

MILLIMAN REPORT

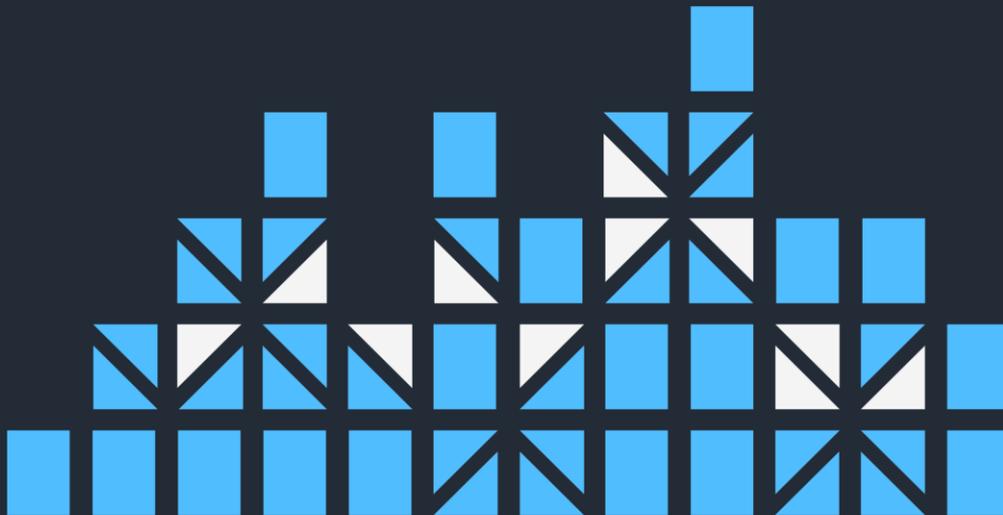
# 2022 embedded value results: Asia

Mixed EV and VNB results as  
interest rates increase

August 2023

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## Opening remarks

Thank you for taking the time to read the latest edition of Milliman's Asian embedded value (EV) report.

The 2022 reported EV results have been mixed across markets. India showed an increase of 15.4% in EV (Vietnam showed an increase of 51.1%; however, there was only one insurer reporting EV in Vietnam) while Taiwan reported a decrease of 13.5%. Most countries in Asia saw a decrease in the value of new business (VNB), with a particularly sharp drop in VNB in China, due in large measure to China's zero COVID-19 policy.

In line with global trends, bond yields increased during 2022 in Asia, which led many Asian insurers to increase their investment return and discount rate assumptions for 2022.

This year, we have condensed and restructured the report. We would welcome any further feedback you have on the new content and format.

Best regards,

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## Executive summary

### EMBEDDED VALUE RESULTS AND ASSUMPTIONS

The overall reported EV results have been mixed across markets. The EV results in China (+1.2%), Japan (+1.0%), Malaysia (+2.3%) and Singapore (-0.8%) were broadly flat. India reported a steep increase (+15.4%) in EV and Thailand reported a smaller though still significant increase in EV (+7.3%). There was a significant decline in EV in Taiwan (-13.5%) and in Hong Kong (-5.4%). Vietnam, which had only one reporting insurer, reported a 51.1% increase in EV.

India's growth was led by an unwind of the discount rate curve (India's yields are relatively high in an Asian context) and contributions from new business. In Taiwan, the fall in EV was mainly caused by a sharp drop in the market prices of equities and bonds, an increase in hedging costs (as the interest rate gap between USD and TWD increased) and a decline in new business premium income.

There was significant variance in performance even within companies falling in similar categories. The growth in reported EV for multinational companies (MNCs) varied between -13.0% to +5.8%. There was significant variance within the same market as well. For example, the reported EV in Taiwan varied between -18.2% to +7.7%.

Given the general increase in bond yields throughout the region, we have seen a general reduction in the adjusted net worth (ANW) of insurers, due to the fall in market values of bonds. Hong Kong has been a notable exception, where ANW has increased (and VIF decreased) on account of the early adoption of risk-based capital (RBC) by certain players, which has led to a lighter reserving basis.

Reported VIF grew for all Asian markets, except for Hong Kong and China. Japan posted the highest growth in VIF of 68.6%, which can be attributed to an upward shift in the risk-free yield curve in 2022.

Life insurers have generally increased their investment return assumptions and discount rates to allow for the rising yields during the year. In China, some insurers have left the investment assumptions and discount rates broadly unchanged.

### NEW BUSINESS MARGINS AND PROFITABILITY

India reported a significant growth in reported VNB of 38.6%, aided by a spike in sales in March 2023, which was caused by the withdrawal of certain tax benefits from life insurance policies bought on or after 1 April 2023. Thailand and Malaysia saw a growth in VNB in 2022 of 9.6% and 7.7% respectively, driven by an increase in new business margins (NBM) and new business volumes for Thailand and an increase in NBM for Malaysia.

Insurers in China and Hong Kong recorded sharp declines in VNB of 23.3% and 19.2% respectively due to strict COVID-19-related lockdowns.

NBM generally expanded in 2022, with Malaysia showing an increase of 7.5% in absolute NBM on account of a greater protection mix and higher investment return assumptions. China and Hong Kong reported declines in NBM caused by pandemic restrictions resulting in a lower protection mix.

### EV METHODOLOGY AND METRICS

Price-to-embedded-value ratios continue to be well below 100%, with the exception of AIA and the private sector Indian life insurers.

The return on embedded value (ROEV) measure is mainly reported by insurers in India. The ROEV for Indian life insurers improved significantly in 2022, driven largely by new business growth.

The EV methodologies used in the region remain varied, including traditional embedded value (TEV), European embedded value (EEV), market-consistent embedded value (MCEV)<sup>1</sup> and Indian embedded value (IEV). Insurers in China and Taiwan continue to report on a TEV basis whereas insurers in Japan adopt MCEV or a market-consistent EEV (MC-EEV) approach. In India, the vast majority of companies<sup>2</sup> that currently report EV now do so on an IEV/MCEV basis.

The implementation of IFRS 17 from 1 January 2023 in certain markets has impacted EV reporting. South Korean insurers no longer report EV results (although AIA continues to compute EV for its Korean operations as part of the overall group EV).

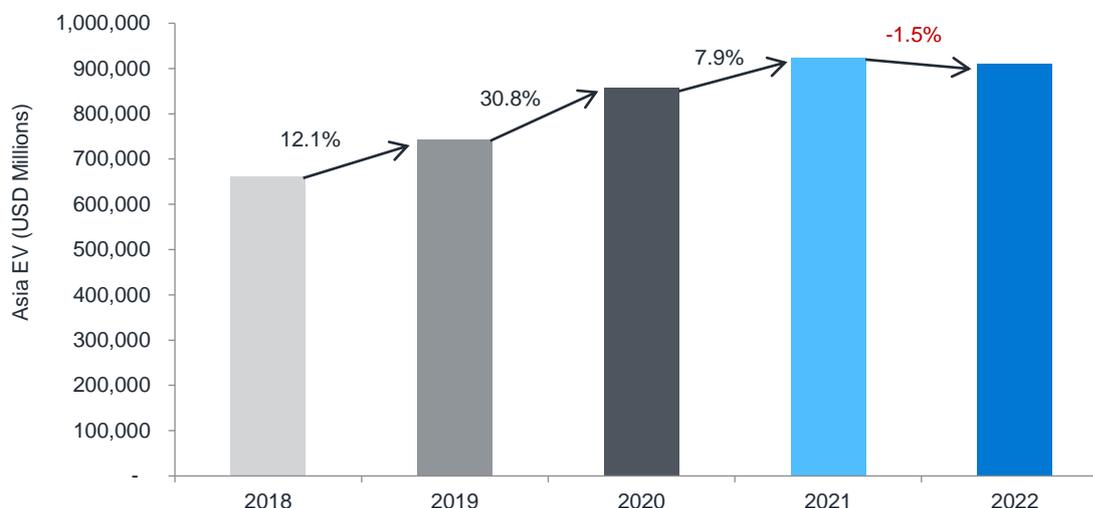
<sup>1</sup> The MCEV principles are a copyright of the Stichting CFO Forum Foundation 2008.

<sup>2</sup> Companies covered under this report only.

## Introduction and background

Comparing only insurers that have reported 2018 to 2022 EV figures,<sup>3</sup> Asian life insurance EV<sup>4</sup> dropped by 1.5% in 2022, in contrast to the increase of 7.9% recorded in 2021.

**FIGURE 1: REPORTED COMPARABLE ASIA LIFE INSURANCE COVERED EV, 2018 TO 2022**



Overall GWP increased by 2.8% from USD 1,165.1 billion in 2021 to USD 1,198.3 billion in 2022.

Japan saw the largest increase in GWP in 2022 both in percentage terms, growing by 15.7%, and in absolute terms with an increase of USD 35.2 billion. This increase was mainly due to an increase in the sales of foreign-currency-denominated single-premium products attributable to the significant depreciation of JPY in 2022, which led to a shock lapse of the existing foreign currency business at the same time. India's growth in GWP can be attributed to continued growth in new business volumes.

Taiwan reported the largest fall of 20.6% in GWP due to depreciation in TWD, a decreasing trend in the crediting rates for interest-sensitive products which has adversely affected the willingness of the population to purchase these products, a fall in new business sales and volatile capital markets. In Hong Kong and China, the fall in GWP can be attributed to COVID-19 lockdowns.

EV results by their nature are typically impacted by recent changes in insurance regulations, which are set out in Appendix A.

<sup>3</sup> Companies that have not yet disclosed their 2022 EV results have also been excluded from previous years to provide an appropriate year-to-year comparison. To provide comparability, the EV figures for this chart have been calculated on a constant currency basis, using the FX rate as at each company's 2022 reporting date.

<sup>4</sup> Asian life insurance EV is defined as the EV of covered businesses attributed to Asia (i.e., excluding the net asset value portions of non-covered businesses such as general insurance portfolios). While every effort has been made to strictly use figures relating solely to this definition, some companies report their Asian EV figures as part of a larger reporting unit. Where we have deemed the EV to be driven mostly by the Asian region, the total EV has been reported.

FIGURE 2: LIFE INSURANCE GROSS WRITTEN PREMIUMS IN ASIA<sup>5 6</sup>

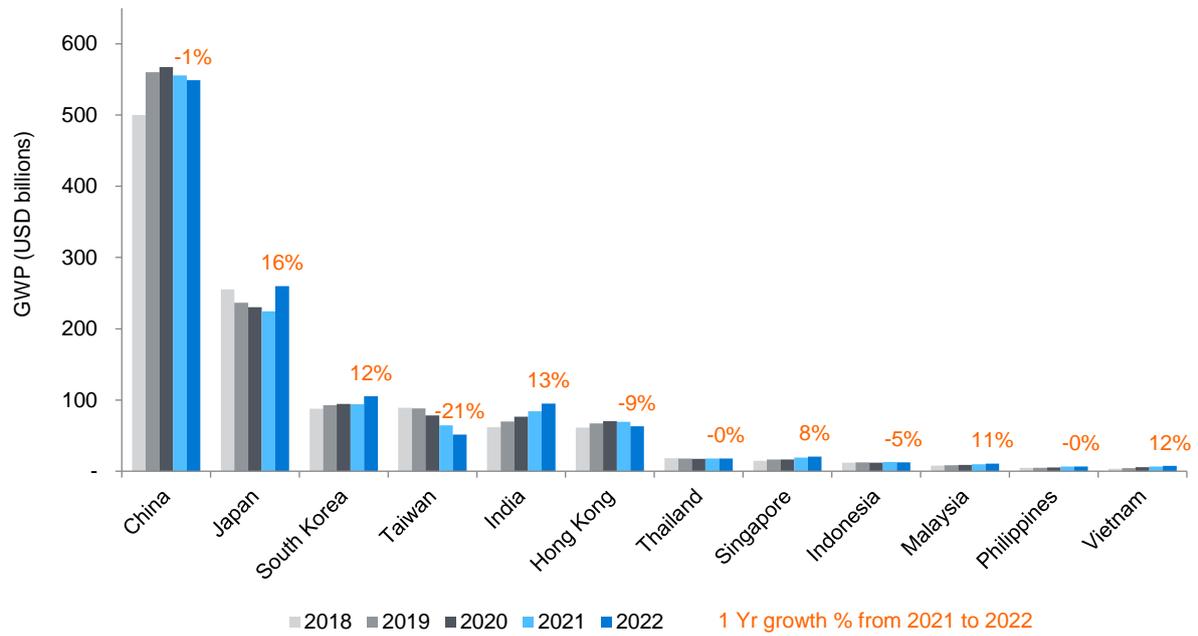
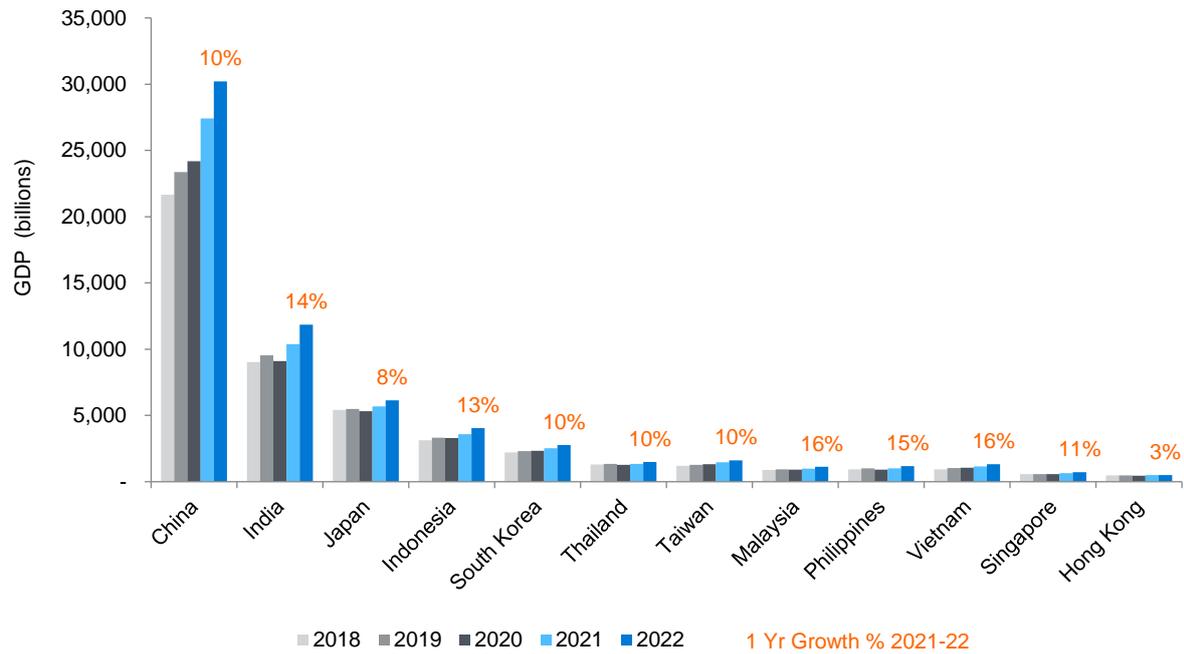


FIGURE 3: GDP (PURCHASING POWER PARITY)<sup>7</sup> OF IN-SCOPE ASIAN MARKETS, 2018 TO 2022

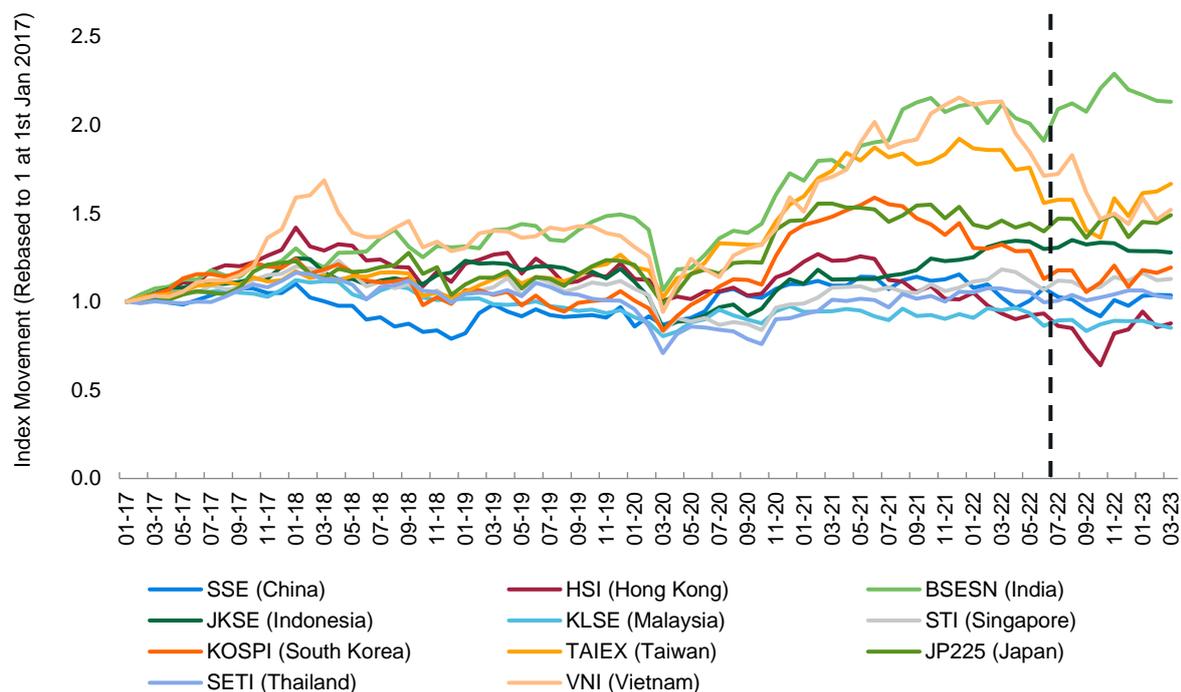


<sup>5</sup> Sources: Various life insurance associations and insurance regulators.

