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APAC Solvency Framework Benchmarking

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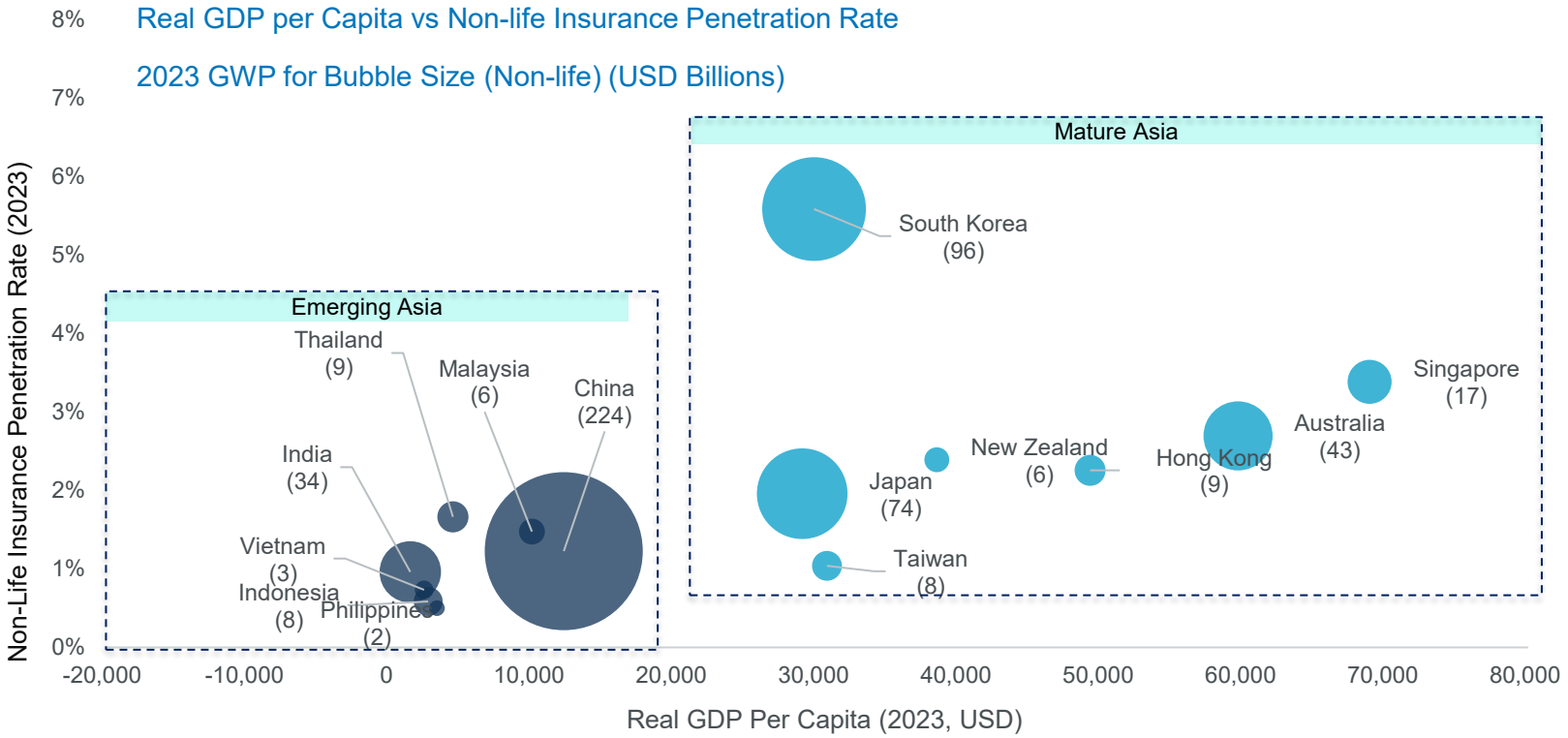
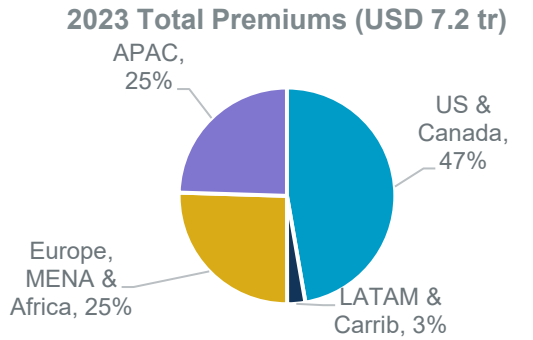
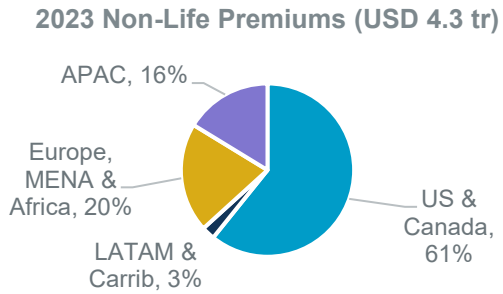
APAC Non-life Insurance Market Size and Penetration



