

LDTI – We are here.

Are you ready?

Agenda

1. Insights and lessons learned
2. Reporting and disclosures requirements
3. Treatment of loss-making cohorts
4. Traditional products
5. Limited pay
6. Management of subcohorts
7. Conclusion

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1

Insights and lessons learned

Clients & Market Leaders Feedback

Insights and lessons learned



Insights and lessons learned from our Clients and Market Leaders



Focus on Core LDTI Requirements

Mapping of Chart of Accounts and broader reporting requirements.



Reporting Requirements

Reporting requirements go much further than illustrative examples in ASU 2018-12 pushing for the need of sub-cohort and contract level data.



Flexibility and Customization

Flexibility and customization are required in the production of rollforward analysis:

- Breakdown of variables in custom dimensions,
- Flexibility in adding runs / calculation steps.



Interim Reporting

Interim reporting (and period-to-date vs year-to-date) poses some specific accounting challenges which insurers have to cope with.



Roadmap Synchronization

Tight coordination and alignment is needed between the LDTI adjustment roadmaps of the actuarial modelling tool and downstream accounting and reporting solution, as it is done for AXIS™, GAAP Link and RiskIntegrity™.

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2

Reporting and disclosures requirements

Pre-Built Reporting and Disclosure Requirements

All covered by RiskIntegrity™ for LDTI

Disclosure	ASC 944 Paragraph	Report Template Reference
Deferred Acquisition Costs	ASC 944-30-55-2	ASU 2018-12 Example 1
Liability for Future Policy Benefits	ASC 944-40-55-29E	ASU 2018-12 Example 3
(Re)Insurance subledger level balance sheet extract		Example provided by Big 4
(Re)Insurance subledger level income statement extract		Example provided by Big 4
Market Risk Benefits	ASC 944-40-55-29G	ASU 2018-12 Example 5
Deferred Profit Liability (DPL) Rollforward		Moody's proprietary report template
Stat-GAAP reconciliation by LoB		Moody's proprietary report template
Cost of Reinsurance for LFPB		Moody's proprietary report template
Stat-GAAP reconciliation by LoB		Moody's proprietary report template
Balances of and changes in policyholders' account balances	ASC 944-40-55-29F	ASU 2018-12 Example 4.2
Separate account liability	944-80-25-2	Example provided by Big 4
Original net premium ratio at the issue date of the portfolio	ASC 944-40-55-29K	ASU 2018-12 Example 6
Original net premium ratio at the issue date of the portfolio	ASC 944-40-55-29K	ASU 2018-12 Example 7
Computation of Amortization	ASC 944-30-55-7	ASU 2018-12 Example 2: Schedule 1,3,5
Computation of Amortization	ASC 944-30-55-7	ASU 2018-12 Example 2: Schedule 2,4,6
Deferred Acquisition Costs Rollforward	ASC 944-30-55-7	ASU 2018-12 Example 2: Schedule 7
Sales Inducements Assets		Moody's proprietary report template
Additional Liability	ASC 944-40-25-25B	Moody's proprietary report template
Unrealized Revenue Liability		Moody's proprietary report template
Liability for Policyholder's Account Balances - Range of Guaranteed Minimum Crediting Rate	ASC 944-40-55-29F	ASU 2018-12 Example 4.1
Undiscounted expected future benefit payments and expected gross premiums	ASC 944-40-50-6b-1	Example provided by Big 4
Actual experience during the period for mortality, morbidity, and lapses, compared with what was expected for the period	ASC 944-40-50-6b-2	
Amount of revenue and interest recognized in the income statement	ASC 944-40-50-6b-3 ASC 944-40-50-6c	Example provided by Big 4
Weighted-average liability duration of the liability for future policy benefits	ASC 944-40-50-6b-5	Example provided by Big 4
Weighted-average interest rate	ASC 944-40-50-6b-6	Example provided by Big 4
Reconciliation of the net liability for future policy benefits to the liability for future policy benefits in the consolidated balance sheet	ASC 944-40-50-6c	Example provided by Big 4
Blocks of business with Net Premium Ratio greater than 100%	ASC 944-40-50-6d	Moody's proprietary report template