<sup>6</sup> 2022 GWP for Philippines is based on unaudited quarterly statistics.

<sup>7</sup> Source: International Monetary Fund, World Economic Outlook Database, April 2023

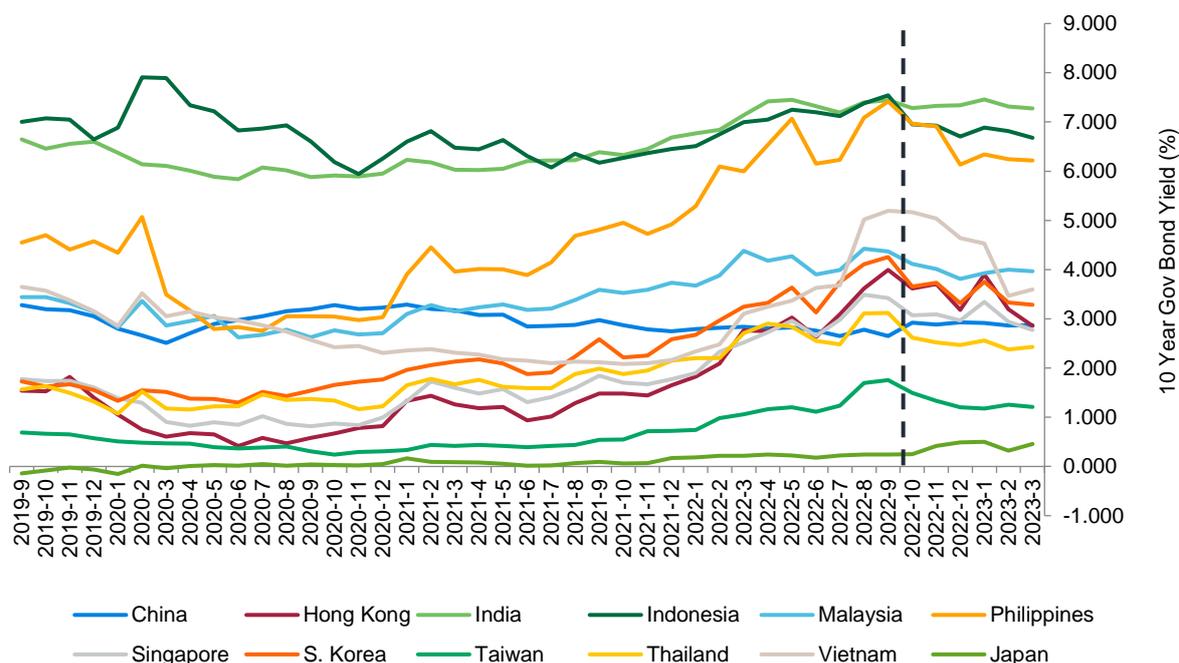
**FIGURE 4: RECENT EQUITY MARKET PERFORMANCE: GROWTH OF MAJOR EQUITY INDICES<sup>8,9</sup> (FROM 1 JANUARY 2017 TO 31 MARCH 2023)**



Many Asian equity markets experienced large volatility during 2022 (see Figure 4), with the Indian equity market being the strongest performer in 2022. Most Asian markets experienced sharp declines in the first three quarters of calendar year 2022, due to the Ukraine–Russia conflict and associated supply side issues, higher interest rates and concerns regarding global inflation. This trend reversed for most Asian markets in the fourth quarter of 2022, with all Asian equity markets, except Vietnam, registering gains. There was a mixed picture in the first quarter of 2023, with strong gains in Taiwan, Singapore and South Korea offsetting weaker performance by Hong Kong, India and Malaysia.

<sup>8</sup> The following stock indices have been used for each market: China: Shanghai Stock Exchange Composite Index; Hong Kong: Hang Seng Index; India: Bombay Stock Exchange Sensitive Index (BSE Sensex); Indonesia: Jakarta Composite; Japan: Nikkei 225; Malaysia: Kuala Lumpur Stock Exchange Composite Index; Singapore: Straits Times Index; South Korea: Korea Composite Stock Price Index; Thailand: Stock Exchange of Thailand Index; Taiwan: Taiwan Weighted Index; Vietnam: Ho Chi Minh Stock Index.

<sup>9</sup> Source: [Investing.com](https://www.investing.com).

FIGURE 5: 10-YEAR SOVEREIGN BOND YIELDS,<sup>10</sup> 2019 TO FY 2022<sup>11</sup>

During the first quarter of 2022, bond yields rose mainly due to the rate hikes by the Fed and looming concerns about inflation. Bond yields generally continued to rise for the first three quarters of 2022, only to fall in the fourth quarter in all countries except China and Japan. In the fourth quarter, Chinese bond yields were boosted by a recovery in the Chinese economy; while in December 2022, the Bank of Japan raised its cap on the 10-year Japanese government bond yield from 0.25% to 0.50%, which resulted in increases in Japanese bond yields.

### EV IN ASIA

EV continues to be widely used as a performance measurement tool and an external financial disclosure metric for insurers operating in Asia. EV is also commonly used as an internal financial performance metric and can be included as a component of management long-term incentive plans. Broadly speaking, subsidiaries of MNCs, especially European insurers, utilise more advanced EEV and MCEV methodologies for their EV reporting, compared with local and regional insurers that almost entirely use TEV. In Japan and India, however, there has been a convergence towards market-consistent methodologies, with most companies in India adopting the Indian Embedded Value (IEV) approach which is conceptually very similar to MCEV. As at 1 January 2023, South Korea had implemented the new International Financial Reporting Standard 17 (IFRS 17), with the domestic South Korean insurance companies no longer reporting EV. AIA still computes EV for its South Korean operations, although this is not separately disclosed. Therefore, no Asian EV was reported for South Korea. Further explanation of the various methodologies can be found in Appendix B.

A summary of EV methodologies adopted by life insurers across Asia is shown in Figure 6.

<sup>10</sup> Source: [Investing.com](https://www.investing.com).

<sup>11</sup> FY 2022 refers to year ending 31 March 2023.

**FIGURE 6: EMBEDDED VALUE REPORTING STATISTICS BY DOMICILE OF INSURANCE GROUP**

GROUP DOMICILE	TEV	EEV	MCEV/IEV	MC-EEV	TOTAL
ASIAN MNC	3	-	-	-	3
EUROPEAN MNC	-	2	2	-	4
NORTH AMERICAN MNC	1	-	-	-	1
CHINA	6	-	-	-	6
INDIA	1	-	9	-	10
JAPAN	-	-	6	10	16
MALAYSIA	1	-	-	-	1
TAIWAN	6	-	-	-	6
THAILAND	2	-	-	-	2
VIETNAM	1	-	-	-	1
<b>TOTAL</b>	<b>21</b>	<b>2</b>	<b>17</b>	<b>10</b>	<b>50</b>

Apart from certain European MNCs, the only companies operating in Asia who report using IEV or MCEV bases are the Indian and Japanese insurers. Several insurers in India, including ICICI Prudential Life, SBI Life, and HDFC Life, first adopted IEV as part of their respective initial public offerings (IPOs), and have since continued to publish annual EV market disclosures based on the IEV methodology. Most other insurers in India have also followed suit and have started to publish their EVs either on an MCEV or an IEV basis.

A majority of insurers in the rest of the Asian region still use a TEV methodology. The prevalence of several different EV reporting methodologies across Asia brings with it major challenges in comparing EV results, and thus, obtaining a good understanding of the differences between the methodologies becomes critical.

## Embedded value results

This section presents EV results under two different lenses:

1. Asia-wide
2. Company by company

A summary of changes in EV/VNB disclosures across the region is included in this section.

The values presented in this section relate to EV results for life insurance and other long-term insurance operations in Asia. Due to the manner certain companies segment their business, Asian operations are sometimes included in 'international' or 'emerging markets' business units, which may include non-Asian operations.

For these 'segmented' business units (i.e., those that include Asian and non-Asian operations), the total value has been included in this report provided that a significant part of the value is generated in Asia.

### RECENT UPDATES ON REPORTED DISCLOSURES

A summary of the changes in company-level disclosures in each market over the past year is provided below:

MARKET	
INDIA	Exide Life has been excluded from the analysis, as it has been merged with HDFC Life.
THAILAND	Thai Life has been added to the analysis this year.
MNC	Allianz has not disclosed EV results this year and has been excluded from the analysis.
MNC	FWD has been added to the analysis this year.

### EV IN ASIA

This report examines the EV results published by MNCs and domestic life insurers operating in Asia.<sup>12</sup>

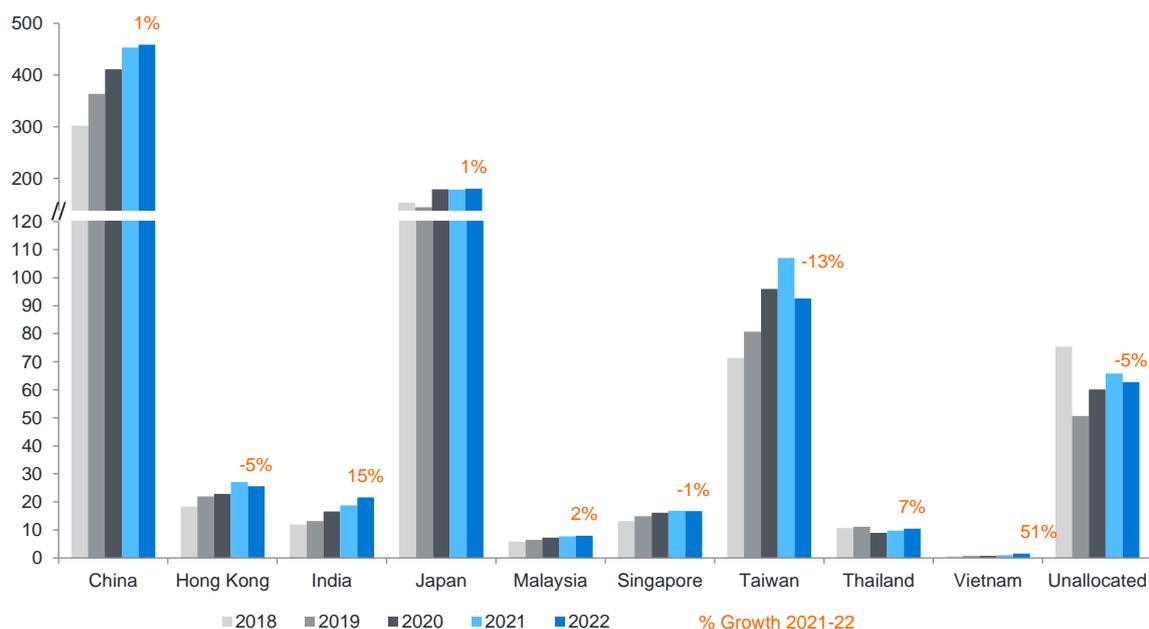
The scope of this report is limited to EV results directly related solely, or predominantly, to Asian operations. All figures in this section of the report are on a comparable basis, i.e., comparing the results only for those companies that have reported 2018, 2019, 2020, 2021 and 2022 EV results for Asia.

In 2022, total reported Asian EV dropped by 1.5% on a comparable basis<sup>13</sup> to USD 910.4 billion, down from USD 924.2 billion in 2021. The companies reporting the largest Asian EV continue to be China Life, Ping An Life and AIA, at USD 178.1 billion, USD 126.6 billion and USD 68.9 billion respectively. It should be noted, however, that the Life Insurance Corporation of India (LIC) had an EV of USD 70.9 billion as at 2022 financial year-end (LIC has reported EVs from 31 March 2020, i.e., 2019 financial year-end and thus is not included in the consolidated figures). Figure 7 sets out the total EV growth by market (to the extent that such a breakdown has been disclosed by the companies).

It should be noted that the results in all the figures under this section are based on converting results in local currency to USD using prevailing exchange rates at the same reporting date (financial year-end 2022) for all years, i.e., using a constant currency basis. In contrast, the results shown in Appendix C later in the report are based on exchange rates as at the respective valuation dates, and hence may differ in value.

<sup>12</sup> For the avoidance of doubt, Asia does not include Australia or New Zealand.

<sup>13</sup> 'Comparable basis' refers to comparing the results only for those companies that have reported 2018, 2019, 2020, 2021 and 2022 EV results for Asia.

FIGURE 7: COMPARABLE ASIAN LIFE INSURANCE COVERED EV <sup>14 15</sup> 2018 TO 2022

In 2022, Vietnam experienced the highest growth in EV of 51.1% contributed solely by Dai-ichi Life Vietnam (the only insurer reporting EV in Vietnam). The growth has been attributed to a variety of factors including the unwind of the discount rate, an increase in VNB, higher-than-expected returns and a capital infusion. India recorded an increase of 15.4% in EV, mainly driven by an increase in the value added by new business and the unwind of the discount rate.

On the other hand, the Taiwanese market faced a significant decline of 13.5% in EV mainly due to a sharp drop in the market prices of equities and bonds, an increase in hedging costs (as the interest rate gap between USD and TWD increased) and a decline in new business premium income. Hong Kong saw a decrease of 5.4% in EV largely due to a decline in cross-border sales as a result of China's strict COVID-19 regulations, negative equity returns and a general decline in persistency.

In China, EV growth slowed down in 2022 to 1.2% from 10.2% in 2021 mainly due to negative VNB growth, poor investment performance and an increased cost of capital requirement under C-ROSS Phase 2.

Insurers in Thailand witnessed a modest growth in reported EV of 7.3%, as expected returns on EV and addition to value on account of VNB were partially offset by falls in the market value of fixed-interest securities due to rising yields and modest equity market growth.

<sup>14</sup> To provide comparability and eliminate FX effects, results for all years have been converted to USD using the prevailing FX rate as at the 2022 reporting date.

<sup>15</sup> 'Unallocated' indicates EV figures that are reported by insurers to relate to their Asian operations but have not been allocated to specific markets.

FIGURE 8: COMPARABLE ASIAN LIFE INSURANCE COVERED ANW, 2018 TO 2022

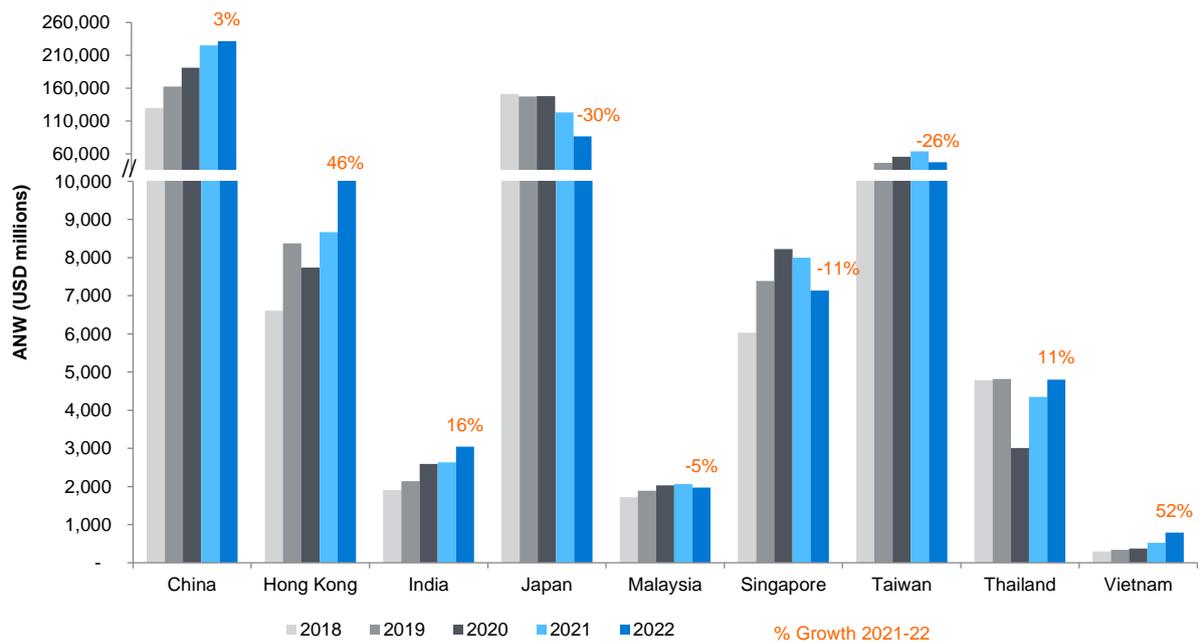
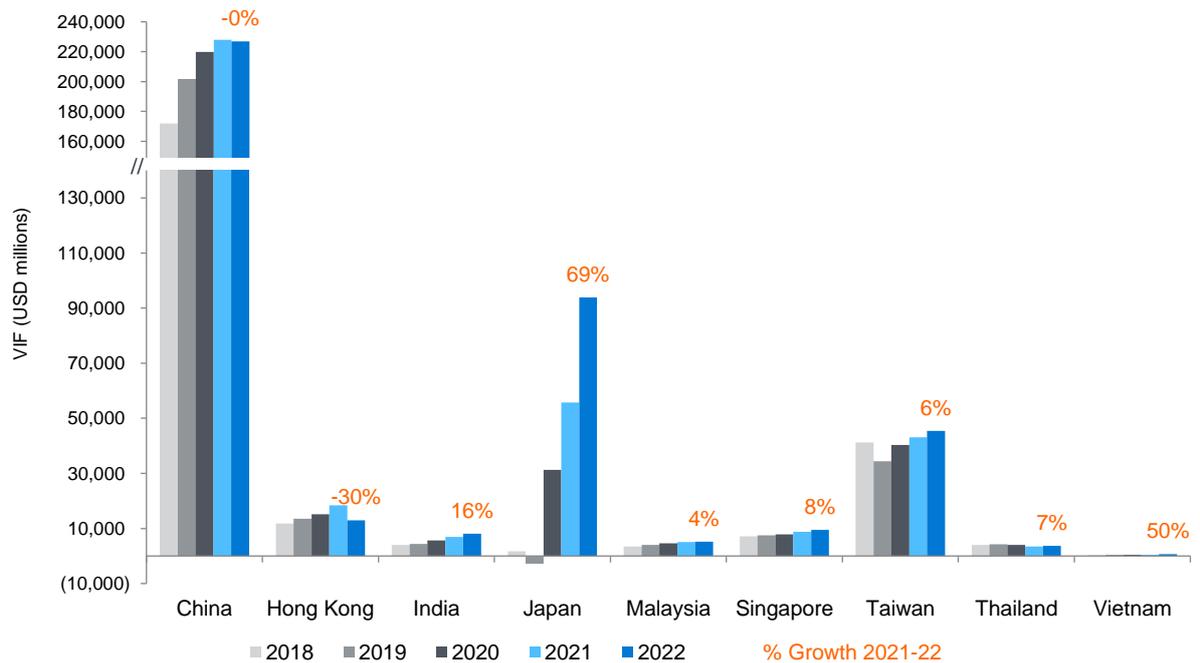


