CARIBBEAN ACTUARIAL ASSOCIATION

IFRS17 Key Performance Indicators

For Life Insurance Companies

Meet the Team

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Mark Longman is a Fellow of the Society of Actuaries and the current Chair of the CAA Life Committee. He has over 20 years of financial sector experience and holds a BSc with honours in Actuarial Science. He is a native to the island of Jamaica and spent much of his career working in the life and health insurance markets. Mark has extensive experience in strategic insurance initiatives, acquisitions, divestitures and partnerships. He is a sports enthusiast and enjoys playing chess.

Kristy Alexander, FSA, CERA

Kristy's expertise lies in the field of life insurance where she has 10 years of actuarial experience. Her work focuses on actuarial valuations and regulatory reports under IFRS17. Kristy is a Fellow of the Society of Actuaries and a Chartered Enterprise Risk Analyst. She has a BSc in Actuarial Science from the University of Western Ontario and a Masters of Arts in Economics from the University of Toronto. In her free time, she enjoys long-distance running.

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Kezia is a Valuations and Capital Reporting Actuary at Scotiabank Trinidad. She is a Fellow of the Society of Actuaries with over 15 years' experience. Her current role involves IFRS17 valuations. Kezia is also a Chartered Enterprise Risk Analyst and holds an MSc in Finance, Investment & Risk from the University of Kent in the UK. In her spare time, Kezia enjoys working out and spending time with her family.

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Overview

IFRS17 Elements impacting traditional KPIs

Spotlight on elements introduced by IFRS17 that necessitate changes in existing KPIs

IFRS17 Key Performance Indicators

A description of some of the new KPIs arising from IFRS17.

Case Studies

An illustration of the use of KPIs under possible adverse scenarios for hypothetical Life Insurance Companies.

Section 1

Impact on Traditional KPIs

IFRS17 Elements impacting traditional KPIs

- **Contractual Service Margin (CSM) & Loss Component (LC)**
  - The introduction of the CSM and the LC has a significant impact on the pattern of profit recognition, making them important to consider when monitoring Company performance.
- **Grouping of contracts**
  - Insurance contracts with similar risks and that are managed together are grouped. However, profitable and unprofitable contracts are separated even if the risks are similar. With this treatment, we lose the benefit of aggregation.
- **Premiums**
  - Under IFRS17, Insurance Revenue will likely replace Premiums in KPIs that have historically relied on premiums. e.g. Profit Margins, Loss Ratios.
- **Discount Rates**
  - In the past, discount rates were determined by asset portfolio yields. Under IFRS17, rates used for discounting are determined by the market and the characteristics of the liabilities.

Section 2

IFRS17 KPIs Description

Key Performance Indicators: Traditional & IFRS17

Category	Traditional KPI	IFRS17 KPI
Growth	Value in Force NB Premiums EV from NB	Change in CSM NB CSM Value of New Business = (CSM + Initial LC + RA) for new business CSM Sustainability Index = NB CSM / CSM Released
Profitability	ROE Combined Ratio UW Profit Margin	IFRS17 ROE Insurance Service Ratio = Insurance Service Expenses (actual) / Insurance Revenue Service-to-Revenue Ratio = Insurance Service Result / Insurance Revenue
Capital	Capital adequacy ratio Equity	Solvency ratio Comprehensive Equity = Equity + CSM + PV PAA Future Profits
Other		CSM to Total Liabilities RA to Total Liabilities LC to Total Liabilities

Growth KPIs

CSM is commonly used in Growth Performance Indicators and New business tracking.

CSM is akin to Value In Force (VIF).

VIF = Present value of profits expected from existing policies.

1. **Change in CSM (YTD)**

   = CSM at the end of the year - CSM at the start of the year

2. **New Business CSM**

   = CSM from contracts initially recognised in the period

3. **Value of New Business**

   = Initial CSM + Initial Loss Component + Initial Risk Adjustment

4. **CSM Sustainability Index**

   = Initial CSM / CSM Released

Profitability KPIs: Return on Equity (ROE)

Traditional

1. ROE

Profit / Avg Equity

IFRS17

1. ROE

Profit / Avg Equity

Profit / (Equity + CSM)

IFRS17 ROE Variations

Profit / (Equity + CSM): CSM added to equity as it is the embedded profit which will flow back into equity over time.