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3

Treatment of loss-making cohorts

Developing Early Positions on Illustrative Disclosures

How to report on Loss-Making Cohorts

- » No illustrative disclosure examples provided in ASU 2018-12 or elsewhere
- » Here is Moody's proposition for this disclosure:

			Before Adjustment			Immediate Charge		
LoB	Cohort	Posting Date	PV (Benefits & Expenses)	PV (Gross Premiums)	K-factor	Total Current	Total Previous	Adjustment
A	A1	30/06/2022	10,150,000.00	10,000,000.00	101.50%	150,000.00	100,000.00	50,000.00
	A2	30/06/2022	15,375,000.00	15,000,000.00	102.50%	375,000.00	0.00	375,000.00
	A3	30/06/2022	13,260,000.00	13,000,000.00	102.00%	260,000.00	260,000.00	0.00
B	B1	30/06/2022	22,410,000.00	22,000,000.00	101.86%	410,000.00	418,000.00	-8,000.00
	B2	30/06/2022	32,500,000.00	33,000,000.00	98.48%	-500,000.00	990,000.00	-990,000.00
TOTAL Immediate Charge						695,000.00	1,768,000.00	-573,000.00

Was already loss-making and situation deteriorated further in this period.

Started the period profitable, but became loss making in the period.

Was already loss-making, situation improved, but remains loss making.

Was already loss-making, situation improved so much that immediate charge dissolves. K-factor drops below 100%. Charge floored to 0 and doesn't become negative.

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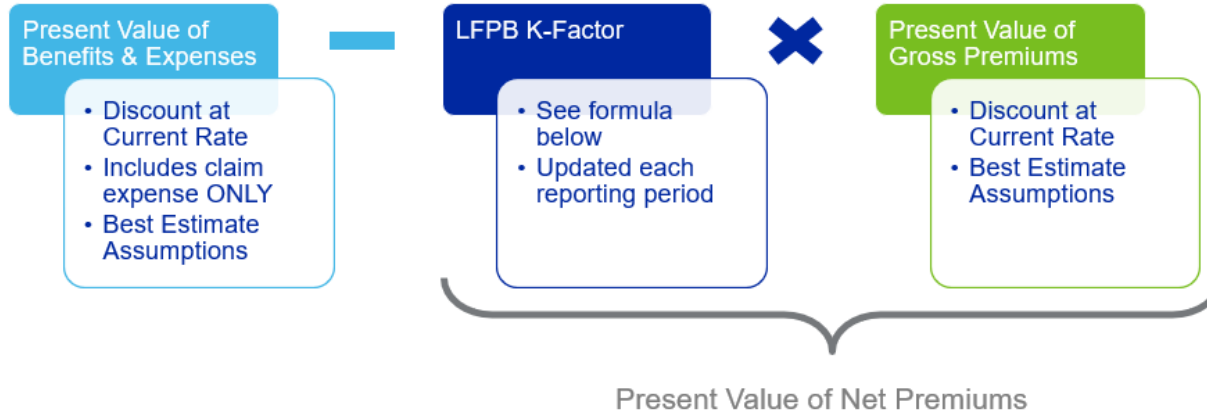
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Traditional products