FIGURE 9: COMPARABLE ASIAN LIFE INSURANCE COVERED VIF, 2018 TO 2022



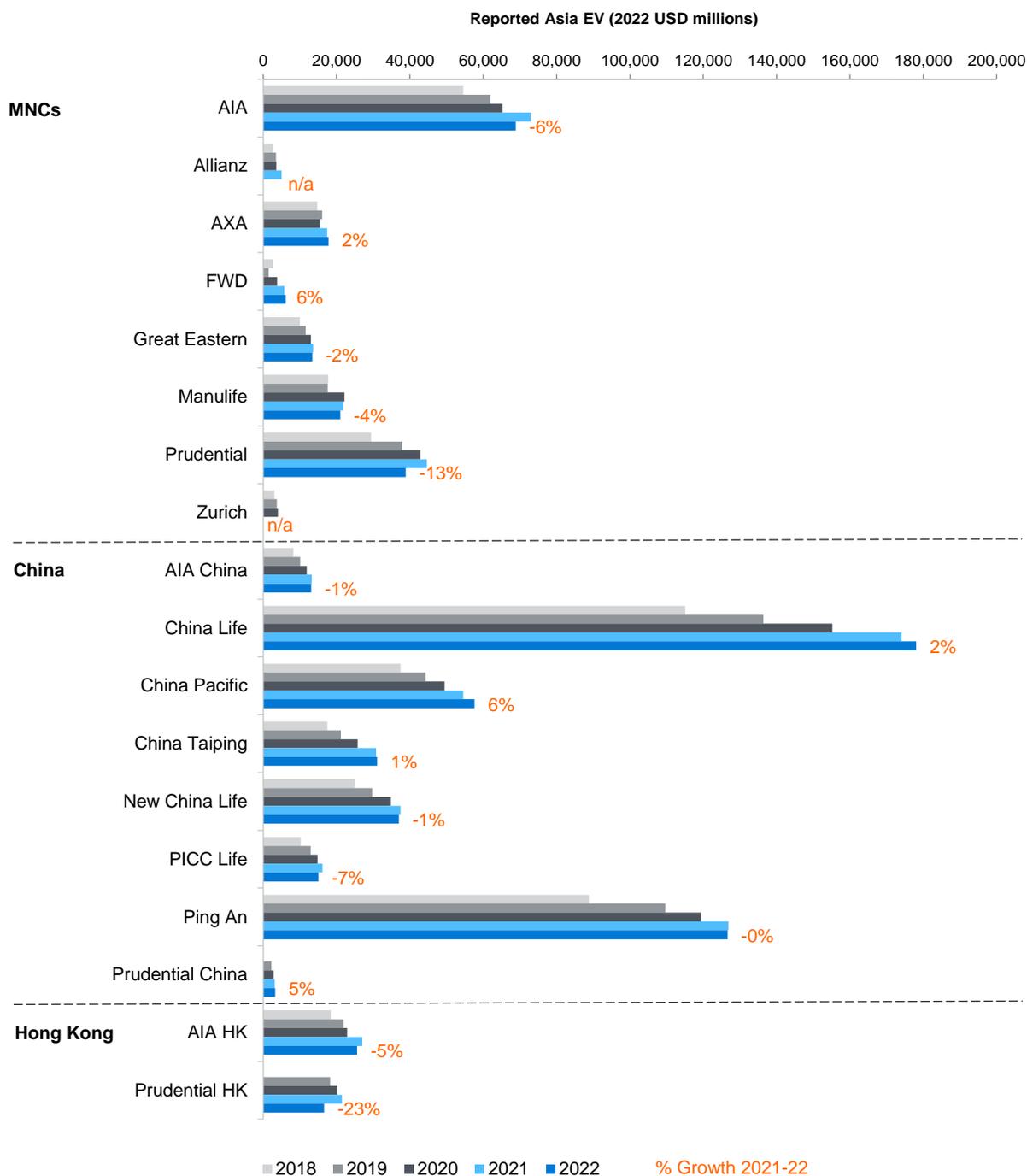
The reported ANW for the Asian life insurance sector decreased in 2022 by 9.2%, with Japan, Taiwan and Singapore reporting double-digit percentage falls in ANW due to a rise in interest rates in these markets. Hong Kong reported a 46.0% increase that has arisen as a result of early adoption of HK RBC by certain companies, which has accelerated the recognition of future profits into free surplus, which led to higher ANW and lower VIF.

Except for Hong Kong and China, VIF increased for all markets. Japan recorded an increase of 68.6% in 2022 due to higher risk free rates, which is largely offset by a decrease in ANW, resulting in a 1.0% increase in overall EV, due to its market-consistent approach and ALM strategy. India witnessed an increase of 16.3% mainly due to an increase in the value of new business. China VIF remained relatively stable while there was a decrease of 29.7% in Hong Kong's VIF largely due to the early adoption of the new HKRBC regime by certain players, which due to its lighter reserving basis has had the impact of increasing ANW and lowering VIF.

A certain amount of caution must be exercised when evaluating Japanese company embedded values and their ANW/VIF components, especially when comparisons are made across Asia. Japanese companies typically report on a market-consistent basis, either MCEV or MC-EEV. In addition, many companies manage large blocks of legacy policies with relatively high investment guarantees (in some cases, in excess of 5% p.a.). As a result of these two factors, many companies have a very small VIF compared to the size of their in-force block. On a percentage basis, the VIF is extremely sensitive to changes in the interest rate environment. However, due to the use of a market-consistent approach and asset-liability management, changes in VIF are usually substantially offset by changes in ANW. As a result, overall EV, though sensitive to changing market yields, is far less sensitive than the individual VIF and ANW components.

EV BY COMPANY

FIGURE 10: ASIAN LIFE INSURANCE COVERED BUSINESS EV BY COMPANY <sup>16 17 18 19</sup> 2018 TO 2022



<sup>16</sup> To provide comparability and eliminate FX effects, results for all years have been converted to USD using the prevailing FX rate as at the 2022 reporting date.

<sup>17</sup> Note that some companies have not yet disclosed their 2022 EV results as at the data cutoff date of this report. The 2022 results for these companies have consequently been left blank. The insurers that have not yet published their 2022 results as at the data cutoff date include PNB MetLife, Reliance Nippon Life.

<sup>18</sup> The definition of MNC is any company that has operations outside of its home market. In Japan, though some companies have disclosed Group MCEV and Group EEV, they are not included in the graphs because:  
 - Asia-level results have not been disclosed (Group EV includes EV except for Asia).  
 - The exposure to non-Japan is limited.

<sup>19</sup> Please note that Exide Life has been removed from the analysis, as it has been merged with HDFC Life. For HDFC Life, we have used the EV after its merger with Exide Life.

FIGURE 10: ASIAN LIFE INSURANCE COVERED BUSINESS EV BY COMPANY, 2018 TO 2022 (CONTINUED)

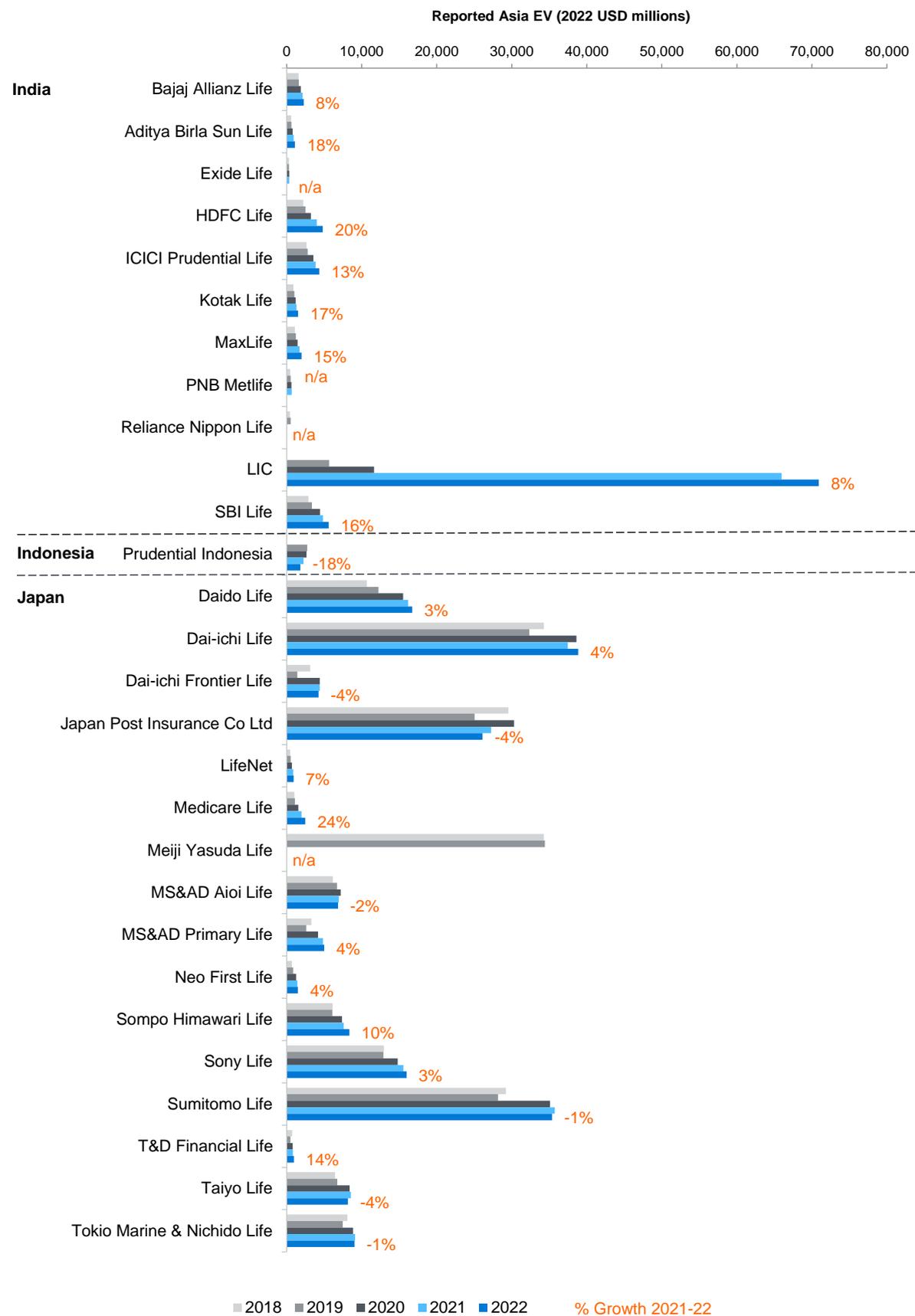


FIGURE 10: ASIAN LIFE INSURANCE COVERED BUSINESS EV BY COMPANY, 2018 TO 2022 (CONTINUED)

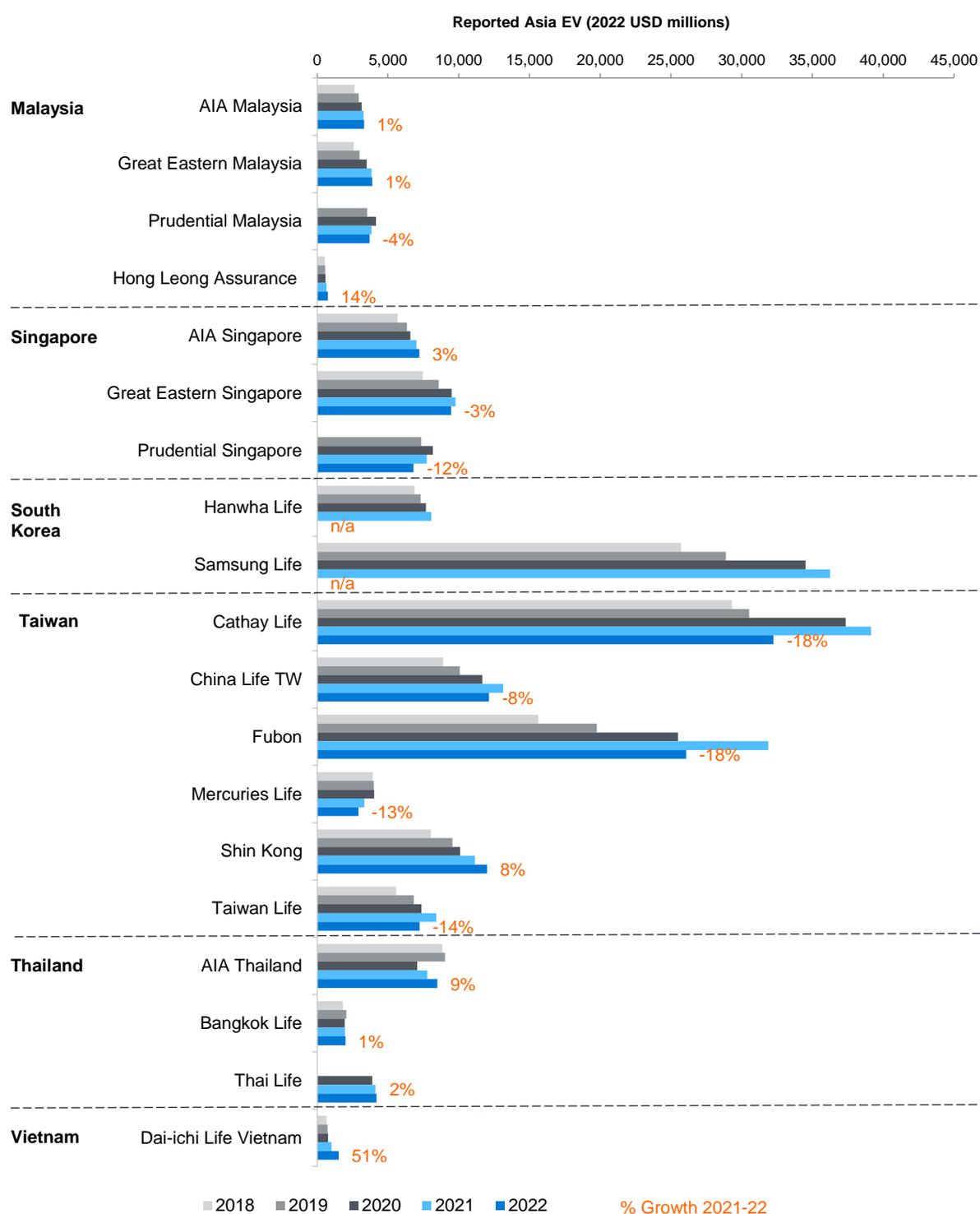


Figure 10 shows the growth in EV by individual company. Dai-ichi Life Vietnam reported the highest EV growth of 51.1% as a result of an increase in VNB, higher than expected returns and a capital infusion, followed by Medicare Life (from Japan) with 24.1%, where a capital injection contributed to a significant increase in EV. HDFC Life and Aditya Birla Sun Life (both from India) reported growth in EV of 19.9% and 18.5% respectively, largely due to the unwind of the discount rate curve and contributions from new business. Prudential Hong Kong recorded the highest decline in EV in 2022 of 22.8%, driven largely by rising interest rates and falling equity markets leading to reduced asset values, followed by Fubon Life in Taiwan at 18.2%, for which a significant decrease in unrealized capital gains resulted in a decline in EV. Prudential Indonesia and China Life witnessed falls of 18.1% and 17.6% respectively due to poor investment returns.