Profit / (Equity + RA + CSM): RA added to equity as it is the embedded risk premium which will flow back into equity over time.

(Profit + OCI delta) / (Equity + RA + CSM): Addition of OCI delta in the numerator increases dependency of the KPI on market conditions

Profit / (Equity + RA + CSM – OCI) : Removal of OCI in the denominator increases the stability of the KPI over time

Profitability KPIs: Other Indicators

Traditional KPIs	Related IFRS17 KPIs
Combined Ratio = $\left(\frac{Claims + Expenses}{Premiums}\right)$	?
Underwriting Profit Margin = $\left(\frac{Underwriting\ Profit}{Premiums}\right)$	?

Sample P&L	
CSM & RA Recognised	7,500
Expected Claims & Expenses	1,700
INSURANCE SERVICE REVENUE	**9,200**
Changes that relate to future service	20
Changes that relate to past service	60
Incurred Claims & Expenses	(2,750)
INSURANCE SERVICE EXPENSE	**(2,670)**
NET INSURANCE SERVICE RESULT	**6,530**
Changes in Financial Risk	200
Interest Accreted	(9,300)
Investment Income	15,000
NET FINANCIAL RESULT	**5,900**
NET PROFIT BEFORE TAX	**12,430**
Income Tax	(4,500)
NET PROFIT AFTER TAX	**7,930**

Profitability KPIs: Other Indicators

Traditional KPIs	Related IFRS17 KPIs
Combined Ratio = $(\frac{Claims + Expenses}{Premiums})$	**Insurance Service Ratio =** $(\frac{Insurance\ Service\ Expense}{Insurance\ Service\ Revenue})$
Underwriting Profit Margin = $(\frac{Underwriting\ Profit}{Premiums})$	**Service to Revenue Ratio =** $(\frac{Insurance\ Service\ Result}{Insurance\ Service\ Revenue})$

Sample P&L	
CSM & RA Recognised	7,500
Expected Claims & Expenses	1,700
INSURANCE SERVICE REVENUE	**9,200**
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Capital KPIs

A variety of capital requirements exist for different Caribbean countries.

1. **Capital Ratio**

   e.g. LICAT in Jamaica, Factor-based in Trinidad.

2. **Comprehensive Equity**

   = Equity + Contractual Service Margin + Present Value of Future Profits under PAA

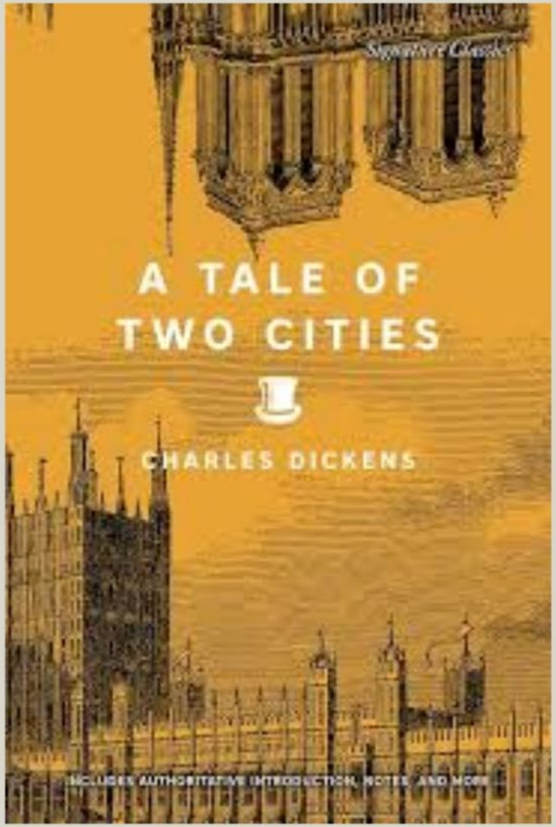
Other KPIs

These can help insurers gauge whether their calibration and calculation of the IFRS17 components are in line with industry results.