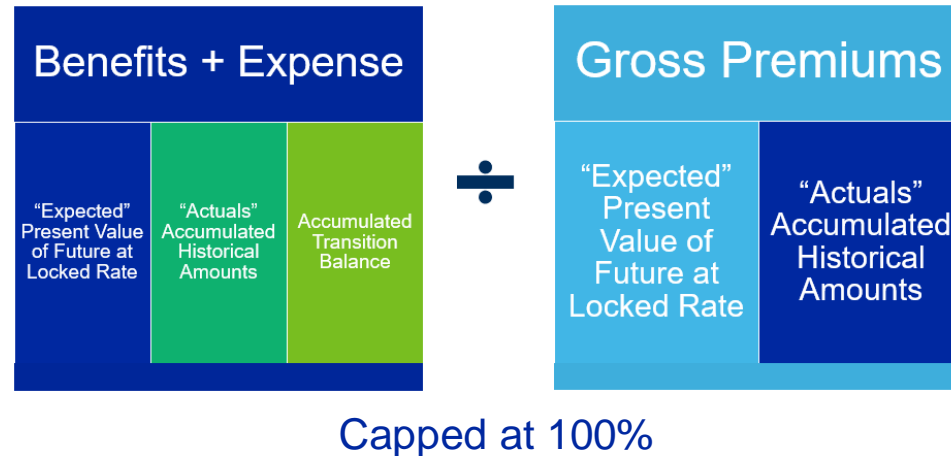
Liability for Future Policy Benefits (LFPB)

Net premium approach

» Net Premium:



» LFPB K-factor:



K-Factor Cap and Immediate Charge

ASC 944-40-30-7A

“To the extent the present value of future benefits and expenses exceeds the present value of future gross premiums, an immediate charge shall be recognized in net income such that net premiums are set equal to gross premiums”

➔ 3 different views on the rollforward of premiums:

PV of Net Premiums considering K-factor cap	LDTI compliant view
PV of Net Premiums considering K-factor uncapped	For internal analysis only
PV of Gross Premiums	Factual cash flow view

Roll-Forward	Net Premiums Capped	Net Premiums Uncapped	Gross Premiums
Balance, beginning of period	-622,602.60	-676,336.56	-204,132.00
Beginning balance at original discount rate	-636,562.50	-691,501.25	-208,709.02
Effect of changes in cash flow assumptions	0.00	0.00	0.00
Effect of actual variances from expected experience	622,779.69	679,583.53	204,190.06
Adjusted beginning of year balance	-13,782.81	-11,917.72	-4,518.96
Issuances	-23,107.65	-16,466.10	-7,576.28
Interest accrual	-9.24	-7.10	-3.03
Net premiums collected	-22.88	-17.57	-7.50