FIGURE 11: SPLIT OF 2022 ASIAN LIFE INSURANCE EV BETWEEN VIF AND ANW BY COMPANY<sup>20</sup>

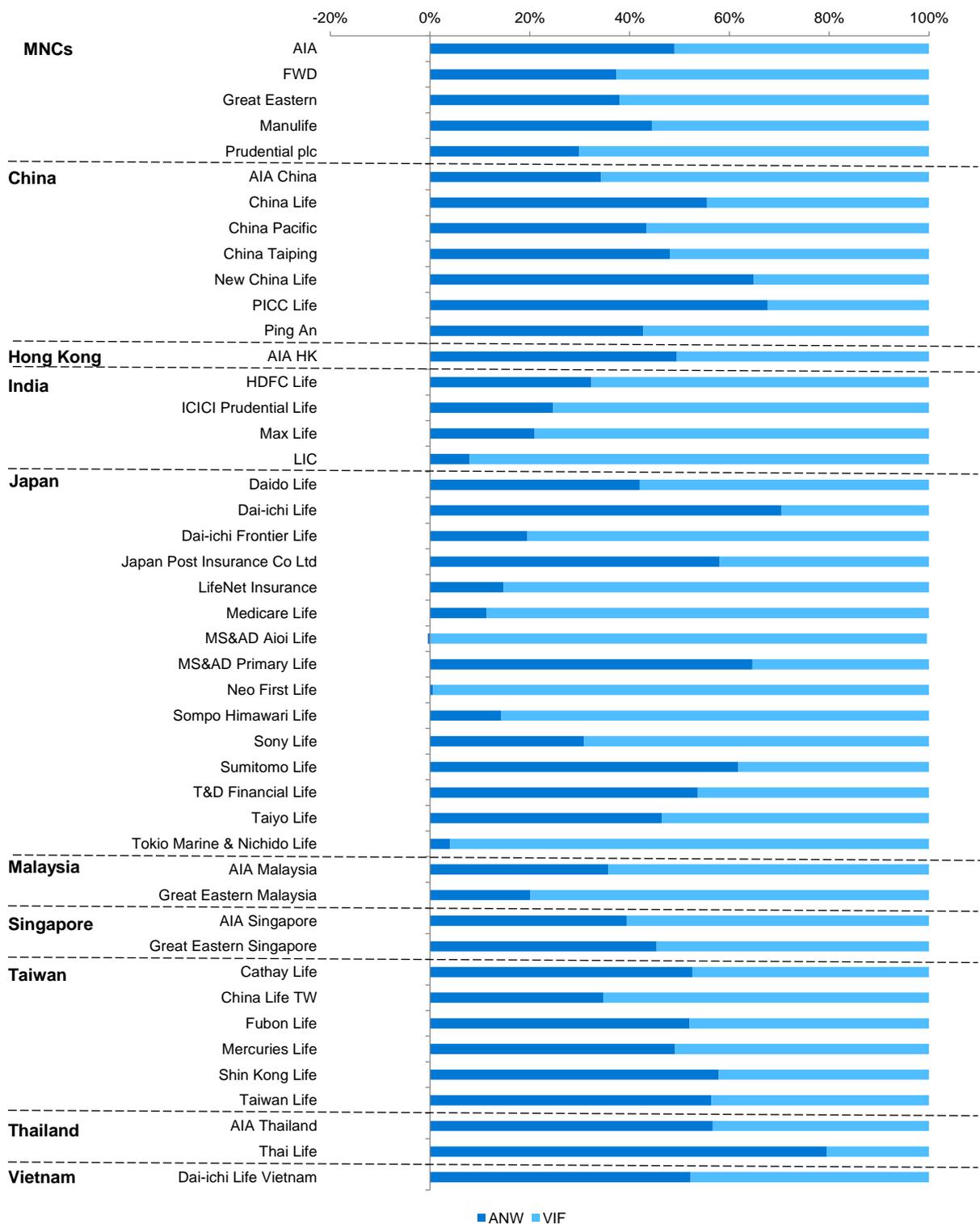


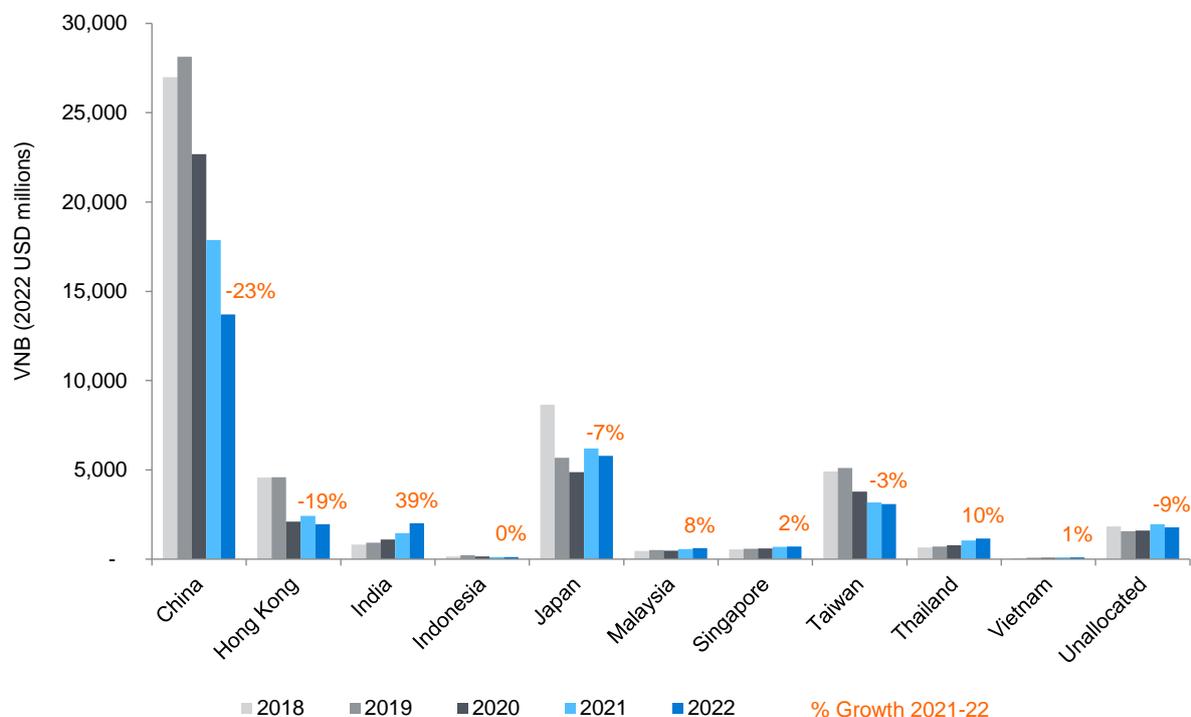
Figure 11 breaks down reported EV for 2022 into its VIF and ANW components by company in each market. In general, most of the markets show a higher proportion of EV coming from VIF. New China Life, PICC Life, Dai-ichi Life and Thai Life show a significant portion of EV coming from ANW.

<sup>20</sup> The companies which do not disclose the split of EV between ANW and VIF have been excluded from this graph.

## VNB IN ASIA

Total reported VNB for Asia stood at USD 31.6 billion in 2022, compared with USD 36.3 billion in 2021, representing a decline of 12.9%.<sup>21</sup> Figure 12 provides a market-by-market comparison of VNB growth based on converting results in local currency to USD using prevailing exchange rates at the same reporting date (financial year-end 2022) for all years, i.e., using a constant currency basis.

FIGURE 12: REPORTED VNB OF ASIAN OPERATIONS ON A COMPARABLE BASIS,<sup>22</sup> 2018 TO 2022



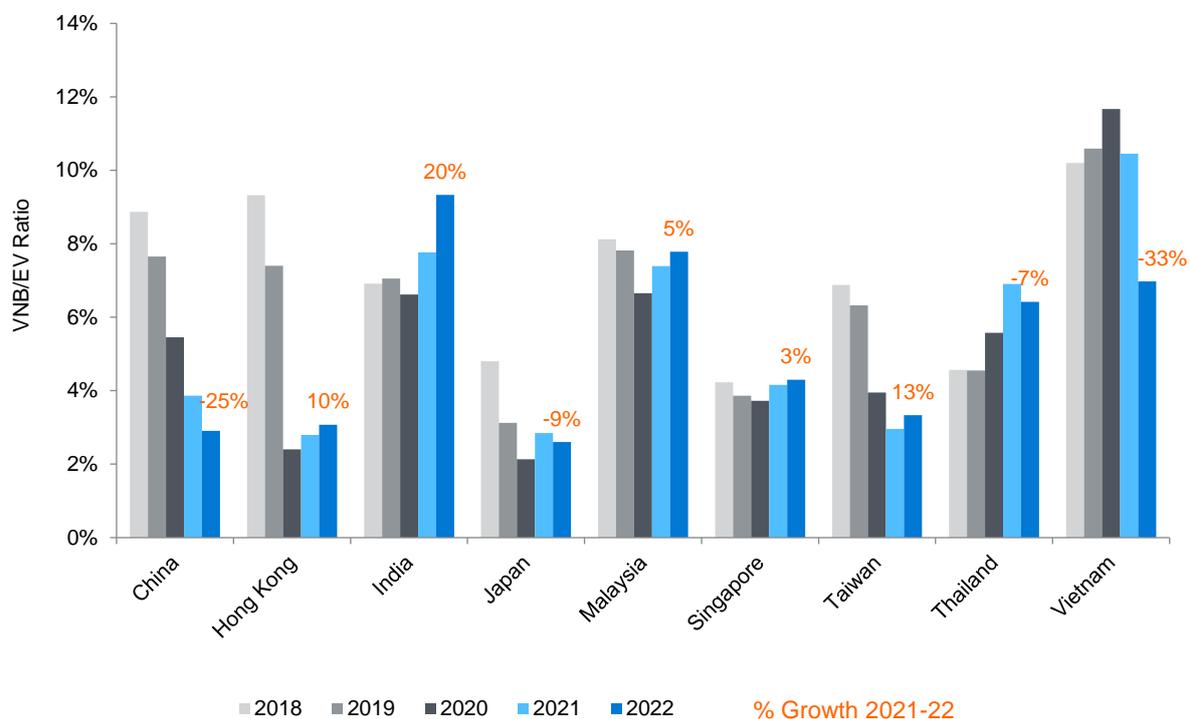
In 2022, the reported growth in VNB varied significantly across various markets in Asia.

India reported a significant growth in VNB of 38.6% aided by a spike in sales in March 2023 caused by the withdrawal of certain tax benefits from life insurance policies bought on or after 1 April 2023. Thailand and Malaysia saw a growth in VNB in 2022 of 9.6% and 7.7% respectively. In Thailand, the increase in VNB can be attributed to an increase in interest rates and APE.

China reported the highest fall in VNB of 23.3% due to strict pandemic containment measures in early 2022, downsizing of agency salesforces and a rapid increase in COVID-19 infections in December 2022. China's zero COVID policy also affected Hong Kong, where VNB fell by 19.2%. Japan also saw a decline in VNB by 6.7% which was largely caused by the fall in VNB for Dai-ichi Life and Sumitomo Life. The fall in VNB for Dai-ichi Life can be attributed to declines in sales, while the fall in VNB for Sumitomo Life can be attributed to the decrease in NBM.

<sup>21</sup> This percentage has been calculated on a comparable basis, i.e., only those companies that have disclosed a full set of 2018, 2019, 2020, 2021 and 2022 numbers have been included here.

<sup>22</sup> As at the data cutoff date, some insurers have not yet disclosed their 2022 EV figures. Hence, this chart and subsequent commentary only includes insurers that have a complete set of 2018, 2019, 2020, 2021 and 2022 EV figures. The missing companies include PNB MetLife and Reliance Nippon Life.

FIGURE 13: VNB/EV RATIO,<sup>23</sup> 2018 TO 2022

There was a mixed picture in terms of movement in the VNB/EV ratio in 2022 as compared to 2021. India recorded the highest rise in VNB/EV ratio of 20.2% (from 7.8% to 9.3%) mainly due to a significant increase in its VNB in 2022, followed by Taiwan at 12.5% (from 3.0% to 3.3%), where a fall in EV was the main factor contributing to the increase in the VNB/EV ratio. Vietnam saw a steep decline in the VNB/EV ratio of 33.3% (from 10.5% to 7.0%), as while VNB remained relatively constant there was a steep increase in EV of 51%. China's VNB/EV ratio declined by 24.8% (from 3.9% to 2.9%), mainly driven by lower VNB.

Japan and Thailand reported a decrease in VNB/EV ratio of 8.5% (from 2.8% to 2.6%) and 7.1% (from 6.9% to 6.4%), respectively. The decrease observed in Japan is due to an increase in EV and a fall in VNB, while the decrease observed in Thailand is due to the increase in VNB being less than the increase in EV. Hong Kong witnessed an increase of 10.0% (from 2.8% to 3.1%) in the VNB/EV ratio due to a fall in EV and a small increase in its VNB, while Malaysia witnessed a rise of 5.3% (from 7.4% to 7.8%) due to increase in VNB.

<sup>23</sup> This ratio has been calculated on a constant currency basis, using the EV and VNB figures of insurers that have reported both EV and VNB during those periods. Companies that only report EV or VNB have been excluded from this analysis.

### VNB BY COMPANY

Figure 14 presents each individual company's VNB from 2018 to 2022.

FIGURE 14: ASIAN VNB BY COMPANY, 2018 TO 2022

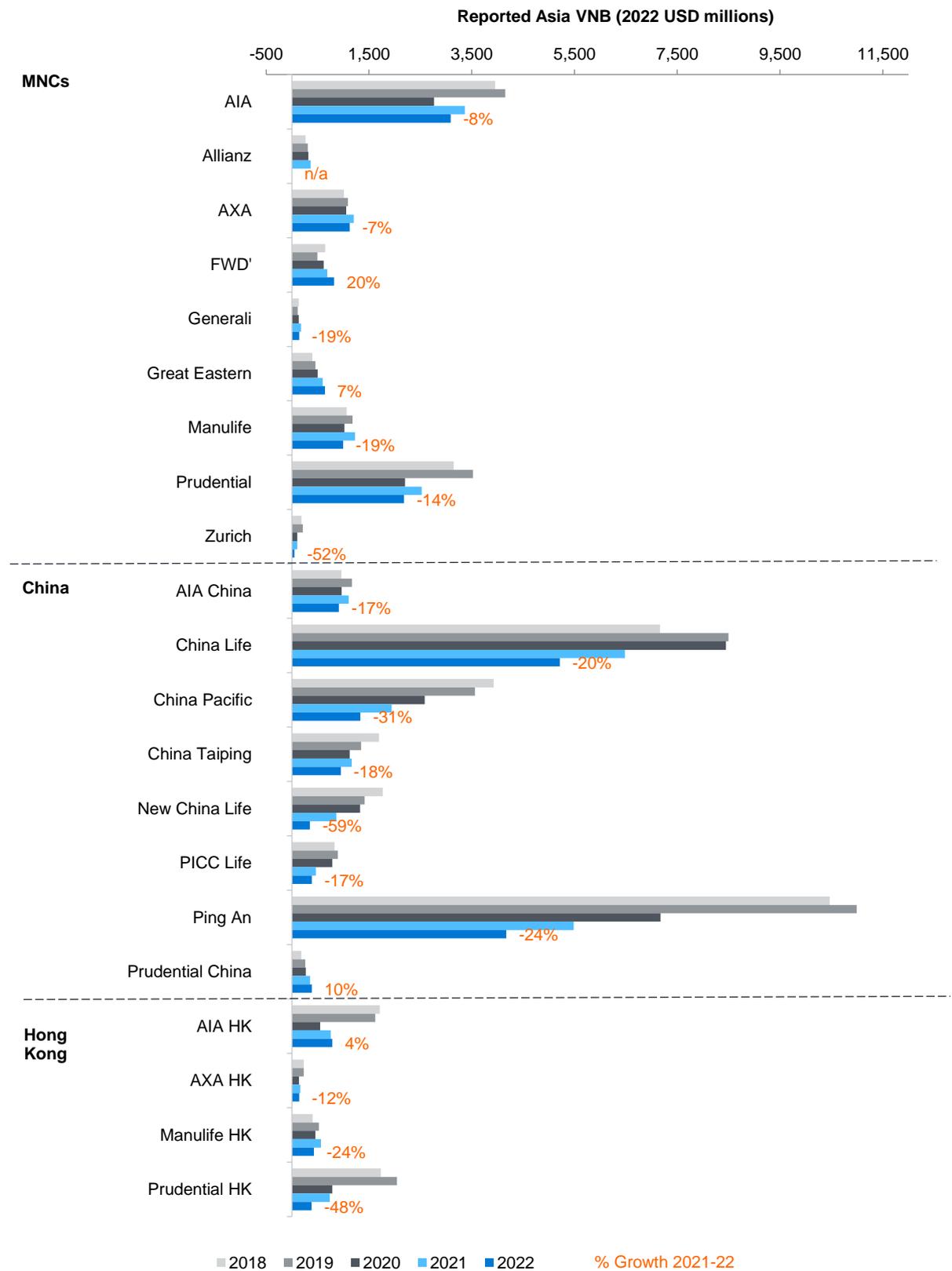


FIGURE 14: ASIAN VNB BY COMPANY, 2018 TO 2022 (CONTINUED)