Source: ***Gallagher Re's Asia Pacific Market Watch ; World Bank, Various Insurance Association and Regulatory websites***





Source: Swiss Re Sigma Report

- APAC accounts for approximately 16% of global non-life insurance premiums, based on 2023 premium income data (Swiss Re Sigma)
- Insurance penetration in non-life GWP vs GDP across the region varies significantly. Mature Asia markets (7 out of 14 tracked) demonstrate higher penetration rates compared to emerging Asia, reflecting differences in market development and insurance adoption. (Gallagher Re APAC Market Watch)

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Evolution of Solvency Regime in APAC

- Factor-based approach
- No risk weighting
- Required capital typically calculated as prescribed % of premiums or liabilities

(India, Vietnam)

- Risk-focused approach – i.e. required capital depends on specific risk exposure of a company
- Either prescribed factor or stress-test basis

(Indonesia, Philippines, Malaysia, Taiwan, Hong Kong)

- Three pillars approach
- Quantitative: Internal model approach, stress-test basis
- Economic value-based
- Qualitative: ERM / Own Risk Solvency Assessment / ICAAP
- Disclosure and transparency

(Japan, South Korea, China, Australia)

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APAC Capital and Solvency Requirements

Most solvency frameworks are risk-based, albeit the specific calculations under each regimes differ. Regulators across the region are gradually enhancing their solvency frameworks to ensure increased robustness

Market	Accounting Framework	Capital Framework	Planned Capital Developments	Min Capital Requirement (USD)	Min Solvency Margin
Singapore	IFRS 17 (Jan 2023)	RBC, ORSA	RBC2 in 2020 and no major updates since then; planned to introduce NAT CAT [TBC]	General: $7.6M; PA & Health: $3.8M	100%
Australia	IFRS 17 (Jan 2023)	RBC, ICAAP	AASB 17 alignment updates to the existing LAGIC framework	$3.4M	100%
Hong Kong	IFRS 17 (Jan 2023)	RBC, ORSA	HK RBC implemented July 2024	General: $1.3M; Composite: $2.6M	100%
New Zealand	IFRS 17 (Jan 2023)	RBC, ICAAP	amendments in Dec 2024, which are taking effect in 2025	Short-term: $1.9M; Long-term: $3.2M / rating requirement	80% on min cap
Japan	IFRS 17 (Voluntary)	RBC/ ESR, ORSA	To implement Economic solvency ratio for April 2025 fiscal year	Domestic: $7.1M; SASTI: $0.1M + deposit; Foreign: $1.4M+	200%
South Korea	IFRS 17 (Jan 2023)	RBC/K-ICS, ORSA	K-ICS implemented 2023	Domestic: $23.2M; Foreign: $2.3M; Small-sum: $1.6M	100%
Taiwan	IFRS 17 (Jan 2026)	RBC, ORSA	New framework TW ICS due 2026	Domestic: $65.2M; Foreign: $1.6M; <3 yrs: $65.2M and rating requirement	200%
China	IFRS 17 (Jan 2023/ listed 2026 non-listed)	RBC/C-ROSS II, ORSA	C-ROSS II implemented 2022	Segment: $29.5M; Branch: $2.9M; Max: $72.7M	100%
Malaysia	IFRS 17 (Jan 2023)	RBC, ICAAP	RBC enhancement / RBC 2 2027	$21M	130%
Thailand	IFRS 17 (Jan 2024)	RBC, ORSA	RBC Enhancement expected post-IFRS 17	$8.7M	140%
Indonesia	IFRS 17 (Jan 2025)	RBC, ORSA	Increase gradually through phased approach	2023: $9.7M; 2026: $15M; 2028: $60M	120%
Vietnam	IFRS 17 (Voluntary 2022; 2026)	Solvency I	New V- RBC due 2028	General: $16.4M; Reinsurer: $18.5M	MAX(25% of NWP or 12.5% of GWP) >100%
Philippines	IFRS 17 (Jan 2025)	RBC	ORSA reporting for large insurers by Q4 2024	General: $23.5M; Composite: $46.9M; Micro: $9M	100%
India	IFRS 17 (April 2025 / 2026)	Solvency I	RBC under development (2027 TBC)	$12M	150%

