2B Tutorial 1 – Semester 2 2019

16 July 2019

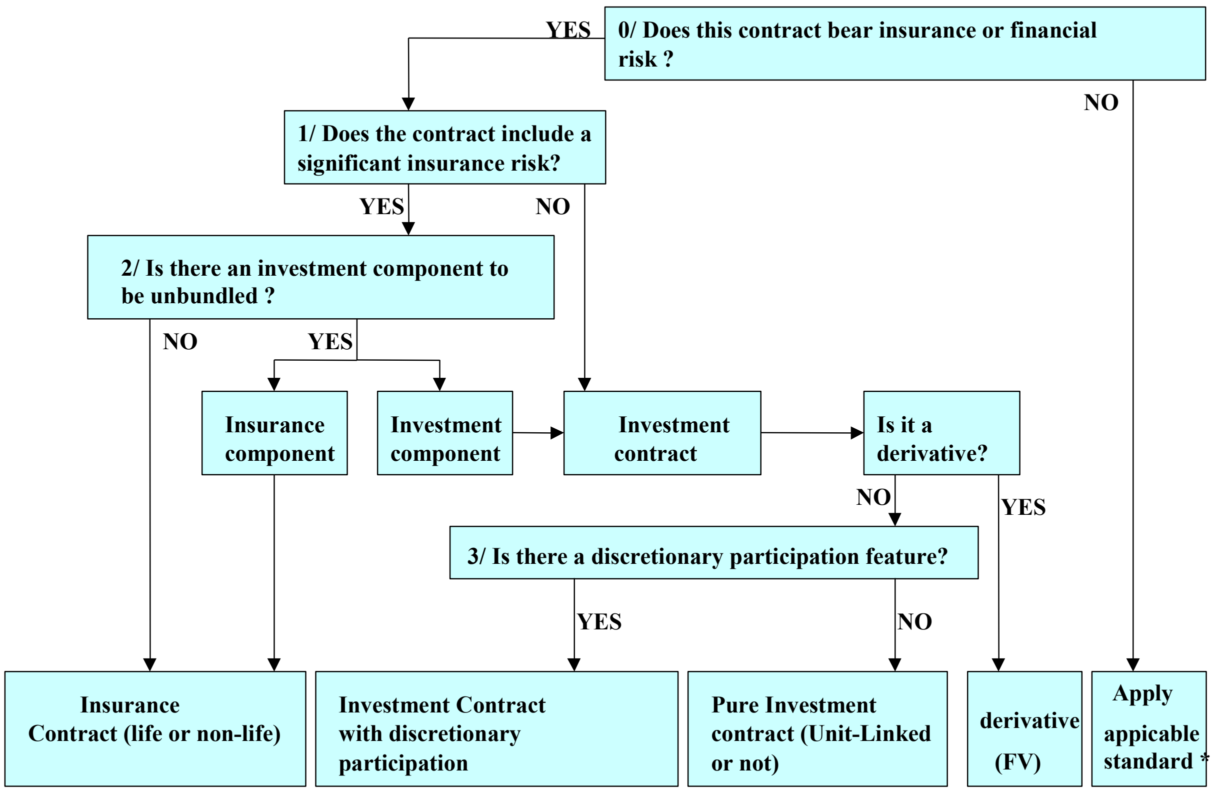
Semester 1 Tutorials

- 16 July – AIFRS: liabilities and analysis (Units 1, 3, 5)
- 20 August – Capital (Unit 2); Analysis of Earnings example; Exam Technique and 2B Chief Examiner.
- 16 September – Appraisal Values; Exam Predictions

Agenda – Tutorial 1

- AIFRS Framework
  - Investment
  - Insurance
- LPS340 - MoS
  - Participating and non-participating
  - Profit Margins
  - Loss recognition and liability adequacy
  - Projection vs Accumulation
- Analysis of Profits
- AIFRS in action – AMP's Full Year results

AIFRS Framework – Investment vs Insurance



IFRS 4
AASB1038
LPS340

IFRS 4
AASB1038
LPS340

IAS39
AASB139

LPS340 – Principles Based

Prudential Standard LPS 340

Valuation of Policy Liabilities

27. The principles are paramount in determining the policy liability; methodology is incidental to the principles. Projection or accumulation methodologies may be appropriate provided the life company can demonstrate that the principles have been met.

28. The policy liability must provide for both:

    (a) a best estimate value of the liability of the company in respect of obligations under life insurance contracts; and

    (b) a uniform emergence of profit in respect of life insurance contracts relative to one or more appropriate **profit carriers**.