1. **Contractual Service Margin to Total Liabilities**
2. **RA to Total Liabilities**
3. **Loss Component to Total Liabilities**

Section 3

Case Studies



The Protagonists

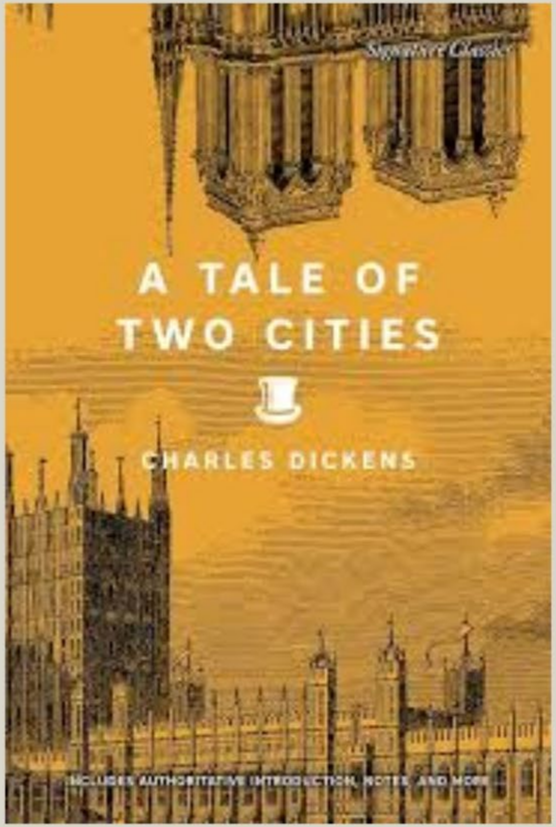
The main point-of-view characters in the story.

Traditional Life Insurance Company

Portfolio of short- & long-term simple life insurance products. The majority of payouts arise from death claims.

Savings-oriented Life Insurance Company

Portfolio of universal life products with a large savings component. The majority of payouts arise from policy surrenders and withdrawals, as well as death claims. The policyholder funds are managed together with the Company's general assets.



The Antagonists

The opposing forces who stand in the way of the protagonists' goals.

Pandemic

A new pandemic emerges, lockdowns are back and we witness significant impacts on both mortality rates and the economy.

Oil Discovery

There is boom of economic growth spurred on by the recent discovery of crude oil in the Country.

Run On The Bank

A scandal in the news has led to a loss of confidence in a particular Company.

SCENE 1: The Pandemic

Character: The Traditional Life Insurance Company

SITUATION ROOM

- Sharp **increase in claims** as the effects of the Pandemic take hold.
- High **expense inflation** due to supply chain disruptions.
- **Decrease in new business** sales due to economic contraction.
- **High policy lapses** as policyholders draw down on income sources.
- **Lower interest rates** as Central Banks attempt to provide some economic reprieve.

GROWTH KPIs

	Business As Usual	Pandemic Scenario
Change in CSM (YTD)	7,000,000	4,500,000
CSM Sustainability Index	156%	75%
New CSM Contribution	13%	7%
Value of New Business	4,100,000	2,000,000

KPI Definitions

Change in CSM (YTD): The difference between CSM at the Start of the Period and the End of the Period.

CSM Sustainability Index: Ratio of CSM added from new sales to CSM released into the P&L

NEW CSM Contribution: Ratio of CSM from New Sales to Total CSM.

Value of New Business: The Initial CSM less the Initial Loss Component from New Sales.

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SCENE 1: The Pandemic

Character: The Traditional Life Insurance Company

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PROFITABILITY KPIs

	Business As Usual	Pandemic Scenario
Return on Equity (ROE)	9%	-3%
Insurance Service Ratio	63%	113%

CAPITAL KPIs

	Business As Usual	Pandemic Scenario
Capital Ratio	246%	234%
Comprehensive Equity	65,750,000	58,161,000

KPI Definitions

Return on Equity: Ratio of Net Income to Average Equity.

Insurance Service Ratio: Ratio of Insurance Service Expenses to Insurance Revenue.

Deterministic Ratio: Simplified solvency measure comparing the Company's available equity to the amount required to ensure the Company can meet its liabilities.

Comprehensive Equity: Equity plus CSM plus the Present Value of Future Profits from PAA business.