Source: Various Regulatory Websites

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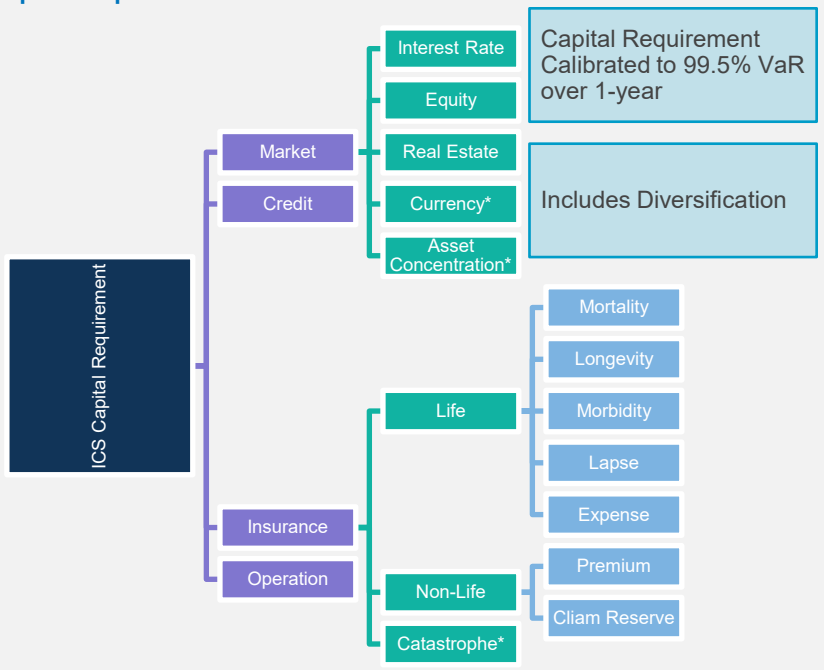
Capital Requirements under IAIS ICS Framework

Overview of Insurance Capital Standard (ICS) – Capital requirements standard methods

Capital Requirement under ICS



NB: Market adjusted and fair value approach for assets and liability valuation

1 Level 1 and 2 Documents: ICS Version 2.0 for the monitoring period, https://www.iaisweb.org/page/supervisory-material/insurance-capital-standard

Overview of standard approach to measure risks

- Combination of factor-based and stress-approach
  - **Factor-based approach**: factors are applied to specific exposure measures
    - Capital Requirement = Factor X Exposure Measure
  - **Stress approach:** Capital requirement is determined as decrease between the amount of capital resources on the unstressed balance sheet and the amount of capital resources on the stressed balance sheet
    - Capital Requirement = capital resource pre-stress – capital resource post-stress

Risk	Factor-based	Stress	Other
Insurance risks			
• Mortality and Longevity		✓	
• Morbidity/Disability		✓	
• Lapse		✓	
• Expense		✓	
• Premium and Claims Reserve	✓		
• Catastrophe			✓ (model)
Market risks			
• Interest rate		✓	
• Non-Default Spread risk		✓	
• Equity and Real estate		✓	
• Currency/FX		✓	
• Asset concentration	✓		
Credit risk	✓		
• Fixed Income			
• Reinsurer Counterparty			
• Other Counterparty			
Operational risk	✓		

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UK Solvency Framework – Enhanced Risk Based

Solvency UK became effective from 31st December 2024, previously Solvency II was used. The following thresholds apply for a firm to be a Solvency UK Directive Firm. Firms below these threshold can opt to become
Non-Directive Firm (NDF) and benefit from lighter requirements on capital, reporting and governance.

Entity Type	GWP threshold	GTP Threshold
Insurance firms	£25 million	£50 million
Reinsurers (UK)	£2.5 million	£5 million

The ***three pillars*** :

Level	Type	Coverage
Pillar 1	Quantitative Requirements	SCR, MCR, TPs
Pillar 2	Governance and Supervision	ORSA, Governance framework, and supervisory review process
Pillar 3	Disclosure and Transparency	Regulatory reporting, and public disclosure

Calculation of SCR

Firms can calculate their annual regulatory capital requirement (SCR) using either:

1. Standard Formula : Risk based charges and correlations prescribed by the regulator
2. Internal Model : Stochastic Dynamic Financial Analysis (DFA) using either a vendor model or bespoke built model. Firms must apply for a permission with the PRA to use an internal model to set their regulatory SCR.

Most large insurance companies have an approved internal model under Solvency II and can benefit from reduced capital requirements with the model reflecting and capturing their risk profile and risk management processes more appropriately , with smaller firms continuing to use Standard formula.

A variety of vendor capital models are available in the market, such as from WTW, Aon, URS. A very few firms have built their model on R and Python as well.