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LPS340 - Non-Participating - New Business

- *Refer LPS340, paragraphs 85 to 88*

❑ **Consider a term insurance policy**

- **Immediately prior to sale:**

❑ PV Premiums = PV Claims + PV Expenses + PV Profit

Solve

100 = 50 + Acquisition 20 + 10

Maintenance 20

- **Immediately after sale:**

❑ Liability = PV Claims + PV Expenses – PV Premiums+ PV Profit

-19 = 50 + 20 – 99 + 10

❑ **Income Statement:**

Premiums	1
Claims	0
Expenses	-20
△ Liabilities	+19
Profit	0

Balance Sheet

Assets	-19	Liabilities	-19
		Equity	0

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LPS340 – Non-Participating – Concepts

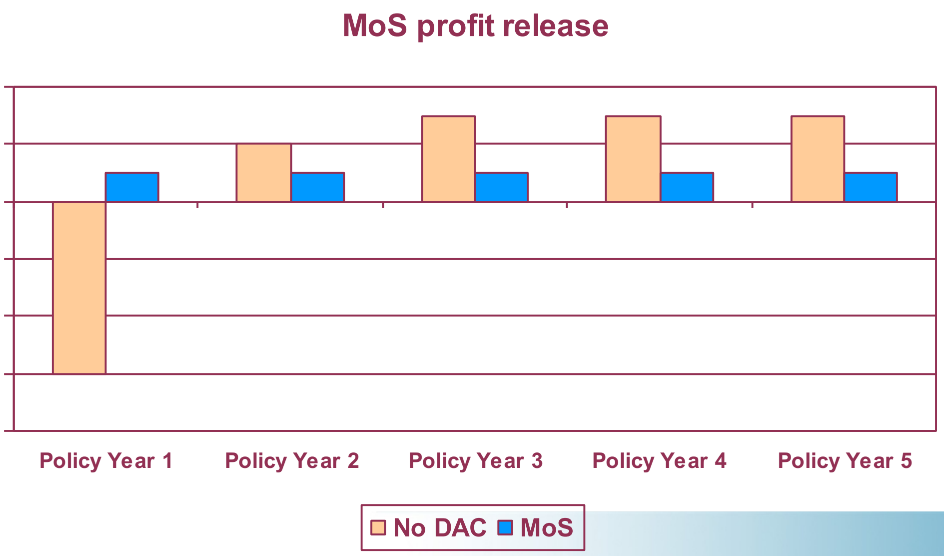
- ❑ Implicit Deferred Acquisition Cost
- ❑ No profit at inception
- ❑ Negative liability (i.e. asset!)
- Therefore…
- ❑ Loss on lapse:
  - Write-off of negative liability (i.e. asset)
  - Acquisition expenses and commission are not recoverable

LPS340 – Non-Participating – Concepts

- ❑ **Profit Carriers (LPS340, paragraphs 71 – 75)**
- ❑ **eg PV Claims in our example**

- $\Rightarrow$ **Profit Margin =** $\dfrac{\text{PV Profit}}{\text{PV Carrier}} = \dfrac{10}{50}$ **= 20% in our example**

- ❑ **Profit release in line with carrier**



LPS340 – Non-Participating – Unprofitable New Business in an unprofitable "Related Product Group"

- **Immediately prior to sale:**

- PV Premiums = PV Claims + PV Expenses + PV Profit

  100 = ~~50~~ 80 + Acquisition 20 + NIL

  Maintenance 20

  Solve, but can't be negative

- **Immediately after sale:**

- Liability = PV Claims + PV Expenses – PV Premiums+ PV Profit Margins

  +1 80 + 20 – 99 + NIL

- **Income Statement:**

Premiums	1
Claims	0
Expenses	-20
△ Liabilities	-1
Profit	-20

Balance Sheet

Assets	-19	Liabilities	+1
		Equity	-20

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LPS340 – Non-Participating – Concepts

- Related Product Group

Related product group refers to a grouping of products where the products are considered by the Actuary to exhibit benefit characteristics and pricing structures sufficiently similar as to justify their grouping for the purposes of profit margin calculation, loss recognition or reporting. A related product group must not extend over subcategories, where a subcategory is defined in the Act.