SCENE 1: The Pandemic

Character: The Traditional Life Insurance Company

KEY INSIGHTS

- Insurance Revenue is impacted by the shrinking portfolio. This stems from lower sales and higher lapses.
- **ROE** is negative reflecting the negative Net Income.
- **Insurance Service Ratio** is over 100%, reflecting the fact that Revenue earned exceeds the Insurance Expenses paid.

FINANCIAL PERFORMANCE

	BUSINESS AS USUAL	PANDEMIC	VARIANCE
CSM Recognised	2,750,000	2,740,000	(10,000)
Expected Claims	4,700,000	4,600,000	(100,000)
Expected Expenses	1,200,000	1,150,000	(50,000)
Collapsed[1]	1,600,000	1,350,000	(250,000)
Insurance Revenue	**10,250,000**	**9,840,000**	**(410,000)**
Actual Claims	(4,700,000)	(8,800,000)	(4,100,000)
Actual Expenses	(1,200,000)	(1,800,000)	(600,000)
Losses & Reversals on Onerous Contracts	(150,000)	(150,000)	-
Collapsed[2]	(400,000)	(400,000)	-
Insurance Service Expenses	**(6,450,000)**	**(11,150,000)**	**(4,700,000)**
NET INSURANCE RESULT	**3,800,000**	**(1,310,000)**	**(5,110,000)**
Investment Income	2,500,000	2,475,000	(25,000)
Interest On Liabilities & Changes in Rates	(2,300,000)	(2,254,000)	46,000
			-
NET FINANCIAL RESULT	**200,000**	**221,000**	**21,000**
NET INCOME	**4,000,000**	**(1,089,000)**	**(5,089,000)**

SCENE 1: The Pandemic

Character: The Traditional Life Insurance Company

KEY INSIGHTS

- Although equity is lower, the capital required to run the business also fell with the shrinking number of policies.
- **Capital Ratio** was not significantly impacted, reflecting the fact that both available and required capital would reduce.
- **Change in CSM** is negative reflecting less profitable sales and losses incurred on the existing business.
- **Note:** Some KPIs provide information that is not available in the overall Financial Statements. e.g. KPIs on new business performance.

FINANCIAL PERFORMANCE

	BUSINESS AS USUAL	PANDEMIC	VARIANCE
NET INCOME	**4,000,000**	**(1,089,000)**	**(5,089,000)**

FINANCIAL POSITION

	BUSINESS AS USUAL	PANDEMIC	VARIANCE
Total Assets	**76,250,000**	**71,811,000**	**(4,439,000)**
Present Value of Future Cashflows	10,000,000	13,000,000	3,000,000
Risk Adjustment	500,000	650,000	150,000
Contractual Service Margin	20,000,000	17,500,000	(2,500,000)
Total Liabilities	**30,500,000**	**31,150,000**	**650,000**
Total Equity	**45,750,000**	**40,661,000**	**(5,089,000)**
Required Capital	**18,610,000**	**17,400,000**	**(1,210,000)**

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SCENE 2: Oil Discovery

Character: The Traditional Life Insurance Company

SITUATION ROOM

- The Market is HOT.
- **High Inflation** occurs as consumer spending increases.
- **Interest Rates increase** as investors seek to compensate for higher prices.
- **New Business increases** as more people have disposable income to purchase insurance.

GROWTH KPIs

	Business As Usual	Oil Discovery Scenario
Change in CSM (YTD)	2,000,000	6,000,000
CSM Sustainability Index	202%	206%
New CSM Contribution	15%	28%
Value of New Business	4,500,500	9,169,000

KPI Definitions

Change in CSM (YTD): The difference between CSM at the Start of the Period and the End of the Period.

CSM Sustainability Index: Ratio of CSM added from new sales to CSM released into the P&L

NEW CSM Contribution: Ratio of CSM from New Sales to Total CSM.

Value of New Business: The Initial CSM less the Initial Loss Component from New Sales.

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SCENE 2: Oil Discovery

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PROFITABILITY KPIs

	Business As Usual	Oil Discovery Scenario
Return on Equity (ROE)	11%	14%
Insurance Service Ratio	54%	60%

CAPITAL KPIs

	Business As Usual	Oil Discovery Scenario
Capital Ratio	237%	212%
Comprehensive Equity	53,250,000	58,730,000

KPI Definitions

Return on Equity: Ratio of Net Income to Average Equity.