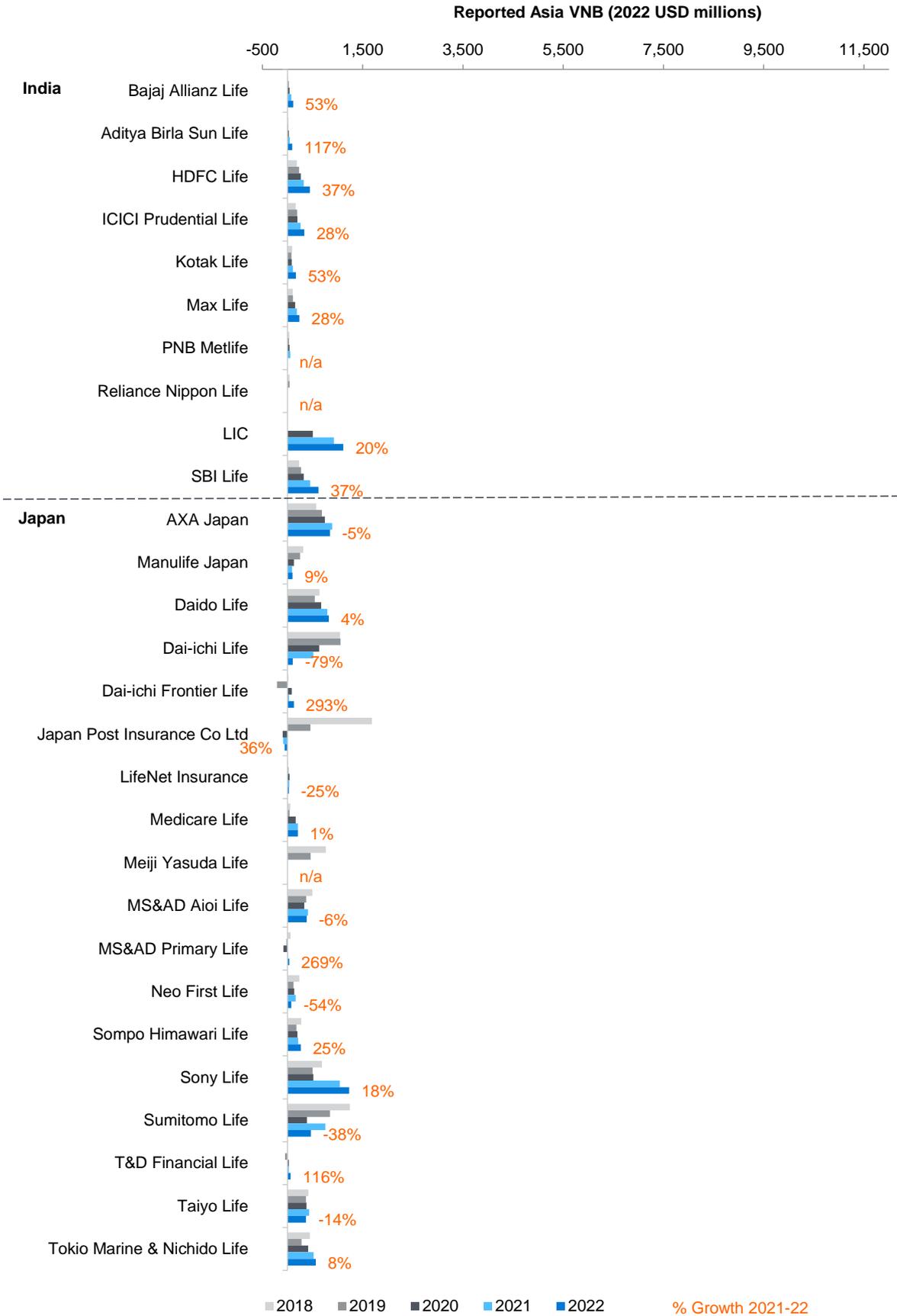
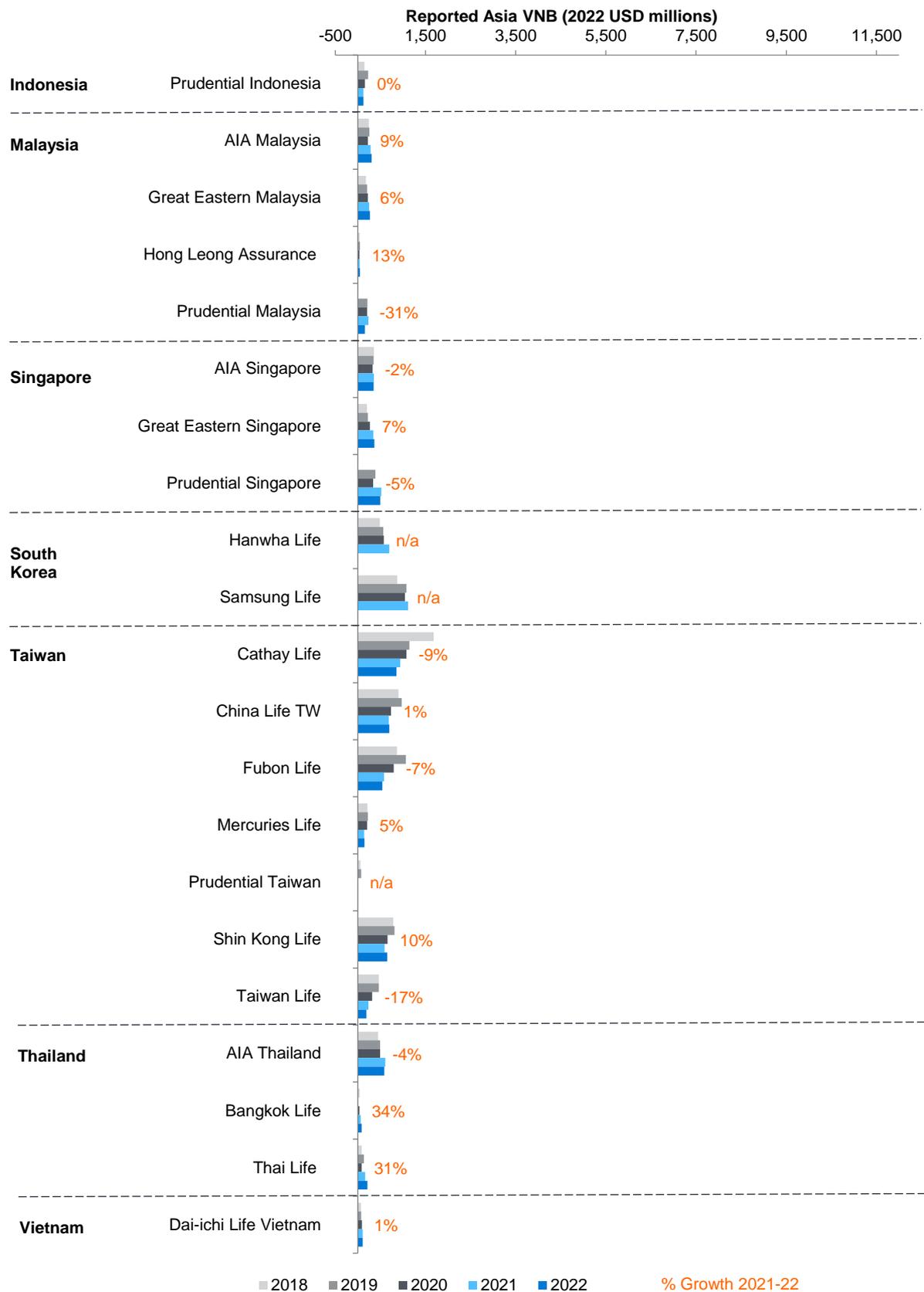


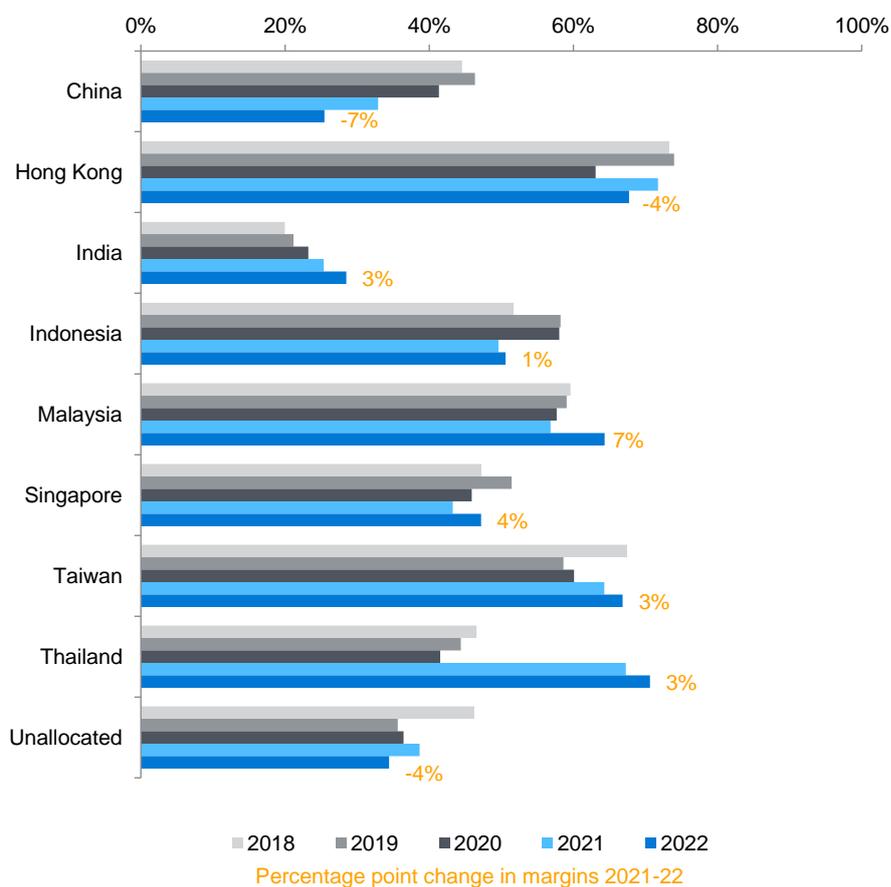
FIGURE 14: ASIAN VNB BY COMPANY, 2018 TO 2022 (CONTINUED)



Comparable Asia VNB fell by 12.9% in 2022, generally reflecting lower sales volumes across the region. Amongst the MNCs, FWD showed an increase in VNB of 20.0%, primarily driven by favourable shifts in product mix across key markets. Zurich had a steep fall in VNB of 52.4% largely due to a less profitable product mix. All the insurers in China disclosing VNB reported falls in VNB due to the strict COVID-19 lockdowns in the market which negatively impacted sales volumes. Among all the insurers reporting VNB in China, PICC Life fell the least by 17.3%, whereas New China Life fell the most by 59.5%, its sharp decline being largely due to a drop in sales from the agency channel. In Hong Kong, all insurers except AIA reported a fall in VNB. AIA Hong Kong's VNB growth of 4.1% can be attributed to an increase in visitors from Mainland China in the second half of 2022. In India, all the insurers witnessed positive growth in their VNB, especially Aditya Birla Sun Life, which witnessed an increase of 116.8% in VNB. The growth in VNB in India was aided by a spike in sales in March 2023 caused by the withdrawal of certain tax benefits from life insurance policies bought from on or after 1 April 2023. In Japan, VNB results were mixed, with Dai-ichi Frontier life reporting an increase of 293.0% and Dai-ichi Life reporting a 79.4% fall in its VNB. Except for Prudential Malaysia, all insurers in Malaysia reported an increase in VNB. In Thailand most of the insurers reported an increase in VNB driven by increased investment return assumptions arising from increasing yields.

**NEW BUSINESS MARGINS<sup>24</sup> IN ASIA**

**FIGURE 15: IMPLIED NEW BUSINESS MARGINS<sup>25</sup> BY MARKET, 2018 TO 2022**



<sup>24</sup> New business margin has been defined as the ratio of VNB and new business APE as commonly used in Asia, except for Japanese companies that report new business margins as the ratio of VNB to the PVNBP, as defined by the MCEV principles. Japan and Vietnam are excluded from this graph, since Japanese insurers and Dai-ichi Life Vietnam disclose PVNBP numbers instead of APE.

<sup>25</sup> This chart has been calculated by taking the sum of all disclosed VNB in each market besides Japan and Vietnam, divided by the commensurate APE figure sold by the company in the market. As such, the reliability of this chart will increase depending on the actual number of companies (and their collective market share) disclosing information by geography. This means that for markets with very few disclosures, such as Indonesia, Malaysia, Singapore, Thailand and Taiwan, this analysis may not reflect profitability across the whole market.

All the markets except China and Hong Kong witnessed an increase in reported new business margins (NBM). In China, NBM decreased mainly due to a shift in product mix towards savings products and a shift in business towards the bank channel instead of agency. In Hong Kong, the NBM fell by 4.1% due to a lower proportion of agency sales and individual health and protection business from Prudential Hong Kong, which had a large drop in NBM. In Malaysia, the NBM increased by 7.5% owing to a greater mix of protection products and an increase in assumed investment returns. In Taiwan, NBM increased by 2.6%, largely due to a shift in product mix towards higher-margin protection-type products. The NBM increase of 3.3% in Thailand was mainly attributed to an increase in investment return assumptions during the year.

### MARKET-WISE ANALYSIS

Appendix C shows comparisons of companies in each market.

In order to provide a clearer picture of each market's performance, all EV and VNB results set out in Appendix C have been converted to their local currency, using the prevailing exchange rate as at each insurer's reporting date for each year (2018, 2019, 2020, 2021 and 2022).<sup>26</sup> This contrasts with the previous sections' figures, where the EV and VNB results were converted to USD using the prevailing exchange rate at each insurer's reporting date for 2022. As a result of exchange rate differences, the 2022 growth rates for each MNC's subsidiary may not be consistent with the previous sections.

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<sup>26</sup> Please note that not all the financial years of insurers coincide with calendar years. In this report, we have defined 2022 results to be the financial year results that contain the majority of 2022 calendar year results. Results for Indian and Japanese insurers that have a March financial year-end date correspond to the financial results for the year ending 31 March 2023. Hence, when referring to Indian and Japanese insurers, 2022 refers to the year ending 31 March 2023.

## EV methodology and assumptions

As illustrated in Figure 6, within Asia, there are two groups of companies publicly reporting EV: 1) those reporting TEV, and 2) the remaining reporting EEV, IEV or MCEV. The latter tend to be Indian or Japanese insurers or subsidiaries or joint ventures of European and Japanese insurers.

In determining EV, companies in Asia adopt varied approaches on the following key aspects:

- The selection and construction of the appropriate RDR
- The selection of appropriate investment rate assumptions
- The question of how to explicitly or implicitly allow for the CoC
- Calculation of TVOG

### CONSTRUCTION OF RDR

The selection of RDR is one of the most important considerations for EV calculations. Broadly, there are three main methodologies behind discount rate derivation:

1. A single discount rate applied to all periods, calculated using a benchmark risk-free rate plus risk margin or adjusted using an assumed investment return.
2. A 'top-down' approach, whereby a discount rate or curve is constructed by adjusting the expected portfolio returns by considering the risks that the company is exposed to and in turn applying the constructed discount rate or curve to each cash flow.
3. A 'bottom-up' approach, whereby a risk-free rate plus risk margin curve is constructed for each cash flow or group of cash flows, with due consideration to the risk exposure of each cash flow. Where cash flows have an equivalent liquid and listed asset, the discount rate will be set to the implied yield of the asset. In IEV and MCEV, the risk margin typically only includes the illiquidity premium.

These three methods approximately correspond to the TEV, EEV and IEV/MCEV approaches, although the majority of companies reporting using EEV also now adopt a 'bottom-up' approach.

In addition to the above-mentioned methodology, there are three further major considerations with respect to the construction of the RDR:

1. The underlying basis for the RDR
2. The inclusion of any illiquidity premium
3. The interpolation and extrapolation method used to construct a discount curve (typically applicable only to EEV and IEV/MCEV companies)

The three considerations described above generally only apply to firms using EEV, IEV and MCEV reporting. For firms reporting on TEV, the generally accepted approach is to use an underlying risk-free rate (such as a long-dated government bond) with an additional risk margin. A popular subset of this approach includes the capital asset pricing model (CAPM). The main consideration for firms reporting TEV is the calculation of the risk margin, which is meant to encompass factors which are explicitly accounted for in EEV, IEV and MCEV—that is, the CoC and TVOG.

### INVESTMENT RETURN ASSUMPTIONS

Unlike insurers reporting under IEV/MCEV, companies reporting TEV and EEV results need to make assumptions about future investment returns earned on reserves and required capital. Within the MCEV framework, assets are assumed to earn returns that are, on average, equal to the risk-free reference rate (typically swaps plus adjustments). The major investment assumptions for MCEV are embedded in the stochastic asset model and the calibration of those models, including correlation assumptions.