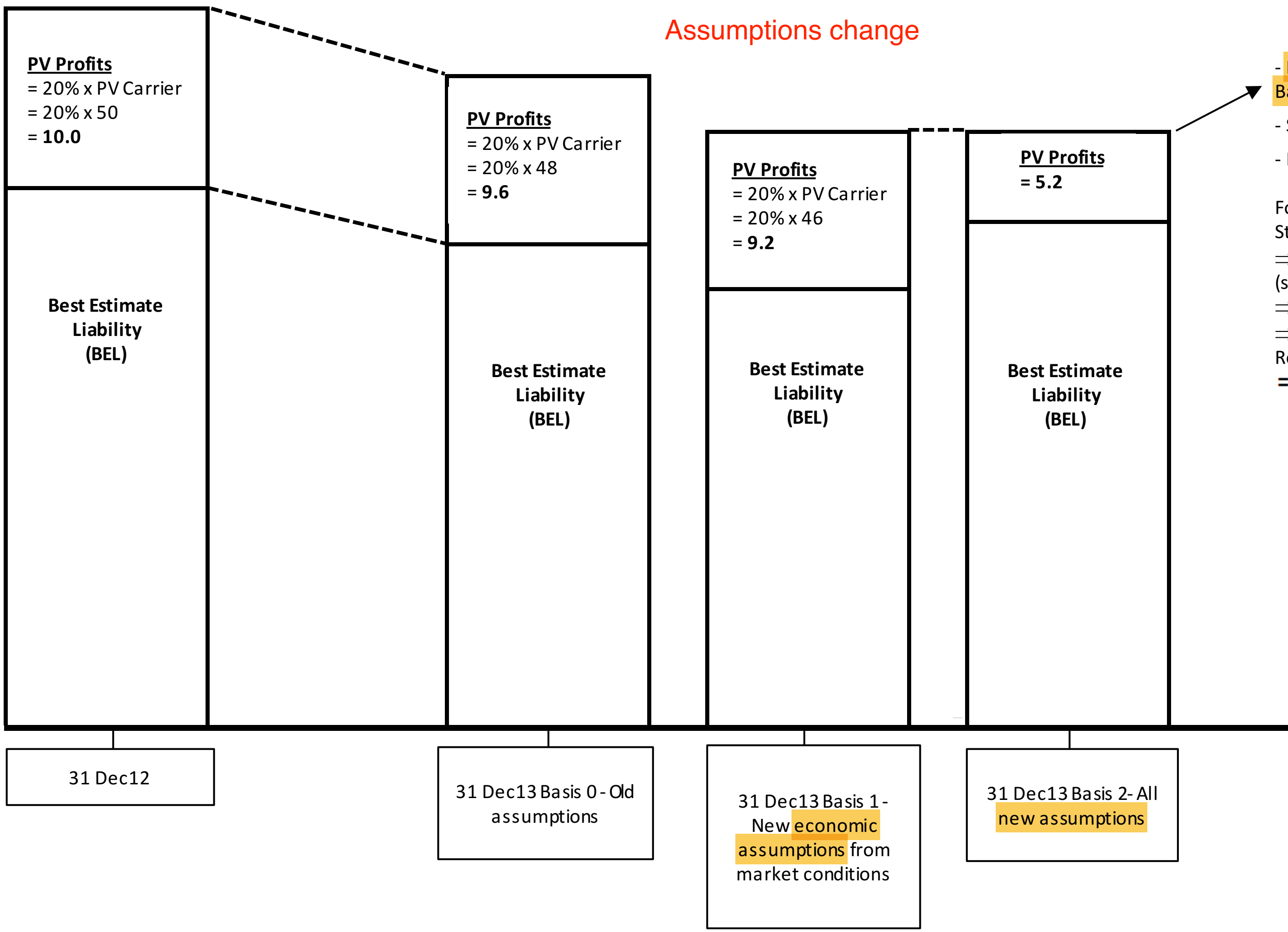
- Example Related Product Groups

Business type	Method	Profit carriers (for business valued using projection method)
Conventional	Projection	Bonuses
Investment account	Modified accumulation	n/a
Retail risk (lump sum)	Projection	Expected premiums
Retail risk (income protection)	Projection	Expected claims
Group risk (lump sum)	Accumulation	n/a
Group risk (income benefits)	Accumulation	n/a
Life annuities	Projection	Annuity payments

- Loss Recognition = Capitalised Loss

- Discount rate = risk free rate

LPS340 – Non-Participating – Reporting Date recalculations



- MoS Liability stays the same as Basis 1.
- Solve for PV Profits
- Recalculate Profit Margin %

For example
Strengthen claims assumptions
⇒ PV claims increases by 4.0 to 50 (say)
⇒ BEL increases by 4.0
⇒ PV Profits reduce by 4.0 to 5.2
Re-solve for Profit Margin %
=5.2 / 50 = 10.4%