Insurance Service Ratio: Ratio of Insurance Service Expenses to Insurance Revenue.

Deterministic Ratio: Simplified solvency measure comparing the Company's available equity to the amount required to ensure the Company can meet its liabilities.

Comprehensive Equity: Equity plus CSM plus the Present Value of Future Profits from PAA business.

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SCENE 2: Oil Discovery

Character: The Traditional Life Insurance Company

KEY INSIGHTS

- Overall the Company's profits increase primarily bolstered by high new business.
- **ROE** is higher under this scenario consistent with higher net income.
- The increase in **Insurance Service Ratio** stemmed from higher expense inflation.

FINANCIAL PERFORMANCE

	BUSINESS AS USUAL	OIL DISCOVERY	VARIANCE
CSM Recognised	2,300,000	2,400,000	↑ 100,000
Expected Claims	4,000,000	4,500,000	↑ 500,000
Expected Expenses	1,000,000	1,500,000	↑ 500,000
Collapsed[1]	1,400,000	1,600,000	↑ 200,000
Insurance Revenue	**8,700,000**	**10,000,000**	↑ **1,300,000**
Actual Claims	(4,000,000)	(4,500,000)	↓ (500,000)
Actual Expenses	(1,000,000)	(1,800,000)	↓ (800,000)
Losses & Reversals on Onerous Contracts	(65,000)	(85,000)	↓ (20,000)
Collapsed[2]	400,000	400,000	-
Insurance Service Expenses	**(4,665,000)**	**(5,985,000)**	↓ **(1,320,000)**
NET INSURANCE RESULT	**4,035,000**	**4,015,000**	↓ **(20,000)**
Investment Income	2,500,000	3,000,000	↑ 500,000
Interest On Liabilities & Changes in Rates	(2,300,000)	(1,300,000)	↑ 1,000,000
			-
NET FINANCIAL RESULT	**200,000**	**1,700,000**	↑ **1,500,000**
NET INCOME	**4,235,000**	**5,715,000**	↑ **1,480,000**

CARIBBEAN ACTUARIAL ASSOCIATION

SCENE 2: Oil Discovery

Character: The Traditional Life Insurance Company

KEY INSIGHTS

- Although equity increased, the growth in the Company led to larger increases in the Capital required to support the Company's liabilities. As a result, the **Capital Ratio** is lower under this scenario.
- While not evident from the Total Financial Position, the increase in future profits was bolstered by new business. This is demonstrated by the higher **New Business Contribution** KPI.

FINANCIAL PERFORMANCE

	BUSINESS AS USUAL	OIL DISCOVERY	VARIANCE
NET INCOME	**4,235,000**	**5,715,000**	**1,480,000**

FINANCIAL POSITION

	BUSINESS AS USUAL	OIL DISCOVERY	VARIANCE
Total Assets	**63,750,000**	**73,220,000**	**9,470,000**
Present Value of Future Cashflows	10,000,000	13,800,000	3,800,000
Risk Adjustment	500,000	690,000	190,000
Contractual Service Margin	15,000,000	19,000,000	4,000,000
Total Liabilities	**25,500,000**	**33,490,000**	**7,990,000**
Total Equity	**38,250,000**	**39,730,000**	**1,480,000**
Required Capital	**16,110,000**	**18,730,000**	**2,620,000**

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SCENE 3: Run On The Bank

Character: Savings-Oriented Life Insurance Company

SITUATION ROOM

- The Company's reputation has taken a hit.
- Loss of confidence has led to very **large withdrawals and policy surrenders.**
- In addition, the Company is finding it difficult to attract new customers, leading to very **low new business sales.**

GROWTH KPIs

	Business As Usual	Run On The Bank
Change in CSM (YTD)	4,000,000	-70,000,000
CSM Sustainability Index	139%	91%
New CSM Contribution	20%	66%
Value of New Business	16,120,000	3,350,000

KPI Definitions

Change in CSM (YTD): The difference between CSM at the Start of the Period and the End of the Period.

CSM Sustainability Index: Ratio of CSM added from new sales to CSM released into the P&L

NEW CSM Contribution: Ratio of CSM from New Sales to Total CSM.