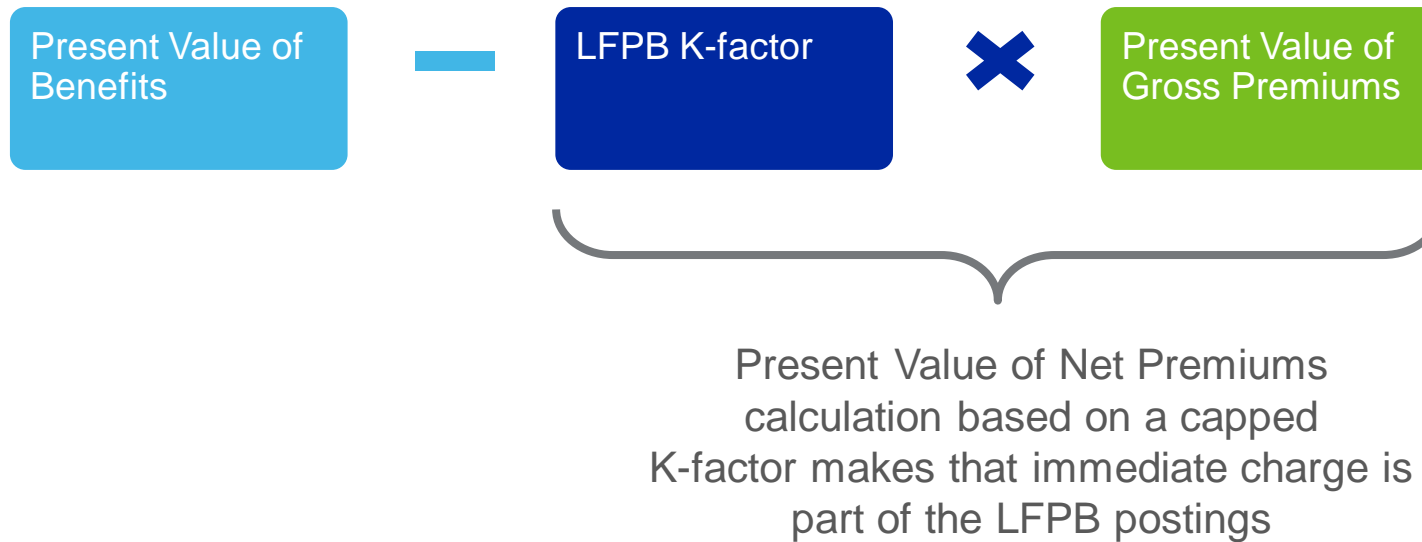
Liability for Future Policy Benefits

Accounting treatment

- » What has to be posted:
 - Movements in PV of Benefits and Expenses
 - Movements in PV of Net Premiums
- » Difference between both = LFPB ➡ LFPB is not directly posted

K-Factor Cap and Immediate Charge

Accounting treatment



» Accounting logic:

We debit and credit change in immediate charge on 2 dummy accounts (zero impact on P&L), only to have the amount isolated on an account in the subledger (and GL)

LFPB floor

“In no event shall the LFPB balance be less than zero” (ASC 944-40-30-7A)

» Actuarial rollforward analysis is on an unfloored LFPB basis

» Show unflooring/flooring impact at BOP/EOP:

Roll-Forward
Balance beginning of period floored
Unflooring Impact
Balance beginning of period unfloored

» Accounting treatment:

– LFPB < 0 ➔ Post floor to make LFPB = 0

– Only posting directly at LFPB level, instead of via PV(net premiums) and PV(benefits & expenses)

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Limited Pay

Limited Pay Contracts

What is a Deferred Profit Liability (DPL)?

Example:

- » Mortgage house loan for a term of 20 years + Debt balance insurance (life insurance)
- » Outstanding debt decreases across the term ➡ firm wants to collect most of the premiums early
- » Typical contract
 - Upfront balloon payment of entire premium
 - Or annual payment for 2/3 of the term:
 - › Payment across first 12 year
 - › Remaining 8 years: no more premium receivables
- ➡ Defer premium receipts in a Deferred Profit Liability which is amortized across future periods, in accordance with service provided

Limited Pay Contracts

Roll-forward analysis

Roll-forward analysis of the following metrics are required:

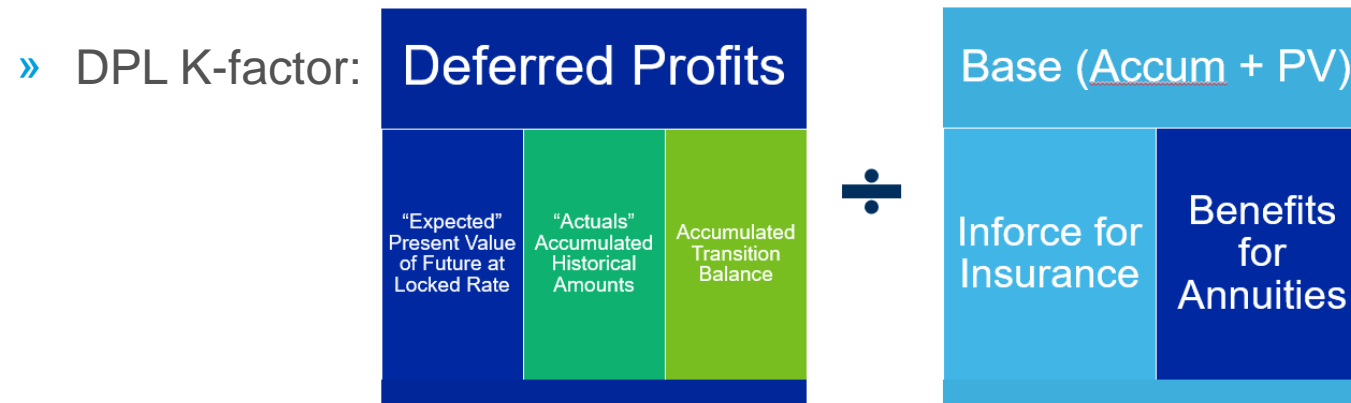
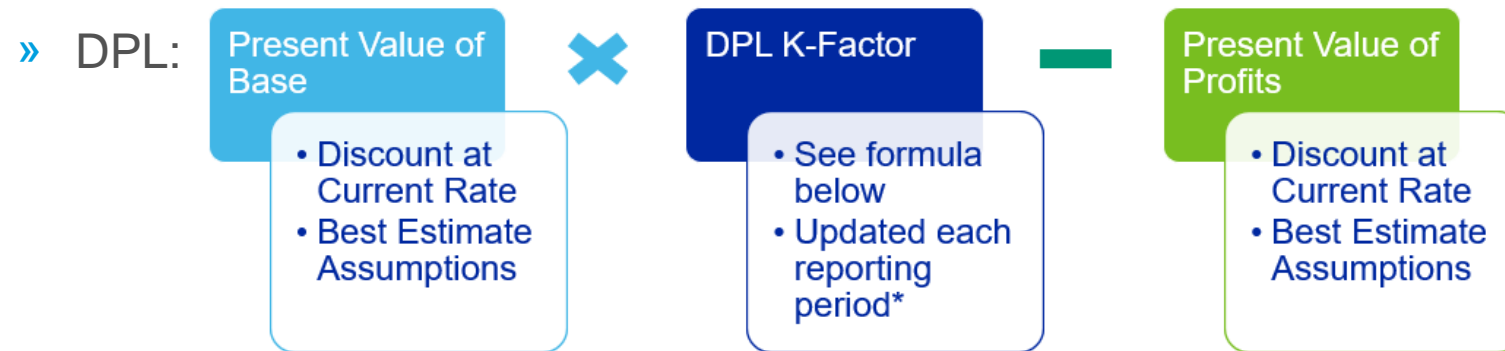
- » Traditional roll-forward: same as the one for LFPB with separated roll-forward for PVP and PVB
- » Deferred Profit Liability: Specific roll-forward for Limited pay

PVP Roll-Forward		PVB Roll-Forward	
Beginning Balance	551.786,39	Beginning Balance	641550,3125
Beginning Balance at locked DR	551.786,39	Beginning Balance at locked DR	641550,3125
Effect of CF assumption change	(151.054,58)	Effect of CF assumption change	-172528,9688
Effect of new business	(400.731,81)	Effect of new business	-469021,3438
Effect of experience	700.863,60	Effect of experience	768563,25
Revalued beginning balance	700.863,60	Revalued beginning balance	768563,25
Valuation premium collected	70.791,83	Benefits Paid	0
Interest accrued	6.615,71	Interest accrued	7572,9375
Ending balance at locked DR	636.687,48	Ending balance at locked DR	776136,1875
Effect of discount rate change	-	Effect of discount rate change	0
Ending balance	636.687,48	Ending balance	776.136,19

DPL (Roll - Forward)	
Beginning balance	1.325.423,25
(+) Effect of CF assumption change	8.644,63
(+) Effect of new business	(1.334.067,88)
(+) Effect of experience	1.328.229,75
Revalued beginning balance	1.328.229,75
(+) Profits deferred	1.569.208,18
(+) Interest accrued	18.012,80
(-) Amortization	329.035,49
Ending balance	2.586.415,25

Limited Pay Contracts

DPL and K-factor calculations



Profits Deferred

Reconciliation between DPL and LFPB rollforwards

$$\textit{Profits Deferred} = (100\% - \textit{LFPB K_Factor}) * \textit{Gross Premium}$$

In RiskIntegrity™ for LDTI:

$$\textit{DPL_PROFIT_DEF} = (1 - \textit{PVBE} / \textit{PVP_GROSS}) * \textit{PVP_GROSS}$$