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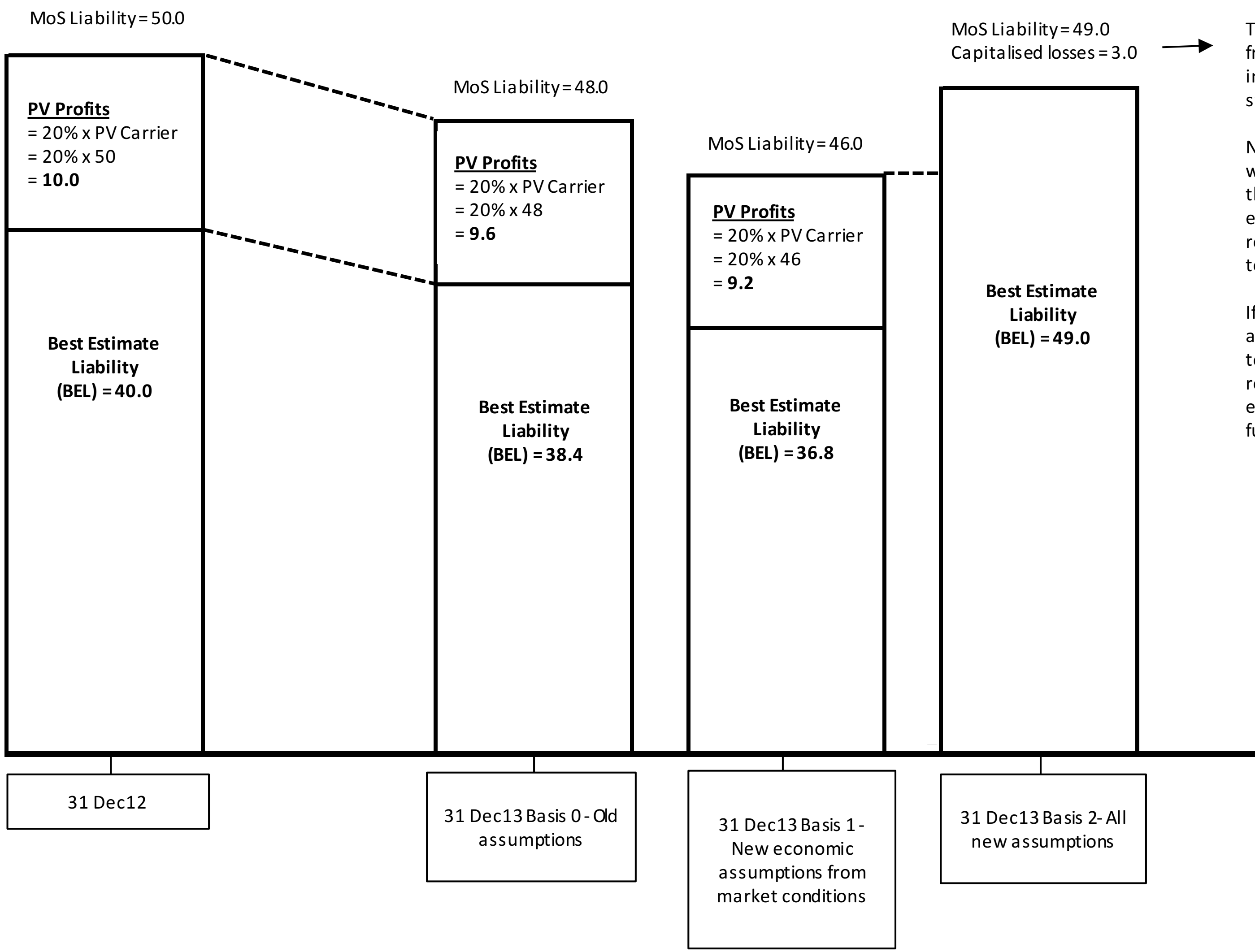
LPS340 – Non-Participating – Loss Recognition