Insurers reporting under TEV and EEV tend to specify investment returns at the asset-class level. However, some insurers choose to disclose (and potentially use) investment assumptions at a fund or company level instead.

In general, the investment return assumptions used by insurers tend to be within a tight band in most markets. Quite often, greater variation in equity return assumptions were observed compared to the government bond yield assumptions.

Taiwanese and some Chinese insurers have assumed increasing investment returns for future years. There is limited disclosure on how these increasing yield scenarios are reflected in the VIF calculations—for example, whether corresponding capital losses are incorporated as interest rates are projected to rise.

With tightened monetary policies leading to higher inflation and interest rates, life insurers have generally increased their investment return assumptions to allow for the rising yields during the year. In China some insurers have left the investment assumptions broadly unchanged.

The key for any investor is to compare the investment return assumptions against available government bond yields to assess whether the implied risk premiums are reasonable. Comparing increasing yield assumptions against prevailing forward rates is a useful exercise, similar to understanding the asset modelling supporting any upward trending interest rate approach.

Appendix D summarises the RDR and investment return assumptions by market as well as illustrating the risk margin embedded within the RDR.

### **COST OF CAPITAL**

Cost of capital (CoC) is typically calculated as a deduction from the PVFP to reflect the fact that assets backing the required capital are held within an insurance company and, therefore, cannot be distributed to shareholders immediately. Additional frictional costs may arise from investing in assets via an insurance company, such as additional taxation, investment expenses, or due to the fact that investors do not have a direct control over their capital (known as agency costs). CoC may also arise in respect of asymmetric non-hedgeable risks that may not have been reflected in the PVFP and reflects the potential additional cost and risk to shareholders. The split into FCoC and CRNHR is a requirement of the MCEV and IEV reporting principles.

Under TEV, CoC reflects the cost to shareholders of demanding to hold the required capital, which will earn the after-tax investment rate of return instead of the RDR. The CRNHR is generally implicit in the choice of the RDR assumption; hence, it is not disclosed separately. Asian insurers reporting TEV usually include the impact of the CoC as part of the EV report, although a few companies do not.

Companies reporting under MCEV principles typically allow for FCoC within the investment income on assets backing the required capital by:

- Projecting investment returns using the reference rate net of tax and investment management expenses
- Discounting using the reference rate gross of tax and investment management expenses

Companies may also adopt such an approach under the EEV principles, especially if they use a market-consistent basis. Alternatively, the CoC may be calculated based on the difference between the real-world investment return assumptions and the RDR, similar to the approach for TEV.

The majority of companies reporting MCEV calculate the CoC using the frictional cost approach, which is the approach required under MCEV principles. However, the definition of required capital differs among companies. As at financial year-end 2022, almost all companies disclosed their required capital with reference to domestic regulatory requirements, with MNCs such as Prudential plc also taking into consideration the results from their internal models.

An important assumption behind EV calculations is the level of solvency margin (SM) assumed to be held in the future. Given the nature of EV calculations, the primary impact of capital assumptions is the effect of the timing of cash flows. Capital is provided by shareholders to support the writing of new business and is eventually returned to shareholders as profit emerges.

Appendix E summarises the required SM assumed by insurers for their Asian operations. EV-reporting insurers generally use similar assumptions, opting to use the level of SM at which they believe regulatory intervention will occur. The exceptions to this are as follows:

- In Singapore, where AIA uses 135% while FWD and Manulife use 125% and 120%, respectively (Great Eastern did not disclose the minimum regulatory level for 2022)
- In Malaysia, where AIA uses 170%, FWD uses 195% and Manulife uses 160% (Great Eastern did not disclose the minimum regulatory level for 2022)
- In Taiwan, where AIA uses 250% compared with the 200% used by all domestic insurers

Having mentioned the importance of the SM, it is interesting to note that a few companies notably do not disclose their required SM assumptions.

### TIME VALUE OF OPTIONS AND GUARANTEES

The impact of financial options and guarantees can be split into two components. The first is the effect on the PVFP with respect to the intrinsic value<sup>27</sup> of such financial options and guarantees. The second is the TVOG, representing the difference between the total value of the options or guarantees and the intrinsic value. It is effectively the value of the 'optionality' bestowed on the policyholder for the duration of the insurance contract.

The reporting of TVOG is mandatory for insurers reporting on EEV, MCEV and IEV bases. The TVOG primarily corresponds to the asymmetry of the impact over a range of scenarios on the distributable earnings to shareholders. For example, for the case of participating contracts, profits are shared between shareholders and policyholders. Losses, however, are only shared up to a certain point, after which shareholders bear all the subsequent losses. This can be further exacerbated by the actions of policyholders (dynamic policyholder behaviour).

The features of products that generally give rise to an assessment of TVOG can include interest rate guarantees on traditional products, profit-sharing features such as bonuses or levels of credited rates, and guaranteed benefits on linked products and guaranteed annuity options. Other features such as 'return of premiums' are also considered a form of a guarantee.

As noted, EEV-, MCEV- and IEV-reporting insurers are required to assess the TVOG using stochastic techniques. Closed-form solutions can also be used where they lead to sufficiently accurate results but may not be suitable in valuing certain guarantees. The stochastic models must be appropriately calibrated and internally consistent with the rest of the modelling methodologies and approaches. Management actions can be allowed for, including those relating to crediting rates, bonus rates, charges to asset shares and investment strategies. These management actions are reflected in the company performance if such actions are consistent with the insurer's normal governance and approval processes and are consistent with the operating environment of the company.

Dynamic policyholder behaviour is included in many companies' assessments of TVOG. In particular, a number of companies recognise the impact of dynamic policyholder behaviour under certain economic scenarios.

Appendix F shows the companies that disclosed the number of scenarios used, and it is noteworthy to mention that the majority applied 5,000 economic scenarios on a market-consistent basis.

<sup>27</sup> In the example of a financial call option, the intrinsic value is the positive difference between the current underlying asset price and the strike price.

## Disclosures

Analysts have frequently commented that the drive towards greater consistency, through improved guidance and developments in EV reporting, has helped to improve their understanding of the inherent values and strengths within companies. The richness of disclosures has been particularly helpful, as they allow analysts to compare and contrast performances across insurers.

Similarly, EV reporting continues to provide rating agencies with valuable information on their credit assessments. For example, Standard & Poor's (S&P) states that return on embedded value (ROEV) is one of the factors considered in determining life insurers' ratings. Additional disclosures, and the component nature with which the analysis is presented, assist rating agencies in drilling down into the underlying key risk drivers, the areas of a company that are most important and/or where the ability to generate value is most at risk.

The most developed EV disclosure requirements are set out in the EEV and MCEV principles from the European Insurance CFO Forum, which cover methodology, assumptions, sensitivities, and analyses. APS10 standard disclosures for IEV in India require similar levels of detail. However, the prevalence of TEV in Asia (outside India and Japan), with the associated lack of any disclosure standards or requirements, makes it more difficult to use EV results for comparison and evaluation purposes.

The quality of EV disclosures tends to be closely correlated with the nature of the insurance operations. MNCs (whether they are Asian, European or North American) tend to provide more disclosure than insurers focusing on one or two core markets. For the single-market operations, typical disclosures include only group EV and VNB, and some companies do not disclose key assumptions, such as RDR and investment return.

The table in Figure 16 summarises the available disclosures of insurers operating in Asia. We anticipate that more detailed reporting will follow over the next few years as Asian insurers increase in scale, complexity and sophistication, not only in EV methodology but in investor relations as well.

Note: Figure 16 should not and cannot be taken as endorsement or verification of any kind on the part of Milliman that the disclosures of specific sections by specific companies meet, in part or in full, the requirements laid out by the EEV or MCEV principles.

FIGURE 16: SUMMARY OF DISCLOSURES IN 2022<sup>28</sup>

TYPE	COMPANY	EV PRINCIPLE	EVIDENCE OF INDEPENDENT REVIEW OF EV RESULTS	ANALYSIS OF EV MOVEMENT	RECONCILIATION OF ANW TO IFRS NET ASSETS	COST OF CAPITAL/ REQUIRED CAPITAL	RDR ASSUMPTIONS	INVESTMENT RETURN ASSUMPTIONS	EXPENSE INFLATION ASSUMPTIONS	NEW BUSINESS MARGIN INFORMATION	EV AND VNB SENSITIVITIES
MNC	AIA	TEV	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AXA	SII/EEV	✓	✓	✓	✓	✓	✓	✓	✓	✓
	FWD	TEV	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Generali	MCEV		✓		✓	✓	✓	✓	✓	✓
	Great Eastern	TEV	✓	✓			✓				✓
	Manulife	TEV	✓	✓	✓	✓	✓	✓		✓	✓
	Prudential plc	EEV	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Zurich	MCEV	✓	✓	✓	✓	✓	✓	✓	✓	✓
CHINA	China Life	TEV	✓	✓		✓	✓	✓	✓	✓	✓
	China Pacific	TEV	✓	✓		✓	✓	✓	✓	✓	✓
	China Taiping	TEV	✓	✓		✓	✓			✓	✓
	New China Life	TEV	✓	✓		✓	✓	✓	✓	✓	✓

<sup>28</sup> Blue shaded entries indicate that the 2022 EV results have not yet been disclosed, and that the assessment has been based on 2021 disclosures instead.

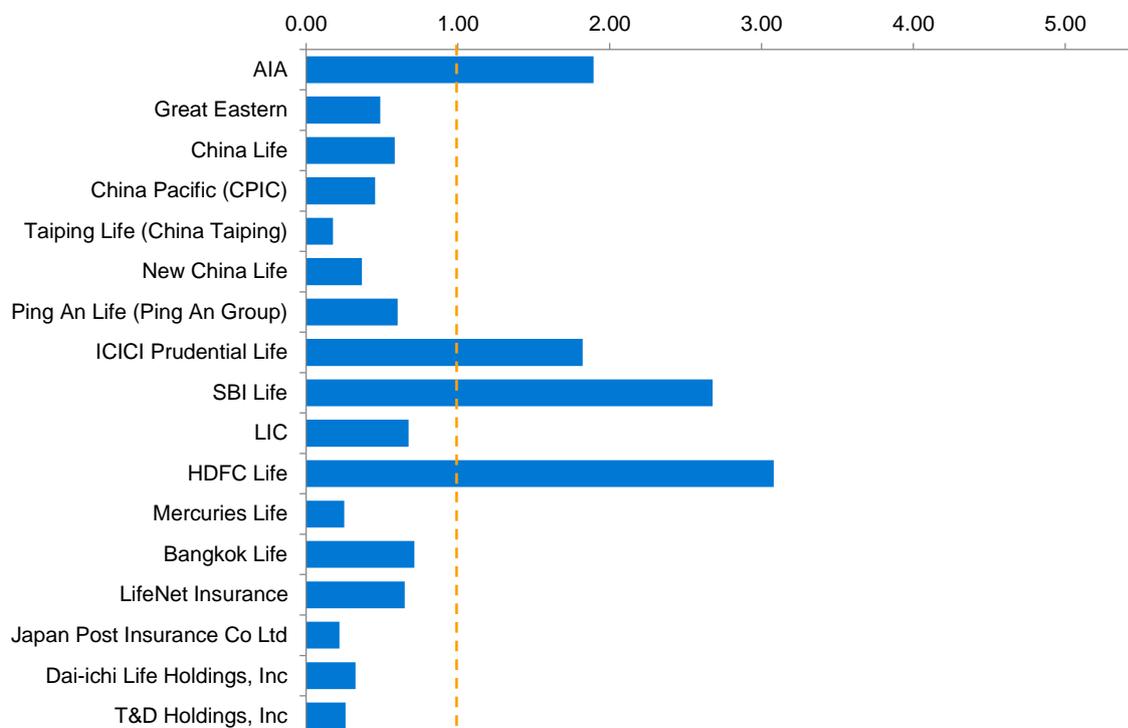
TYPE	COMPANY	EV PRINCIPLE	EVIDENCE OF INDEPENDENT REVIEW OF EV RESULTS	ANALYSIS OF EV MOVEMENT	RECONCILIATION OF ANW TO IFRS NET ASSETS	COST OF CAPITAL/ REQUIRED CAPITAL	RDR ASSUMPTIONS	INVESTMENT RETURN ASSUMPTIONS	EXPENSE INFLATION ASSUMPTIONS	NEW BUSINESS MARGIN INFORMATION	EV AND VNB SENSITIVITIES
CHINA (CONTINUED)	PICC Life	TEV	✓	✓		✓	✓	✓	✓		✓
	Ping An	TEV	✓		✓	✓	✓	✓	✓	✓	✓
INDIA	Bajaj Allianz Life	MCEV		✓			✓	✓		✓	
	Aditya Birla Sun Life	MCEV		✓						✓	✓
	HDFC Life	IEV		✓		✓	✓	✓		✓	✓
	ICICI Prudential Life	IEV	✓	✓		✓	✓	✓		✓	✓
	Kotak Life	IEV		✓						✓	
	Max Life	MCEV		✓		✓	✓	✓	✓	✓	✓
	PNB MetLife	IEV	✓	✓		✓	✓	✓		✓	✓
	Reliance Nippon Life	TEV									
	LIC	IEV	✓	✓		✓	✓	✓	✓		✓
	SBI Life	IEV	✓	✓		✓	✓	✓		✓	✓
JAPAN	Daido Life	MCEV	✓	✓		✓	✓	✓	✓	✓	✓
	Dai-ichi Life	MC-EEV	✓	✓		✓	✓	✓	✓	✓	✓
	Dai-ichi Frontier Life	MC-EEV	✓	✓		✓	✓	✓	✓	✓	✓
	Japan Post Insurance Co Ltd	MC-EEV	✓	✓		✓	✓	✓	✓	✓	✓
	LifeNet Insurance	MC-EEV	✓	✓		✓	✓	✓	✓	✓	✓
	Medicare Life	MC-EEV		✓		✓	✓	✓	✓	✓	✓
	MS&AD Aioi Life	MC-EEV	✓	✓		✓	✓	✓	✓	✓	✓
	MS&AD Primary Life	MC-EEV	✓	✓		✓	✓	✓	✓	✓	✓
	Neo First Life	MC-EEV	✓	✓		✓	✓	✓	✓	✓	✓
	Sompo Japan Nipponkoa Himawari Life	MCEV	✓	✓		✓	✓	✓	✓	✓	✓
	Sony Life	MCEV	✓	✓		✓	✓	✓	✓	✓	✓
	Sumitomo Life	MC-EEV		✓		✓	✓	✓	✓	✓	✓
	T&D Financial Life	MCEV	✓	✓		✓	✓	✓	✓	✓	✓
	Taiyo Life	MCEV	✓	✓		✓	✓	✓	✓	✓	✓
Tokio Marine & Nichido Life	MCEV	✓	✓		✓	✓	✓	✓	✓	✓	
TAIWAN	Cathay Life	TEV	✓	✓		✓	✓	✓	✓	✓	✓
	China Life TW	TEV	✓	✓		✓	✓	✓			✓
	Fubon	TEV	✓	✓		✓	✓	✓		✓	✓
	Mercuries Life	TEV	✓	✓		✓	✓	✓			✓
	Shin Kong	TEV	✓	✓		✓	✓	✓	✓		✓
	Taiwan Life	TEV	✓	✓		✓	✓	✓			✓
THAILAND	Bangkok Life	TEV	✓	✓			✓	✓			
	Thai Life	TEV	✓	✓	✓		✓	✓			
VIETNAM	Dai-ichi Life Vietnam	TEV	✓	✓			✓	✓		✓	

## Other measures of value

### MARKET CAPITALISATION

Figure 17 gives the price/EV (P/EV) ratios for listed insurers.

FIGURE 17: MARKET CAPITALISATION TO EMBEDDED VALUE RATIOS AS AT 2022 REPORTING DATES



\* For Chinese insurance groups, P/EV ratios are based on disclosed group EVs. We have also chosen to exclude listed companies which are not predominantly involved in life insurance business. Excluded companies include: PICC Life (PICC Group), Cathay Life (Cathay FHC), Fubon (Fubon FHC), Shin Kong (Shin Kong FHC), and Taiwan Life (CTBC FHC).

For Japanese insurance groups, we have excluded Sony Life 100%, which is owned by Sony Financial Group in the graph.

All P/EV ratios have been calculated either using 'share price/EV per share' or 'market capitalisation/EV' as at the reporting date of EV results.

The standard treatment for including non-covered business is to add the net assets (analogous to ANW in the EV world), thereby excluding the assets' equivalent of the VIF. As a result, there is a tendency for composites and groups with large banking or investment businesses to differ from the industry average based on the P/EV metric.

### RETURN ON EMBEDDED VALUE

The return on embedded value represents the post-tax operating profit, expressed as a percentage of the opening EV. For clarity, this metric typically excludes any impact of changes in the economic environment. The key components of ROEV include the expected return earned on the opening EV, value added by new business and variance in actual experience from expected experience. In markets like India, where this metric is widely reported, the metric is commonly used by analysts to compare a company's performance against its peers. Operating ROEV is calculated as the EV operating profit for the year expressed as a percentage of opening EV.

Figure 18 tabulates the ROEV disclosed by selected companies in Asia for 2021 and 2022.