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Case Studies

Solvency requirement for a multi-line non-life insurer

Case Study – Solvency Requirement

We calculated the RBC ratio for a dummy multi-line non-life insurer and compared three regimes Malaysia RBC (current), Vietnam (Sol I) and Solvency II/ Lloyds

Summary of comparison	Malaysia RBC	Vietnam Solvency I	Solvency II / Lloyds
Total Capital Available (TCA)	**436**	**436**	**436**
Credit Risk Capital Charges	34		36
Market Risk Capital Charges	11		16
Non-life Insurance Risk Charges	129	192	131
Premium Liabilities	82		
Claim Liabilities	47		
* Health UW Risk (Solvency II)			69
Operational Risk Capital Charges	14		29
Diversification			(75)
Other Risk Component			
Total Capital Required (TCR)	**188**	**192**	**206**
Capital Adequacy Ratio (CAR)	**232%**	**227%**	**212%**

- Key Observations
  - Solvency II gives the highest solvency requirement in this example, hence lower solvency ratio, even after large diversification benefit. If including NAT CAT, this could be even higher.
  - Diversification Benefit: Solvency II shows significant diversification, not captured in Malaysia RBC. RBC2 will introduce this feature.
  - Nat CAT Risk: Not modeled in this example. However, solvency II includes detailed Nat CAT calculations. Malaysia RBC lacks this but will add it in RBC2.
  - Health/Medical Lines: In RBC, captured under non-life risk; Solvency II models it separately.
  - Solvency I only captures premium risk.
- Key Assumptions
  - Used NEP and Net Claims Incurred; same line-of-business split applied
  - Market risk based on listed equities.; Counterparty risk assumes BBB and A-rated exposures. Shareholder equity used for capital consistency.
  - Capital Treatment: TAC should include deductions, admissible assets, and tiered capital. For simplicity, shareholder equity was used across frameworks.
  - Model scaled by 000s, exceeding minimum thresholds under Sol II.

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Key Takeaways

Higher qualitative requirements & more stringent risk management; sophistication rather than just higher capital buffers

Quantitative requirement	Not necessarily higher capital requirements for example depending on company portfolios, may be lower for diversified portfolios
Qualitative requirement	Increased requirement on capital and risk management capability e.g. ORSA requirement, economic value based, portfolios management, NAT CAT enhancement, integrating with decision making

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Questions

Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.

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Appendix

Other Information

Data for the test case study

Income statement and balance sheet for the test company

SELECTED P&L ITEMS	2022	2023
Gross Written Premium	**1,025**	**1,025**
Net Premium Written	**768**	**768**
Net Premium Earned	**726**	**726**
Net Claim Incurred	**217**	**217**
Net Expenses	**479**	**479**
UW Result	**30**	**30**
Investment Results	38	38
PRE-TAX OPERATING INCOME	**68**	**68**
Profit for the year	**54**	**54**
Total Comprehensive Income	**46**	**46**

SELECTED B/S ITEMS	2022	2023
Capital & Surplus	**417**	**436**
Unearned Premium Reserve	250	306
Non-Life Claims Reserves	300	447
Gross Insurance Liabilities	**550**	**753**
Net Non-Life Claims Reserves	**150**	**194**
Net Unearned Premium	**164**	**226**
Net Technical Reserve	**314**	**420**
Insurance/Reinsurance Creditor and Others	132	132
Other Creditors	38	38
Other liabilities	4	4
TOTAL LIABILITIES	**723**	**926**

SELECTED B/S ITEMS	2022	2023
Cash & Deposit	485	597
Debt Securities	83	96
Real Estate	25	25
Equities	16	16
Unquoted Investment	2	2
Investment in associates/subsidiaries	23	23
Total Investment	**633**	**759**
Total Receivables	**344**	**441**
Reinsuer's UPR	86	79
Reinsuer's Claim Reserve	150	254
Insurance Balances	66	66
Other Receivables	42	42
Fixed Asset	44	44
Prepayment & accrued income	115	115
Deferred tax assets	3	3
Other	1	1
TOTAL ASSETS	**1,140**	**1,362**

Data for the test case study

Lines of business breakdown

-Gross Premiums Earned-			
Line of Business	**2022**	**2023**	%
PA & Health	316	316	33%
Motor	143	143	15%
Marine Cargo	34	34	4%
Marine Hull	26	26	3%
Fire, Property & Casualty	321	321	33%
Liability	16	16	2%
Aviation	18	18	2%
Others	95	95	10%
TOTAL	**969**	**969**	
	TRUE	TRUE	

Net Premiums Earned			
Line of Business	**2022**	**2023**	%
PA & Health	318	318	44%
Motor	144	144	20%
Marine Cargo	20	20	3%
Marine Hull	12	12	2%
Fire, Property & Casualty	131	131	18%
Liability	6	6	1%
Aviation	8	8	1%
Others	85	85	12%
TOTAL	**726**	**726**	1

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