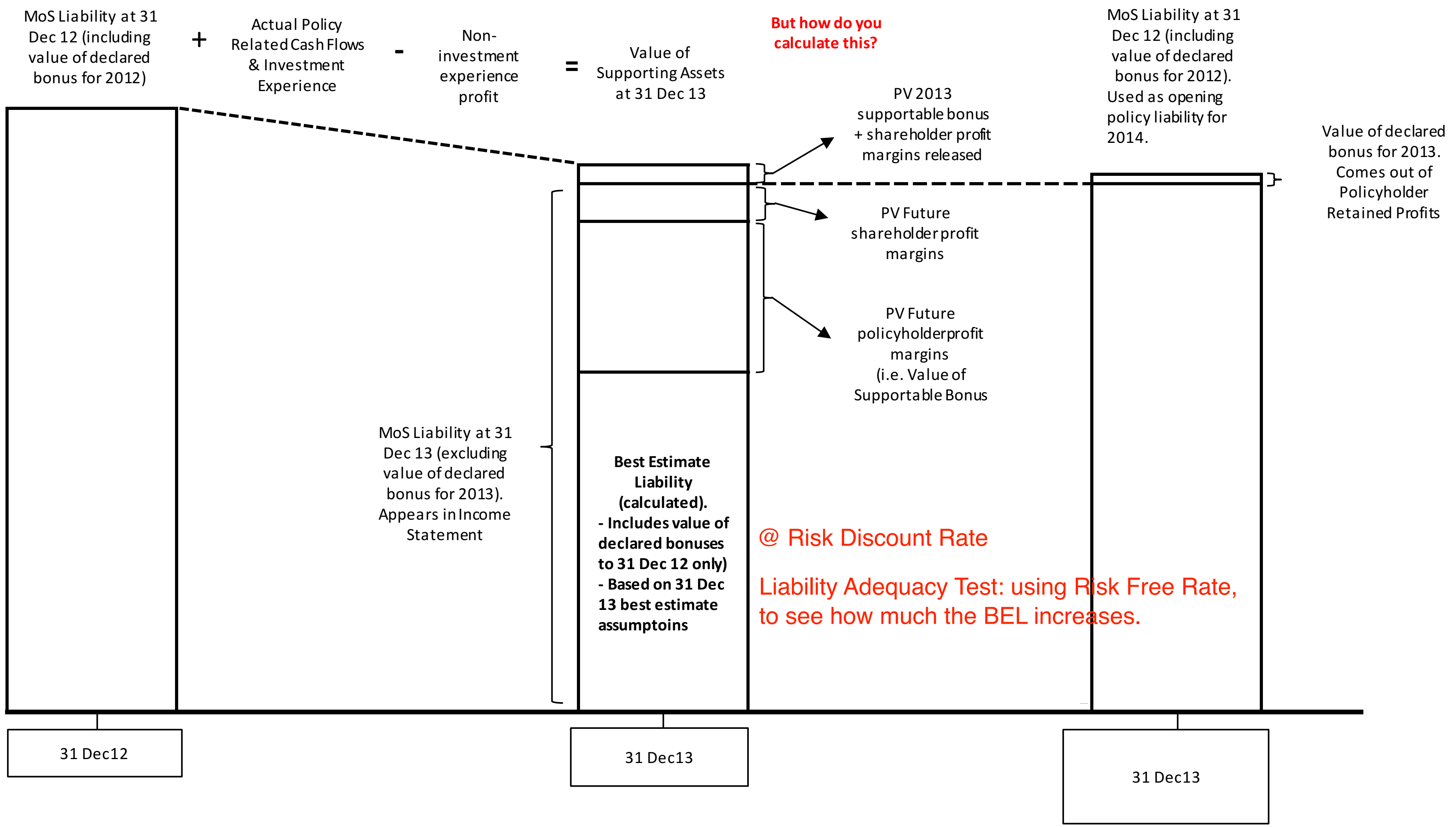


The increase in MoS Liability by 3.0 from Basis 1 to Basis 2 causes a loss in the current year's income statement.