**FIGURE 18: ROEV FOR 2021 AND 2022**

COMPANY TYPE	COMPANY	EV METHODOLOGY	ROEV (2021)	ROEV (2022)
<b>MNC</b>	AIA	TEV	12.10%	9.40%
	Prudential plc	EEV	8.00%	9.00%
<b>China</b>	Ping An	TEV	11.10%	11.00%
<b>India</b>	Bajaj Allianz Life	MCEV	11.90%	14.40%
	Aditya Birla Sun Life	MCEV	15.40%	22.60%
	HDFC Life	IEV	19.00%	19.70%
	ICICI Prudential Life	IEV	11.00%	17.40%
	Max Life	MCEV	19.20%	22.10%
	SBI Life	IEV	20.60%	22.80%

### IFRS 17

The preparation of accounts on an IFRS basis gives rise to a different interpretation and timing of profit and loss compared with an EV basis. Reconciliation of these different measures helps to reveal different features of insurers' underlying performance.

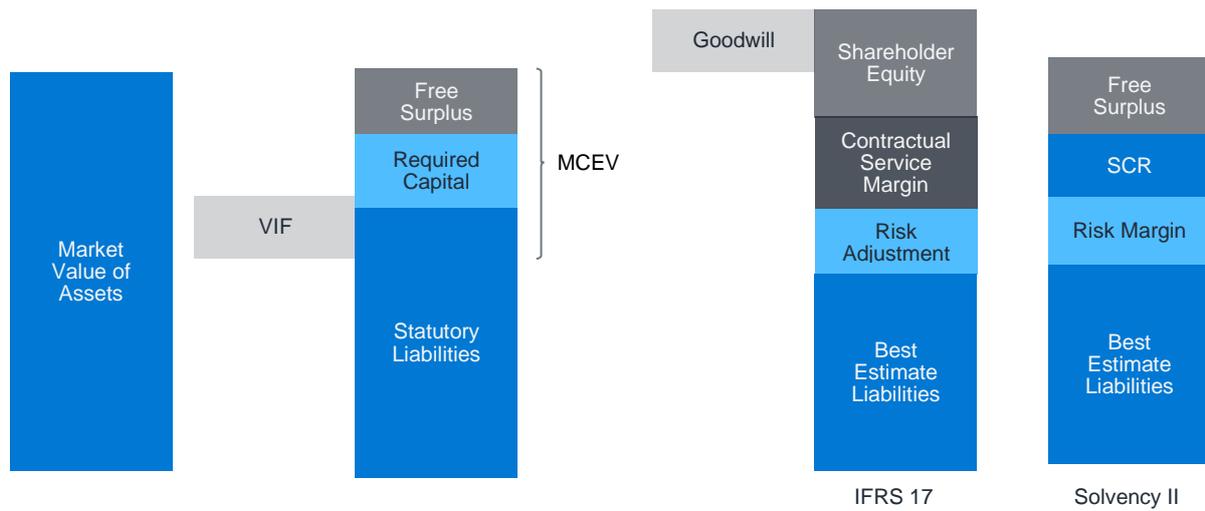
On 18 May 2017, the IASB published its new standard on accounting for insurance contracts: IFRS 17. For some Asian markets, the standard is effective for annual reporting periods beginning on or after 1 January 2023 while the application has been delayed for other Asian markets. The standard is directed at insurance contracts, rather than insurance entities, and aims at consistent accounting for all insurance contracts and increased transparency in financial information reported by insurance companies.

In summary, the IFRS 17 standard requires an assessment of the profitability of insurance contracts when they are first issued and, if positive, recognition of profit over the lifetime of the contracts in a manner that reflects the timing of the insurance services provided by the insurer. Specifically, the main features of the new accounting model for insurance contracts include:

- A measurement of the present value of future cash flows, incorporating an explicit risk adjustment. Assumptions used in the projection need to be the current best estimate and the discount rate should be set to ensure that the net finance results clearly (and exclusively) reflect changes in economic conditions. The discount rates can be derived using two different approaches, referred to as 'top-down' or 'bottom-up.'
- A contractual service margin (CSM) represents the unearned profits of the insurance contract to be recognised in profit over the coverage period (any loss is recognised immediately). The CSM is calculated at inception of the contract and then released over the coverage period of the contract in a systematic way that best reflects the transfer of services provided under the contract. The CSM cannot be negative, so losses from unprofitable contracts are immediately booked in the profit and loss (P&L) statements.
- The companies are required to identify group of contracts that are onerous (loss-making) at inception and group them separately from non-onerous contracts. Companies are also required to group contracts written one year apart.
- Compared to the previous IFRS 4 framework (called Phase 1, implemented in 2014), the presentation of results in the income statement and balance sheet has changed significantly. In particular the key drivers of profit are shown in the P&L and presentation of insurance revenue and insurance service expenses in the statement of comprehensive income is based on the concept of services provided during the period.

A comparison of an IFRS 17 balance sheet with MCEV and Solvency II is illustrated in Figure 19.

FIGURE 19: MCEV VS. IFRS 17 VS. SOLVENCY II



Despite recent developments in financial reporting, the implementation of Solvency II and risk-based capital (RBC) regimes across Asia and the introduction of IFRS 17, EV remains an important metric to showcase insurers' financial performance and their business strategies to investors, analysts and customers.

However, over time, insurers are expected to increasingly be focused on IFRS 17 and RBC-related metrics, and as a result, it remains uncertain whether EV will continue evolving to remain a useful metric.

## Appendix A: Recent and upcoming regulatory changes

Figure 20 provides a summary of some of the major recent or upcoming regulatory changes in the region.

**FIGURE 20: SUMMARY OF RECENT AND UPCOMING MAJOR REGULATIONS BY JURISDICTION**

JURISDICTION	REGULATION	DESCRIPTION
China	<b>ABS and REIT</b>	The China Securities Regulatory Commission (CSRC) in China has published guidelines encouraging insurance asset management companies to invest in asset-backed securities (ABS) and real estate investment trust (REIT) businesses.
	<b>Life insurance product features</b>	CBIRC has proposed a pilot program which allows benefits payable on life insurance policies to be converted into long-term care insurance benefits, when the beneficiary needs such care because of an illness, or a disability caused by an accident or specific diseases.
	<b>Insurance guarantee fund</b>	The CBIRC, together with the Ministry of Finance and the People's Bank of China, revised the Administrative Measures for Insurance Guarantee Funds in 2008 and released the new rules on 26 October 2022, which took effect on 12 December 2022 and will increase the levies paid by insurance companies.
	<b>Insurance companies' issuance of flexible-term capital bonds</b>	The Central Bank of China and supervisory management committee of the CBIRC released a notice on encouraging insurance companies to issue capital bonds with no fixed term. The main purpose of this policy is to further expand insurance companies' capital replenishment channels and improve the adequacy level of insurance companies' core solvency under the C-ROSS II.
Hong Kong	<b>Policy holder protection scheme</b>	The Financial Services and the Treasury Bureau have proposed to establish a policyholders' protection scheme (PPS) which will provide an additional safety net to policyholders if an insurer becomes insolvent. The PPS will adopt a progressive funding model by collecting an initial levy from insurers and will establish a long-term fund for long-term policies. Public consultation on the establishment of PPS concluded in March 2023.
	<b>Risk-based capital (RBC) regime</b>	The Insurance (Amendment) Bill 2023 passed its third reading in the Legislative Council on 6 July 2023. It introduces the risk-based capital (RBC) regime, expected to enhance insurers' financial soundness. Key changes include capital tiering, minimum capital requirement, separate accounts for participating business, enhanced intervention powers for the regulator and a disclosure requirement for insurers to share prescribed information with the public. Implementation is targeted for 2024 (except for a few companies that have early adopted), promoting industry strength, transparency and accountability.
India	<b>Other forms of capital</b>	In December 2022, new regulations were issued which supersede regulations which had been existing from 2015. The key change is the ability to issue other forms of capital (e.g. subordinated debt) up to a greater limit of the lower of 50% (earlier 25%) of paid-up equity share capital and securities premium, 50% of net worth. Following the issuance of these regulations, several players have raised subordinated debt to the extent of the enhanced limit, thus limiting equity capital injections.
	<b>Distribution tie-ups</b>	Corporate agents such as banks are permitted to tie-up with a maximum of nine (previously three) life insurers.
	<b>Registration of Indian Insurance companies</b>	Regulations pertaining to the registration of Indian insurance companies have been amended, removing the requirement on private equity funds to invest through special purpose vehicles if they wished to become the promoter of an insurance company. Furthermore, entities are now permitted to hold an equity stake strictly between 10% and 25% in two life insurance companies (previously there was a restriction of one).
	<b>Commission limits</b>	Commission limits have been removed subject to insurers complying with the expenses of management regulations (discussed below) and insurers are required to have a transparent board policy on their commission structures.
	<b>Expenses of management</b>	The allowable expenses which are primarily dependent on premium payment term have been amended, with varying impacts on the level of allowable expenses for different insurers. For participating business, expenses above the allowable level will continue to be charged entirely to the profit and loss account.
	<b>Solvency margin factors</b>	Solvency margin factors have been reduced for unit-linked business and government promoted group life business (PMJBY).
Indonesia	<b>Strengthen solvency</b>	Indonesian regulator is drafting a regulation to raise minimum capital requirement for insurers. The increase is scheduled to be implemented in two stages, with the first stage in 2026 followed by another in 2028.
	<b>Upcoming regulations on the financial health of insurance companies</b>	Indonesian regulator plans to issue new regulations on the financial health of insurance companies, which will also include a limitation on the investment activities of insurance companies.

JURISDICTION	REGULATION	DESCRIPTION
Japan	<b>Economic value-based solvency regulations</b>	The Financial Services Agency (FSA) of Japan plans to shift from the current solvency margin regulations to an economic value-based solvency margin regime from 2025 financial year-end.
	<b>ESG, SDGs and solvency</b>	The FSA has laid out strategic priorities for the insurance industry for 2023, promoting environmental, social and corporate governance (ESG), sustainable development goals (SDGs), closing the natural catastrophe protection gap, and improving asset-liability management efforts.
Malaysia	<b>Financial reporting (in relation to Malaysian Financial Reporting Standards (MFRS) 17)</b>	BNM has published the Financial Reporting for Takaful Operators Policy Document and Financial Reporting Policy Document (for insurers) in April 2022, which set out the revised requirements applicable for Takaful operators and insurers to ensure alignment with the MFRS 17 and the MFRS 9.
	<b>Revisions to risk-based capital (RBC)</b>	BNM had planned to release an exposure draft for an updated RBC framework in 2022, followed by a parallel run of the new draft framework in 2023, and subsequently the potential implementation of the new RBC framework in 2024. However, there has been a delay, and as of June 2023, the exposure draft of the updated RBC framework is still to be released.
	<b>Management of participating life business</b>	BNM released new participating life (par) fund regulations in July 2023, which built on the previous policy document issued in 2016 to be more prescriptive on areas such as requirements on the review of asset shares, determination of working capital and use of estate, management of small/shrinking par funds, and submission and implementation of bonus revision proposals.
Singapore	<b>Business continuity management</b>	MAS issued revised Guidelines on Business Continuity Management (BCM) for financial institutions (FIs). This will help them strengthen their resilience against risk.
	<b>Extended Panel Initiative</b>	The Life Insurance Association of Singapore has implemented an Extended Panel (EP) initiative, a system of mutual panel recognition between Integrated Shield Plan (IP) insurers. With this, policyholders with IP riders will have access to certain key benefits even when visiting a specialist who is not on the insurer's panel, provided the specialist complies with the insurers' terms and fees. This initiative is further complemented by the IP insurers who have committed to increasing the size of their main panel to at least 500 panel specialists.
	<b>MAS Notice 133 (Amendment)</b>	The MAS has amended Notice 133, to revise the illiquidity premium insurers apply for corporate debt securities from 75 basis points to 65 basis points, effective 31 December 2022.
South Korea	<b>Korean Insurance Capital Standard (K-ICS) &amp; IFRS 17</b>	K-ICS came into force on 1 January 2023 along with the implementation of IFRS 17, and insurers have increased their capital as a consequence.
	<b>Regulatory reforms</b>	The Financial Services Commission (FSC) has eased its licensing policy, and now permits a business group to operate more than one life insurer. This will allow insurance companies to develop diverse types of products without restrictions. Additionally, FSC intends to remove the current restriction that limits an insurer's transactions of derivative products to maximum 6% of total assets to help insurers to manage interest rate risks. It will also overhaul rigid penalizing practices and will introduce a legal ground to allow private sector industry groups to provide simple customer services.
	<b>Contingent convertible bond</b>	Along with the implementation of K-ICS, insurance companies can issue contingent convertible bond (CoCo bond) as means of raising capital starting 1 July 2023. CoCo bond is recognized as high-quality capital under the Korea Insurance Capital Standard (K-ICS).
Taiwan	<b>Investment reforms</b>	The Financial Supervisory Commission (FSC) has started a program that aims to encourage insurers to direct their funds towards investments that pay balanced attention to the protection of policyholder interests and actively invest in Taiwan's six core strategic industries.
	<b>Protection for elderly consumers in the insurance industry</b>	The FSC has introduced new provisions to strengthen the protection of rights and interests of elderly consumers over the age of 65 years. The provisions cover product development, solicitation and disclosure of information on investment-type insurance products.
Thailand	<b>Life Insurance Act and Non-Life Insurance Act</b>	The Thai Cabinet has approved amendment bills to Life Insurance Act and Non-Life Insurance Act, with the aim of strengthening government oversight over corporate governance, capital management, product and distribution, and shareholding requirements of insurance companies.
	<b>Supervisory framework for investments</b>	The Office of Insurance Commission (OIC) has strengthened supervision of investments in 'other business operations' for both life and non-life insurance companies. In addition, the OIC has allowed additional investment types, including units in real estate mutual funds, trust certificates of real estate investment trusts, and units in infrastructure mutual funds, among others.

## Appendix B: Comparison of EV methodologies

Figure 21 summarises the main differences between TEV, EEV, and MCEV for each component of EV.

**FIGURE 21: COMPARISON OF TEV, EEV AND MCEV**

ITEM	TEV	EEV	MCEV
<b>PVFP</b>	Projection of future profits using real-world investment return assumptions, discounted using subjective RDR.	Projection of future profits using real-world investment return assumptions, discounted using a curve based on risk-free rates, adjusted using a risk margin, which reflects any risks not allowed for elsewhere in the valuation.  Some EEV reporting firms also opt to use a market-consistent approach, which entails using risk-free rates in the certainty equivalent approach.	Projection of future profits using market-consistent risk-neutral investment return assumptions, discounted using a curve based on risk-free rates. Discount rates can be adjusted to include an illiquidity premium.
<b>TVOG</b>	Not explicitly allowed for, although companies may argue that the cost is implicitly included through the use of a risk-adjusted discount rate.	Mandatory calculation using stochastic models for material guarantees. While both risk-neutral and real-world models are theoretically allowed, most insurers will use risk-neutral models, for ease of calculation.	Consistent with PVFP methodology, a market-consistent risk-neutral calculation using stochastic models.
<b>CoC</b>	There is no standardisation of this, but CoC is included by virtually every insurer.  Typical practice is to explicitly model the cost in the cash flow projections and present it as an adjustment to the EV figure.	Mandatory, calculated as the difference between required capital held at the valuation date and the present value of the projected releases of the required capital, allowing for future investment return on that capital.  Disclosed as part of required capital.	Mandatory split into FCoC and CRNHR.
<b>Discount rate</b>	Subjective assumption, typically calculated as a risk-free rate plus a margin, or the portfolio investment return plus a margin.  A single discount rate is typical; using a curve is rare.	Two possible approaches:  'Top-down' with one discount curve used for all cash flows based on risks faced by the entire organisation.  'Bottom-up' where each cash flow is discounted using a risk-free rate plus the risk margin, based on the exposed risks.	A bottom-up approach is mandatory, and the curve is typically on swap rates, with adjustments for illiquidity and the risk margin.
<b>Expenses</b>	No standardisation, but typically based on current or recent and expected ongoing experience. Where expense overruns exist, insurers will typically provide both pre- and post-overrun EV/VNB figures.	Future expenses such as renewal and maintenance expenses must reflect expected ongoing operating expenses, including investment in systems to support the business, and allowing for future inflation.  Overheads and holding company expenses must be allocated in a manner consistent with current and historical practice.  Expense overruns must be allowed for.	Similar to EEV principles, with additional guidance.  Favourable changes in unit costs such as productivity gains should not normally be included, if they have not been achieved by the end of the reporting period. However, for start-up operations, allowing for improvements in unit costs in a defined period may be allowed, so long as there is sufficient evidence to justify it.  Exceptional development and one-off costs that have an impact on shareholder value must be disclosed separately, with a description of their nature.  Company pension scheme deficits must be allocated to the covered business expense assumptions in an appropriate manner.
<b>Investment returns</b>	Typical practice is to use a risk-free rate plus risk-premium approach for main asset classes, where the risk-premium assumptions differ by asset class.	Some insurers opt to use a risk-neutral approach, while others use a risk-free rate plus a risk-premium approach.	A risk-neutral approach is typically used, where assets are assumed to earn returns based on a risk-free curve.  Where swap rates are not available or liquid enough, government bond rates are used as a proxy for the risk-free rate.

