRB = PV of benefits — attributed fee ratio x PV of attributed fees

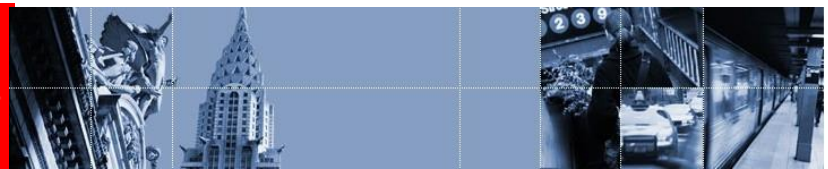
- Transition impact analysis
  - Impact on liabilities from switching accounting models for certain features (some features previously accounted for with liability accrual model)
  - Volatility of balance sheet
  - Net income vs OCI



Challenges with retrospective valuations
Actuarial assumptions

- Retrospective valuation should reflect actuarial assumptions at time of issue (mortality, lapse, partial withdrawal, benefit utilization, etc.)
- Develop at-issue assumption files from historical documentation
  - Chart below depicts representative example of one company's accounting of potential sources for at-issue assumptions. Each in-force cohort issued between 2002 and 2010 would use different assumptions, which may come from different sources.
- Use of hindsight is allowed for assumptions if information relevant for determining the assumption as of contract inception is unobservable or unavailable and cannot be independently substantiated
- May be challenging to "fit" old assumption format to today's valuation model
- Practical expedients

Source/annual cohort	2002	2003	2004	2005	2006	2007	2008	2009	2010
Historical assumption files	×	×	×	×	×	×	×	×	✓
Filing memos	×	×	×	×	✓	✓	✓	✓	✓
Pricing memos	✓	✓	×	✓	×	×	✓	×	×
Backups of historical pricing/valuation models	×	×	✓	✓	✓	×	✓	×	✓



Challenges with retrospective valuations
In-force population

- Retrospective valuation should reflect in-force population as close as possible to actual business mix at time of issue
- At-issue cohort creation
  - Starting point (historical in-force files vs. more recent in-force files)
  - Updating risk attributes to contract inception (e.g., age, account balance, benefit base, asset allocation) — see orange highlights in sample in-force file below
  - Adapting for current models (list of fields and field definitions may have changed over the years) — see light blue highlights in sample in-force file below
  - Testing
- Practical expedients

Starting point: 12/31/2019 in-force file

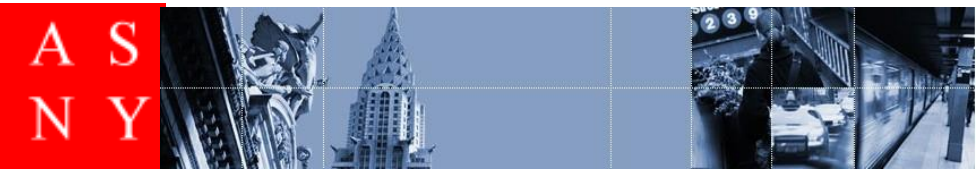
AGE	60
ACCOUNT VALUE	19,613.86
S&P	7,811.00
RUSSELL	3,644.31
NASDAQ	0
SBBIG	3,196.43
EAFE	4,962.11
MONEY MARKET	0
GMXB ROLLUP BALANCE	29,261.85
GMXB RATCHET BALANCE	29,261.85
INITIAL DEPOSIT	25,382.11
CONTRACT ID	123456789

Formatted to fit current model

AGE	60
ACCOUNT VALUE	19,613.86
NUMBER OF FUNDS	18
S&P	7,811.00
RUSSELL	3,644.31
NASDAQ	0
SBBIG	3,196.43
EAFE	4,962.11
MONEY MARKET	0
TARGET VOL	0
GMXB ROLLUP BALANCE	29,261.85
GMXB RATCHET BALANCE	29,261.85
INITIAL DEPOSIT	25,382.11
CONTRACT ID	123456789