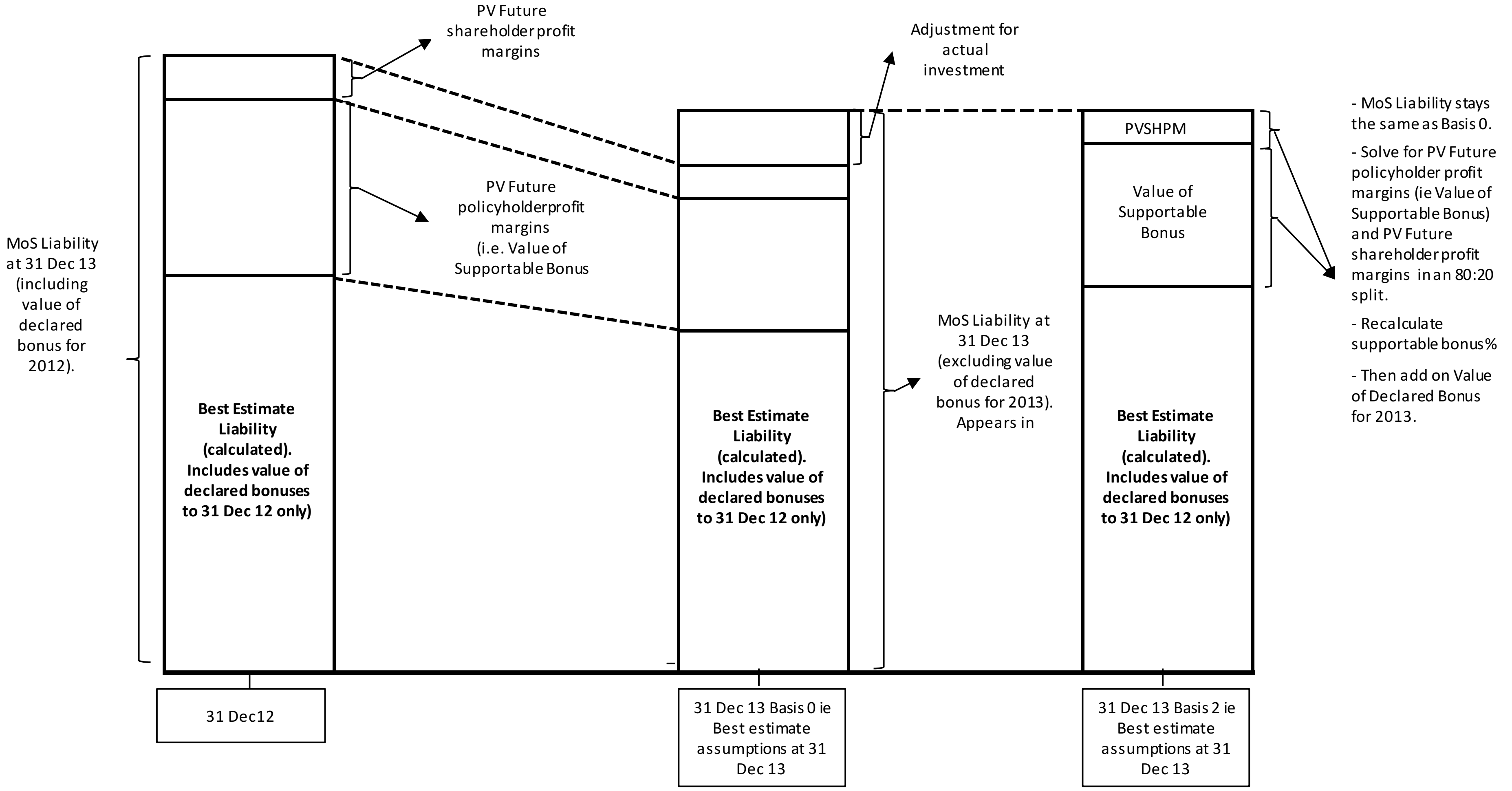
Next year, if assumptions improve when going from Basis 1 to Basis 2, the first 3.0 reduction will extinguish the Capitalised Losses, reduce the liability by 3.0 and lead to a profit in that year of 3.0.

If the improvement in assumptions are substantial, and cause the BEL to reduce by 5.0, for example, the remaining 2.0 will be used to re-establish profit margins with no further change in MoS Liability.

Participating – LPS340 para 103 - 114



Participating – in practice. Retrospective = Prospective



LPS340 – Participating Concepts – VSA

- **What?**
  - ❑ Value of Supporting Assets
  - ❑ Sets the liability equal to the value of the assets backing it, after removing the planned shareholder profit and "experience profit" other than investment experience.
- **Why?**
  - ❑ Effectively ensures that all investment profit or losses in any year are offset by corresponding changes in the policy liability ==> removes some profit volatility
- **How?**
  - ❑ Tracking (notional) asset values backing the liability, adjusting for cash flows.
  - ❑ Resetting the BEL and / or PVFPM and / or "investment smoothing reserve".

LPS340 – Participating Concepts – PRP

- **What?**
  - Policyholder Retained Profits
  - Recognises a liability for (investment) profits that legally belong to policyholders but have not yet been distributed.
- **Why?**
  - Common feature of participating / "with profits" products where the product manager has (some) discretion on distribution of profits.
- **How?**
  - Increases annually with declared profits and reduces with paid out or credited bonuses.
  - Declared profits are commonly determined through a legally binding / prescribed formula, for example 80% of total profits.
  - Paid out / credited bonuses determined by product manager.