- *PVBE* = PV of benefits and expenses at locked DR in LFPB
- *PVP_GROSS* = PV of gross premiums

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6

Management of subcohorts

Management of subcohorts

The use case

- » LDTI unit of account is cohort
- » Companies wish to analyze results at a more granular level (subcohort) for management reporting purposes:
 - To better understand cohort level results and have a better control on their final numbers
 - Being able to produce and post journal entries at subcohort level
 - Have more flexibility for source of earnings analysis

Management of subcohorts

The challenges

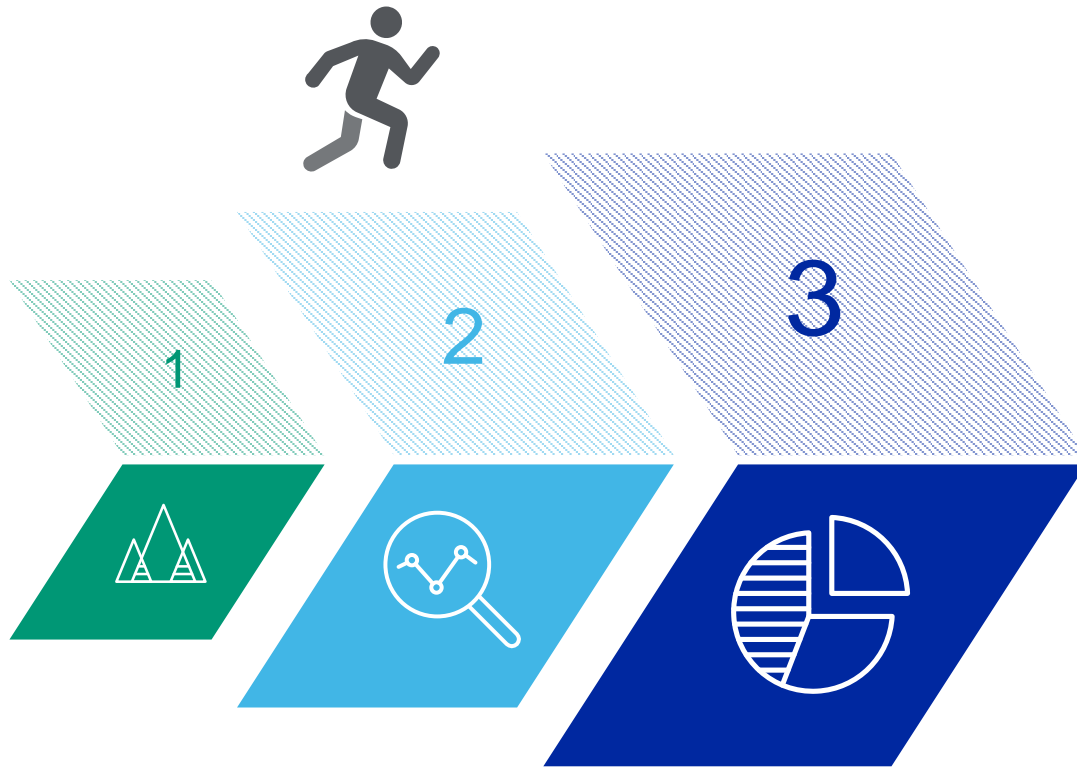
» This requires to solve the two following issues:

- Make subcohorts additive and fix the difference between subcohort and cohort level results
- Implement the treatment of K-factor cap and LFPB floor at subcohort level

Eg. one subcohort is loss-making, the immediate charge is recognized but the related cohort remains profitable, there is no immediate charge

Management of subcohorts

How do we achieve that?