Reset to at-issue values: 12/31/2010

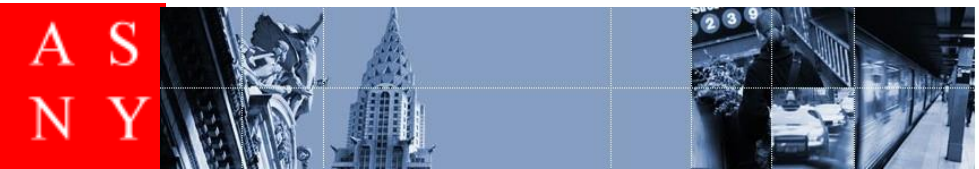
AGE	51
ACCOUNT VALUE	25,382.11
NUMBER OF FUNDS	18
S&P	10,108.15
RUSSELL	4,716.07
NASDAQ	0
SBBIG	4,136.47
EAFE	6,421.42
MONEY MARKET	0
TARGET VOL	0
GMXB ROLLUP BALANCE	25,382.11
GMXB RATCHET BALANCE	25,382.11
INITIAL DEPOSIT	25,382.11
CONTRACT ID	123456789



Challenges with retrospective valuations

Capital market information

Assumptions	Details
Risk-free curves	➢ Can use Treasury curves or swap curves ➢ Historical curves readily available
Implied volatilities	➢ ATM implied vol data for different equity indices ➢ Historical data should be readily available up to 5Y tenor ➢ Can be difficult to get reliable long dated volatility ➢ Data may be difficult to obtain sparse for very old cohorts (2000 or earlier)
Correlation matrix	➢ Usually not required to be market consistent ➢ Historical market data readily available
Interest rate model parameters	➢ Common choices: Heston, G2++, Hull White ➢ Calibrate to market swaption prices ➢ Historical market data prices should be readily available
Own credit spread (OCS)	➢ Usually inferred from pricing of company's outstanding debt or CDS ➢ Some use a credit index with adjustments ➢ May require judgement to account for special circumstances ○ No historical observable spread ○ Corporate transactions: spinoffs and acquisitions



Financial statement impacts
Prospective valuation for MRB

Fair value calculation of whole contract fees and claims with current assumption

MRB = PV of claims – attributed fee ratio*PV of fees

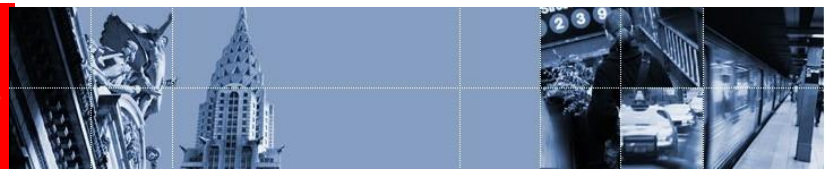
Attributed fee ratios affect the fee leg (consider materiality when performing retrospective valuation)

Products currently have split accounting (e.g., VA with GLWB)

- Under MRB, the entire contract will be subject to fair value, including those previously SOP03-1 (e.g., GMDB)
- Mostly consistent with today's FAS133/157 framework
- Need to reconsider risk margin in a compound MRB
  - Sensitivities to shocks may be opposite directions for different features of the contract

Products currently valued under SOP03-1 (e.g., VA with GMDB)

- Under MRB, the entire contract will be subject to fair value
- Require risk-neutral valuation and own credit spread (OCS) assumption
- Need to develop risk margin methodology



Financial statement impacts
Transition impact calculation

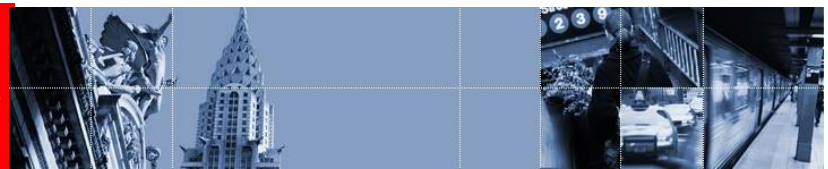
Asset = Liability + Equity

Moving to MRB has no direct impact on asset valuation

Transition impact calculation:

Liability today	**=**	**SOP03-1 + FAS133/157**
Liability post transition	**=**	**MRB**
Equity impact	**=**	**- Δ Liability**
	=	**MRB – (SOP03-1 + FAS133/157)**