LPS340 – Concepts – Asymmetric Risk Reserve

- **What?**
  - ❑ A reserve to reflect the value of any options or guarantees offered as part of a product.
  - ❑ The options and guarantees are usually related to investment returns but can also be related to continuation options of insurance policies.
  - ❑ Forms part of the BEL.
- **Why?**
  - ❑ Introduced as part of IFRS changes to make the BEL more fair value based.
  - ❑ A recognition of the short-comings of traditional deterministic projections.
- **How?**
  - ❑ Usually based on stochastic modelling taking into account guarantees offered in the policy, current investment market levels and volatility.
  - ❑ Needs to consider the current level of PFSHPM, PVPHPM, PRPs, product manager discretion and local regulations on setting future bonus and crediting rates.

LPS340 – Participating Concepts – Investment Earning Assumption

Investment Earning Assumption

Use the expected earning rates of the assets held.

The discount rate

58. The gross rate used to discount expected future cash flows must, to the extent the benefits under the policy are contractually linked to the performance of the assets held, reflect the expected investment earnings applicable to the assets backing the benefit being valued. Otherwise, a discount rate (or rates) that the life company considers to be risk-free, based on the current observable, objective rates that relate to the nature, structure and term of the future liability cash flows is to be used. The discount rate does not need to satisfy the definition of **risk-free discount rate** given in LPS 001.

LPS340 – Participating Concepts – Liability Adequacy Test

Liability Adequacy Test

- **Effectively the loss recognition test for participating business**
- Done using risk-free rate

120. The adequacy threshold for the value of future best estimate bonuses and shareholder profits under related product groups in respect of benefits that are contractually linked to the performance of the assets held is equal to the difference between:

(a) the best estimate liability on basis 2 (either in accordance with paragraph 97 or paragraph 109, whichever is applicable), but using the discount rate (or rates) that the life company considers to be risk free as described in paragraph 58); and

(b) the best estimate liability on basis 2.

Technical Aspects – Projection vs. Accumulation

- ❑ MoS is principles based: outcome is more important than method
- ❑ Projection more common for traditional insurance policies
- ❑ Accumulation common for:
  - ○ Investment account
  - ○ Group Business
- ❑ Liability basis for Group Business

  = UPR + IBNR + DLR

  May have explicit DAC. May have profit margins

Analysis of Profit

- **Operating Earnings:**
  - Profit loadings
  - Underwriting experience profit
  - Expenses experience profit
  - Surrenders experience profit
  - Capitalised losses
  - One-off contributions
  - Untraced
- **Investment Earnings:**
  - Investment experience profit
  - Earnings on Excess Assets
- **Total Profit:**
  - Operating earnings
  - Investment earnings

Analysis of Profit – Planned Profit (Projection Method)

Cash Flow Approach:

	Premium
+	Interest
-	Claims
-	Surrender /Maturity /Withdrawal
-	First Year Commission
-	Renewal Commission
-	Initial Expenses
-	Renewal Expenses
	Net Cash Flows
-	Increase in AIFRS Reserve
-	Increase in 1 Year COB Reserve
	Planned Profit

If everything goes as planned.

=

Profit Margin Approach:

Profit Margin % x Profit Carrier

- **Why are they equal?**

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Analysis of Profit – Expense Profit

- Difference between actual maintenance expenses and expected maintenance expenses (underlying the Policy Liability)
- Expected depends on volumes and unit costs.
- Positive if:
  - Actual maintenance expenses are *lower* than expected maintenance expenses
- Negative if:
  - Actual maintenance expenses are *higher* than expected maintenance expenses
- Includes commissions.
- Not impacted by acquisition expenses.
- Relatively easy to calculate and understand.

Analysis of Profit – Surrender Profit

- **Difference between actual surrender strain and the expected surrender strain**
- **Expected depends on lapse rates assumed in the policy liability and the difference between the surrender value and the policy liability.**
- **Positive if:**
  - Surrender value is *greater* than the policy liability and actual lapses are *lower* than expected.
  - Surrender value is *smaller* than the policy liability and actual lapses are *higher* than expected.
- **Negative if:**
  - Surrender value is *greater* than the policy liability and actual lapses are *higher* than expected.
  - Surrender value is smaller than the policy liability and actual lapses are lower than expected.
- **Needs to be calculated at policy level.**
- **Varies from policy to policy and therefore sometimes difficult to understand.**

Analysis of Profit – Underwriting Profit

- **Difference between actual death / morbidity strain and expected death / morbidity strain underlying the Policy Liability**
- **Positive if:**
  - **Payment on death is *greater* than the policy liability and actual deaths are *lower* than expected.**
- **Negative if:**
  - **Payment on death is *greater* than the policy liability and actual deaths are *higher* than expected.**
- **Needs to be calculated at policy level.**
- **Should allow for reinsurance.**
- **Varies from product to product and sometimes from policy to policy but generally relatively easy to understand.**

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Analysis of Profit – Capitalised Losses

- Impact on profit due to recognition or reversals of capitalised losses.
- Positive if past capitalised losses are reversed through:
  - An assumption change at the end of the valuation period.
  - Sale of profitable new business.
- Negative if capitalised losses are recognised:
  - An assumption change at the end of the valuation period.
  - Sale of non-profitable new business.
- Good indicator for management but can be quite volatile.