Value of New Business: The Initial CSM less the Initial Loss Component from New Sales.

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PROFITABILITY KPIs

	Business As Usual	Run On The Bank
Return on Equity (ROE)	7%	1%
Insurance Service Ratio	33%	208%

CAPITAL KPIs

	Business As Usual	Run On The Bank
Capital Ratio	228%	266%
Comprehensive Equity	677,000,000	570,730,000

KPI Definitions

Return on Equity: Ratio of Net Income to Average Equity.

Insurance Service Ratio: Ratio of Insurance Service Expenses to Insurance Revenue.

Deterministic Ratio: Simplified solvency measure comparing the Company's available equity to the amount required to ensure the Company can meet its liabilities.

Comprehensive Equity: Equity plus CSM plus the Present Value of Future Profits from PAA business.

SCENE 3: Run On The Bank

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KEY INSIGHTS

- Overall the Company's profits increase primarily bolstered by high new business.
- **ROE** is higher under this scenario consistent with higher net income.
- The increase in **Insurance Service Ratio** stemmed from higher expense inflation.

FINANCIAL PERFORMANCE

	BUSINESS AS USUAL	RUN ON THE BANK	VARIANCE
CSM Recognised	11,500,000	4,000,000	↓ (7,500,000)
Expected Claims	2,600,000	2,300,000	↓ (300,000)
Expected Expenses	4,000,000	3,500,000	↓ (500,000)
Collapsed[1]	2,500,000	2,600,000	↑ 100,000
Insurance Revenue	**20,600,000**	**12,400,000**	↓ **(8,200,000)**
Actual Claims	(2,600,000)	(2,300,000)	↑ 300,000
Actual Expenses	(4,000,000)	(3,500,000)	↑ 500,000
Losses & Reversals on Onerous Contracts	-	(20,000,000)	↓ (20,000,000)
Collapsed[2]	(130,000)	-	↑ 130,000
Insurance Service Expenses	**(6,730,000)**	**(25,800,000)**	↓ **(19,070,000)**
NET INSURANCE RESULT	**13,870,000**	**(13,400,000)**	↓ **(27,270,000)**
Investment Income	60,000,000	50,000,000	↓ (10,000,000)
Interest On Liabilities & Changes in Rates	(35,000,000)	(30,000,000)	↑ 5,000,000
			-
NET FINANCIAL RESULT	**25,000,000**	**20,000,000**	↓ **(5,000,000)**
NET INCOME	**38,870,000**	**6,600,000**	↓ **(32,270,000)**

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KEY INSIGHTS

- Although equity increased, the growth in the Company led to larger increases in the Capital required to support the Company's liabilities. As a result, the **Capital Ratio** is lower under this scenario.
- While not evident from the Total Financial Position, the increase in future profits was bolstered by new business. This is demonstrated by the higher **New Business Contribution** KPI.

FINANCIAL PERFORMANCE

	BUSINESS AS USUAL	RUN ON THE BANK	VARIANCE
NET INCOME	**38,870,000**	**6,600,000**	**(32,270,000)**

FINANCIAL POSITION

	BUSINESS AS USUAL	RUN ON THE BANK	VARIANCE
Total Assets	**1,794,000,000**	**1,473,730,000**	**(320,270,000)**
Present Value of Future Cashflows	1,097,000,000	890,000,000	(207,000,000)
Risk Adjustment	20,000,000	13,000,000	(7,000,000)
Contractual Service Margin	79,000,000	5,000,000	(74,000,000)
Total Liabilities	**1,196,000,000**	**908,000,000**	**(288,000,000)**
Total Equity	**598,000,000**	**565,730,000**	**(32,270,000)**

Required Capital	**262,664,989**	**212,975,423**	**(49,689,566)**

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In Summary

More Data Points

There is an explosion of possible KPIs under IFRS17. It is important that we group them based on their intent and hone in on the KPIs that best satisfy the needs of the business, regulators and other stakeholders. Ultimately our choices will be influenced by both our market and our products.

Dynamic Nature

As we continue to delve into IFRS17 KPIs, we can expect more ideas and opportunities to utilise KPIs in our business monitoring and forecasting.