STEP 1 **Introduce subcohort into standard import template for all product components**

Data driven, subcohort is optional and 3 cases possible:

- Only cohort
- Only subcohort
- Both cohort and subcohort

STEP 2 **A) Enable actuarial calculation at subcohort level**

- Global level
- Specific cases

B) Enable journal posting at subcohort level

STEP 3 **Enable the subcohort granularity in the reports and disclosures**

Management of subcohorts

Reports and disclosures

PVP PV of Expected Net Premiums PV of Gross Premiums				
Roll-forward Drill-down Analysis				
Period	Current		Previous	
On a capped, unfloored LFPB basis	Cohort Level	Sub - Cohort Level	Cohort Level	Sub - Cohort Level
<input type="checkbox"/> Balance, beginning of period	\$3,689,275.38	\$40,802,143.50	\$1,672,163.27	\$28,997,739.43
<input type="checkbox"/> 60289 Reg LP	\$204,132.00	\$204,132.00	\$50,099.36	\$181,041.93
<input type="checkbox"/> 60289_SUBCohort01		\$61,239.60		\$46,581.19
<input type="checkbox"/> 60289_SUBCohort02		\$142,892.40		\$134,460.74

- » Comparison of cohort level and subcohort results available side by side:
 - Cohort level: showing the amount at cohort level for a given rollforward
 - Subcohort level: showing the amount at subcohort level for a given rollforward
 - If only subcohort level outputs available (inputs provided only at subcohorts level), display the sum of subcohorts at cohort level

Management of subcohorts

Subcohorts not additive vs. Posting at subcohort level

- » Due to the division defined to calculate K-factor of LFPB: discrepancy between cohort and subcohort levels
- » LDTI requirement is cohort as unit of account for journal posting
- » Impact on traditional contracts LFPB, DPL and CoR

$$PVP_NET(SubA) + PVP_NET(Sub B) \neq PVP_NET(Cohort)$$

$$PVP_NET_{(SubA)} = LFBP\ K\ factor_{(SubA)} * PVP_Gross_{(SubA)}$$

$$PVP_NET_{(SubB)} = LFBP\ K\ factor_{(SubB)} * PVP_Gross_{(SubB)}$$

$$PVP_NET_{(Cohort)} = LFBP\ K\ factor_{(Cohort)} * PVP_Gross_{(Cohort)}$$

- ➔ LFPB K-factor could be different for SubA, SubB and Cohort

$$Cohort.VariableX \neq \sum_{i=1}^n Subcohort_i.VariableX$$

Management of subcohorts

Creation of proxy "Residue" subcohort

	60289 Reg LP	Subcohort01	Subcohort02
PVP_NET	-219144.4668	-62612.7048	-146096.3112
PVBE	731541.4313	209011.8375	487694.2875



- » Prerequisite:
Input values must be provided at both cohort and subcohort levels

	60289 Reg LP	Subcohort01	Subcohort02	Residue
PVP_NET	-219144.47	-62612.70	-146096.31	-10435.45
PVBE	731541.43	209011.84	487694.29	34835.31
LFPB	512396.97	146399.13	341597.98	24399.86

- » For each variable X in the output variable, we calculate a proxy subcohort (hypothetical) by applying the following formula:

$$Cohort.X - \sum_{i=1}^n Subcohort_i.X$$

- » The result calculated is stored in the output variables table as "Residue" for each cohort
- » Accounting treatment: we can post at subcohort level and stay LDTI compliant, as subcohorts are now additive

Management of subcohorts

Counterintuitive results: cohort vs. subcohort

- » Counterintuitive results:
 - One subcohort (Sub_02_A) is loss-making and induces an immediate charge
 - The other subcohorts are sufficiently profitable
 - The cohort remains profitable
- » Similar problem with LFPB floor

Ldti Cohort Code/SubCohort	LFPB	K-Factor	Immediate Charge
Test_Cohort_02	7632290.51	87.44%	0
Sub_02_A	4448463.32	104.41%	2481355.6
Sub_02_B	2523879.59	85.94%	0
Sub_02_C	2291360.1	72.66%	0



Expect to be able to determine if ignore or not K-factor cap and LFPB floor at subcohort level

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7

Conclusion

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