Analysis of Profit – One-Offs & Untraced

- **One-Offs**
  - **Usually capture one-off valuation issues or corrections.**
  - **One-off business issues are usually captured in experience profits.**
- **Untraced not formally part of the analysis but in practice a very important component.**
  - **Checks if the analysis is correct; and / or**
  - **checks if the liability is correct; and / or**
  - **checks if the profit / cashflows are correct.**

Analysis of Profit – Investment Earnings

- **Investment experience profit captures the different between expected and actual return on assets backing the policy liability only.**
- **Investment experience profit positive if:**
  - **Actual earnings have been higher than the best estimate earning rate and the policy liability is positive and policy liability is *not* based on VSA.**
- **Investment experience profit negative if:**
  - **Actual earnings have been lower than the best estimate earning rate and the policy liability is positive and policy liability is *not* based on VSA.**
- **Earnings on Excess Assets:**
  - **earnings on assets not backing the AIFRS policy liability;**
  - **Absolute earnings number, not an experience profit.**

AIFRS in action – AMP's Full Year 2017 profit result

Australian wealth protection

Profit and loss (A$m)	FY 17
Profit margins	99
Experience profits/(losses)	4
Capitalised (losses)/reversals and other one-off experience items	7
Operating earnings	110
Underlying investment income	27
Underlying operating profit after income tax	**137**

https://corporate.amp.com.au/shareholder-centre/results-reporting/reports - Investor Report, page 14

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AIFRS in action – AMP's FY17 profit result

Business overview

Australian wealth protection (WP) comprises term life, disability and income protection insurance products sold on an individual and group basis. Insurance products can be bundled with a superannuation product or held independently.

WP's key priorities are to:

- focus on pricing, claims and lapse management to improve margins, and
- provide a high quality customer experience.

Operating earnings

Operating earnings improved by A$525m to A$110m in FY 17 from FY 16, with improved experience more than offsetting lower profit margins.

Profit margins

Profit margins fell by A$76m (43%) from FY 16 to A$99m in FY 17, largely due to the strengthening of assumptions at FY 16, the implementation of a 50% quota share reinsurance arrangement with Munich Reinsurance Company of Australasia (Munich Re) on 1 November 2016 and the implementation of a second tranche of reinsurance transactions on 1 November 2017 with General Reinsurance Life Australia Limited (Gen Re) and Munich Re. Total reinsurance cover on AMP's retail book is now equivalent to 65% of individual risk API.

The impact of assumption changes and reinsurance arrangements were partially offset by a reduction in controllable costs.

FY 17 profit margins as a percentage of average API decreased 3.8 percentage points from FY 16 to 5.1% in FY 17.

FY 18 profit margins are expected to reduce to approximately A$70m mainly due to the new reinsurance agreements.

Experience

The WP business recorded experience profits of A$4m in FY 17, compared with experience losses of A$105m in FY 16. This FY 17 outcome represented a performance largely in line with expectations.

Capitalised (losses)/reversals and other one-off experience

Capitalised loss reversals and other one-off experience items of A$7m in FY 17 were due to repricing initiatives and lower expenses, partly offset by increased reinsurance costs and minor capitalised losses following the loss of a large group plan.

The accumulated capitalised loss position at 31 December 2017 was A$491m. Future reversals of capitalised losses can be driven by future premium rate increases, changes in claims and lapse assumptions, reductions in unit costs and growth in profitable new business, net of any reinsurance impact.

The Future – Insurance Contracts International Financial Reporting Standard (IFRS 17) (for interest only)

- For annual reporting periods beginning on or after 1 Jan 2021
- Contract Boundary: ≤ 1 year. Premium allocation approach.

  Similarities to MoS, but terminology different:
  - Discounted cash flows
  - Risk Margin (new)
  - Residual Margin (like PV Profits)
  - Very limited DAC – must put most acquisition expenses through current year income statement before solving for residual margin
- May be a lot of messy tranching and allocation of profits into "profit or loss" and "other comprehensive income"