Equity impact is split between **retained earnings (RE)** and **accumulated other comprehensive income (AOCI)**



Financial statement impacts
Transition equity impact calculation

Equity impact is split between **RE** and **AOCI**

According to LDTI standard, the transition impact should be split:

- The change in MRB due to cumulative change in own credit spread (OCS) since issue will impact AOCI
- The rest of the transition equity impact will hit RE

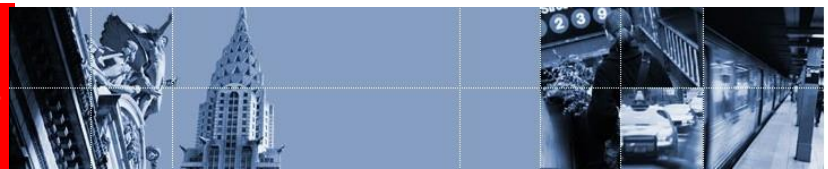
Need to rerun model with a set of historical at-issue OCS (different curves for different cohorts)

Example: detailed equity impact analysis

Balance sheet view	$m
MRB (current OCS)	2,000
Current GAAP reserve	1,500
SOP03-1	500
FAS133/157	1,000
Total equity impact	-500

Equity view	$m
MRB (at-issue OCS)	1,800
MRB (current OCS)	2,000
AOCI impact	-200
RE impact	-300
Total equity impact	-500

Many equity analysts focus on equity excluding AOCI



Financial statement impacts
Post-transition considerations

Ongoing GAAP earnings measurement is similar to transition impact calculation:

- Change in MRB will impact *total* equity
  - Quarter-to-quarter change in OCS will impact other OCI
  - Rest of MRB change will impact net income

Enhanced disclosure requirements and rollforwards

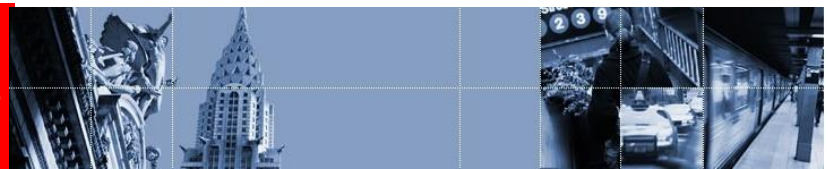
- Significantly more disclosure on input and assumptions than currently required
- Meant to provide better information on timing, uncertainty and measurement of cash flows

Operational complexity:

- ✓ Additional valuation run (with historical OCS curves) each period
- ✓ Other valuation runs for detailed rollforwards
- ✓ Important to automate and streamline production process

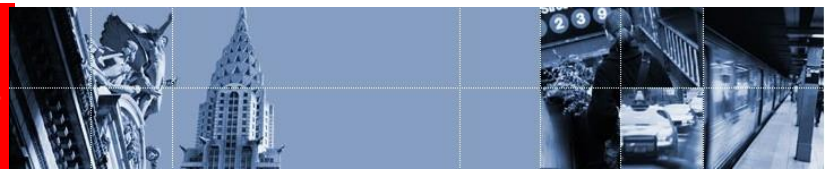
Earnings volatility:

- ✓ Capital market volatility = balance sheet volatility
- ✓ Align hedge target with MRB and minimize net impact to equity
- ✓ Clearly communicate corporate strategy with analysts and investors



Key takeaways

- Insurers must define processes for scoping the features that will be classified as MRB and establish accounting policies and make the required methodology decisions before turning their attention to the actuarial models
- Although retrospective valuation is a one-time exercise, there are important challenges, including:
  - Gathering and modeling at-issue actuarial assumptions and capital market inputs for each cohort
  - Gathering historical in-force files and re-creating the in-force population for each cohort at time of issue
- Insurers must consider a whole breadth of financial impacts from moving to a new accounting regime – which also presents some opportunities:
  - Reserving a larger portion of the block under fair value (where features or products are currently valued under SOP03-1) and what this means relative to other reporting metrics (e.g., hedging) and for balance sheet volatility
  - Allocating the transition impact between net income (retained earnings) and other comprehensive income



Questions ?