**TEV VS. EEV VS. MCEV**

The primary advantage that EEV and MCEV approaches have over TEV is the greater standardisation (and less subjectivity) of assumptions, methodologies and disclosures, leading to better comparability from an investor's viewpoint. For example, MCEV assumes that assets earn the risk-free rate of return. This approach avoids the use of actual risk-weighted yields or management's view of future market directions in EV calculations, as is the case with TEV (and some EEV) reporting.

Insurers reporting on EEV or MCEV bases will typically experience greater volatility in EV results, especially if a market-consistent basis is used. This can complicate reporting and investor disclosures and is one of the reasons often cited by industry insiders as to why most Asian companies have not yet moved from TEV to EEV or MCEV. Another key reason put forward is the increased capabilities required to fully implement EEV or MCEV reporting. For example, the implementation of proper TVOG calculations requires the use of stochastic models to value embedded policy options and guarantees. This inevitably means using specialised economic scenario generator (ESG) software. This will add to financial reporting lead times. In addition, it is difficult to calibrate the ESG for Asian capital markets, which are in general not as deep or liquid as those in the U.S. or Europe. Given this, it is understandable that Asian insurers are not prioritising moving from TEV, which is itself already a useful metric for managing their businesses, so long as it is calculated robustly and consistently. However, in a region where long-term guarantees are so prevalent and yield curves that are only recently rising from historic lows, not explicitly allowing for TVOG is an obvious and significant flaw in companies' TEV financial reporting. Since IEV does not have a material difference from MCEV, we can state that conceptually IEV is similar to MCEV.

# Appendix C: Market analysis

## China

FIGURE 22: REPORTED EV OF CHINESE INSURANCE OPERATIONS, 2018-2022

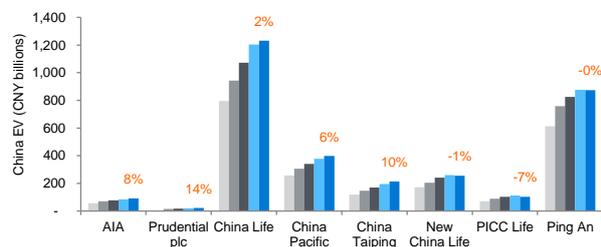


FIGURE 23: REPORTED ANW OF CHINESE INSURANCE OPERATIONS, 2018-2022

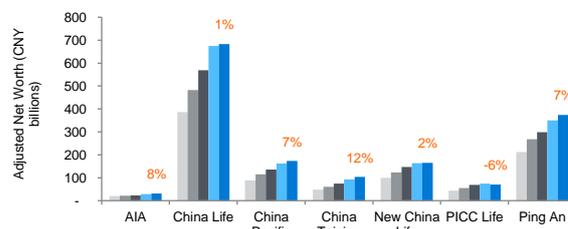


FIGURE 24: REPORTED VIF OF CHINESE INSURANCE OPERATIONS, 2018-2022

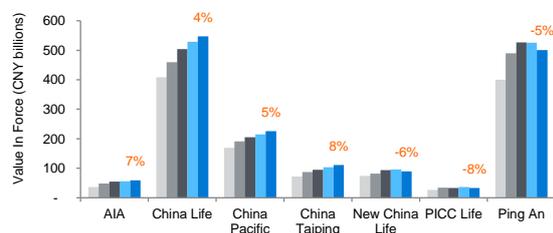


FIGURE 25: REPORTED VIF/ANW SPLIT OF CHINESE INSURANCE OPERATIONS, 2022

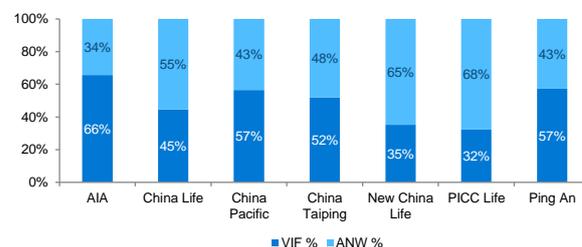


FIGURE 26: REPORTED VNB OF CHINESE INSURANCE OPERATIONS, 2018-2022

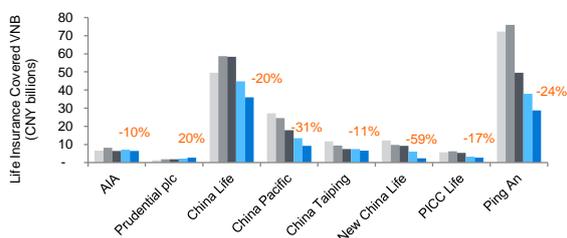


FIGURE 27: REPORTED APE<sup>29 30</sup> OF CHINESE INSURANCE OPERATIONS, 2018-2022

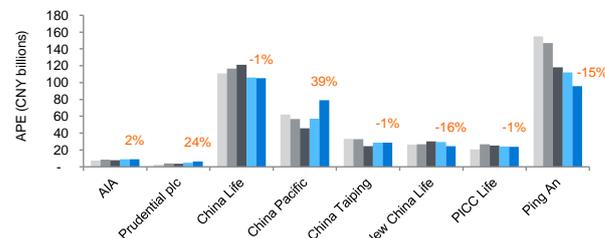
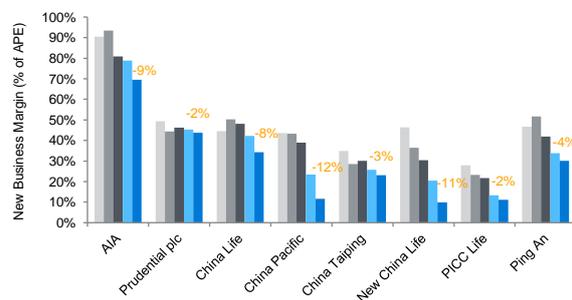


FIGURE 28: REPORTED NEW BUSINESS MARGINS<sup>31</sup> OF CHINESE INSURANCE OPERATIONS, 2018-2022



■ 2018 ■ 2019 ■ 2020 ■ 2021 ■ 2022

1-Year Growth % 2021-2022

Percentage point change in margins 2021-2022

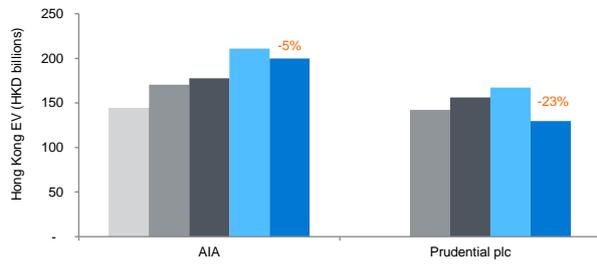
<sup>29</sup> APE figures, where they are not disclosed explicitly by the company, are calculated by Milliman based on disclosed regular premium and single-premium new business figures and may not represent actual APE of the respective companies. Additionally for Ping An, APE has been calculated using disclosed VNB and new business margins on an APE basis.

<sup>30</sup> APE figures include short-term insurance premiums as life insurers write both short-term and long-term business for both life and health insurance.

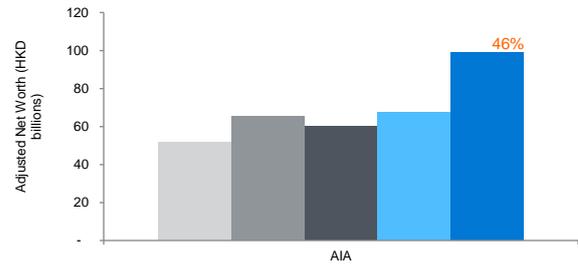
<sup>31</sup> Note that the margins are calculated as the disclosed VNB divided by the calculated APE in Figure 28 and may not represent actual margins of the respective companies.

## Hong Kong

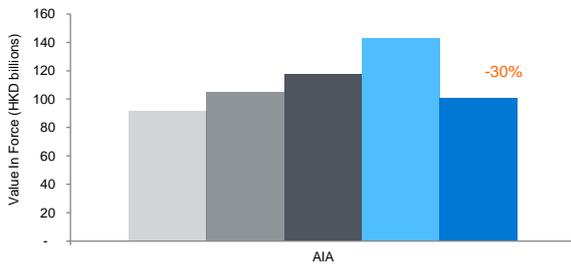
**FIGURE 29: REPORTED EV OF HONG KONG INSURANCE OPERATIONS, 2018-2022<sup>32</sup>**



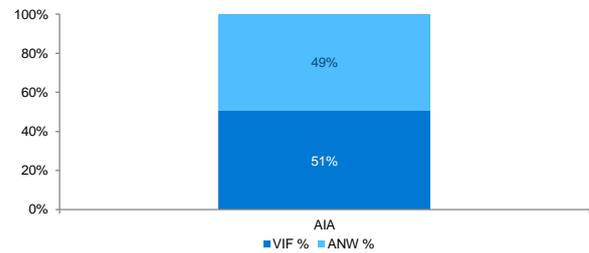
**FIGURE 30: REPORTED ANW OF HONG KONG INSURANCE OPERATIONS, 2018-2022**



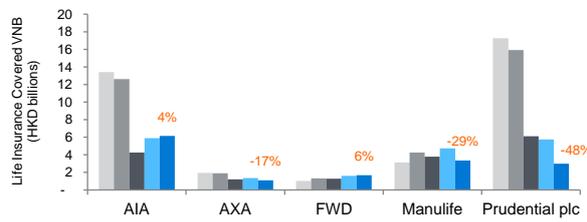
**FIGURE 31: REPORTED VIF OF HONG KONG INSURANCE OPERATIONS, 2018-2022**



**FIGURE 32: REPORTED VIF/ANW SPLIT OF HONG KONG INSURANCE OPERATIONS, 2022**



**FIGURE 33: REPORTED VNB OF HONG KONG INSURANCE OPERATIONS, 2018-2022**



**FIGURE 34: APE OF HONG KONG INSURANCE OPERATIONS, 2018-2022**



**FIGURE 35: REPORTED NEW BUSINESS MARGIN (% OF APE) OF HONG KONG INSURANCE OPERATIONS, 2018-2022**



■ 2018 ■ 2019 ■ 2020 ■ 2021 ■ 2022

1-Year Growth % 2021-2022

Percentage point change in margins 2021-2022

<sup>32</sup> The FX rates used for conversion to local currency (for all charts) are listed in Appendix H.

India

FIGURE 36: REPORTED EV<sup>33</sup> OF INDIAN INSURANCE OPERATIONS, 2018-2022<sup>35</sup>

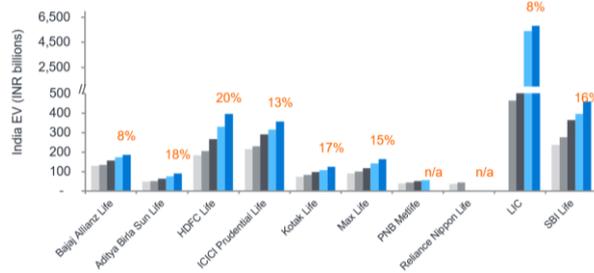


FIGURE 37: REPORTED ANW OF INDIAN INSURANCE OPERATIONS, 2018-2022<sup>36</sup>

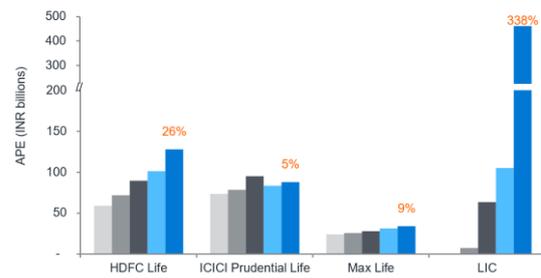


FIGURE 38: REPORTED VIF OF INDIAN INSURANCE OPERATIONS, 2018-2022

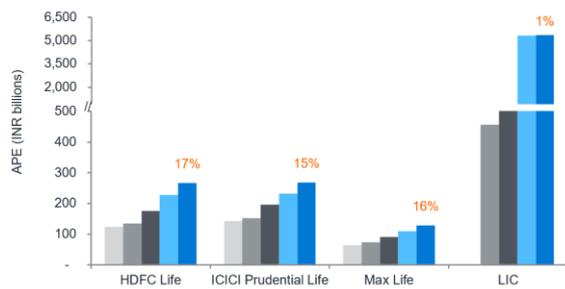


FIGURE 39: REPORTED VIF/ANW SPLIT OF INDIAN INSURANCE OPERATIONS, 2022

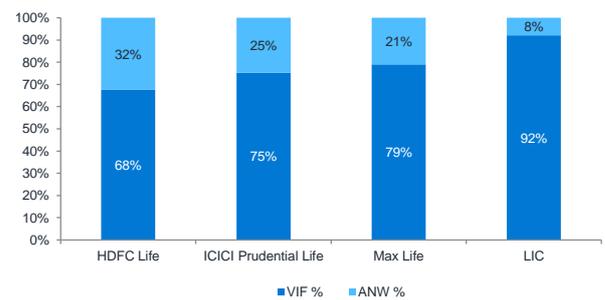


FIGURE 40: REPORTED VNB<sup>37</sup> OF INDIAN INSURANCE OPERATIONS, 2018-2022

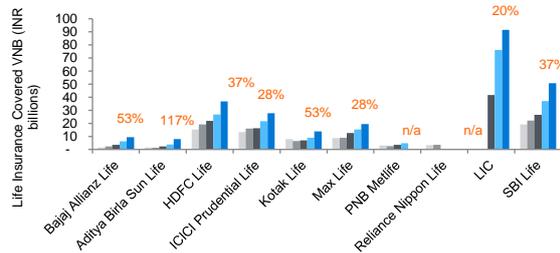


FIGURE 41: REPORTED APE<sup>38</sup> OF INDIAN INSURANCE OPERATIONS, 2018-2022

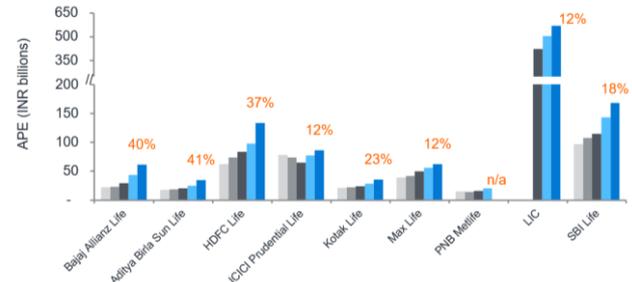
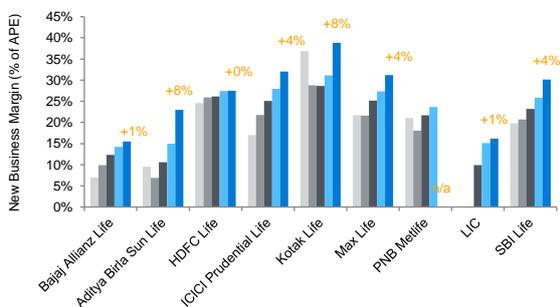


FIGURE 42: REPORTED NEW BUSINESS MARGIN OF INDIAN INSURANCE OPERATIONS, 2018-2022



■ 2018 ■ 2019 ■ 2020 ■ 2021 ■ 2022

1-Year Growth % 2021-2022

Percentage point change in margins 2021-2022

<sup>33</sup> Exide Life has been merged with HDFC Life, so it has been excluded from the analysis.

<sup>34</sup> For the purposes of this report, 2022 for India insurers represents the financial year ending 31 March 2023.

<sup>35</sup> PNB MetLife, and Reliance Nippon Life have not disclosed their 2022 results before the cutoff date for this report, i.e., 31 May 2023.

<sup>36</sup> In Figures 37, 38, and 39, Aditya Birla Sun Life, Bajaj Allianz Life, SBI Life, and Kotak Life have been excluded, as their split of EV for 2022 has not been disclosed.

<sup>37</sup> For comparability, the VNB and new business margin figures are after the impact of expense overruns.

<sup>38</sup> For Aditya Birla Sun Life and Kotak Life, APE has been calculated using disclosed VNB and new business margins on an APE basis.

Indonesia

FIGURE 43: REPORTED EV OF INDONESIAN INSURANCE OPERATIONS, 2018-2022

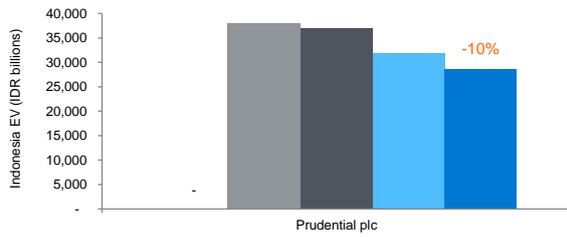


FIGURE 44: REPORTED VNB<sup>39</sup> OF INDONESIAN INSURANCE OPERATIONS, 2018-2022<sup>40</sup>

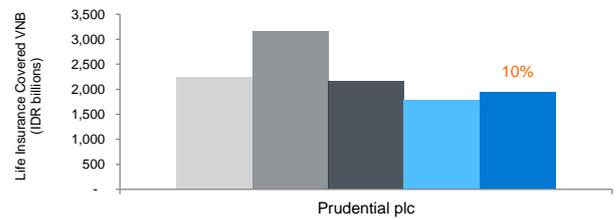


FIGURE 45: REPORTED APE<sup>41</sup> OF INDONESIAN INSURANCE OPERATIONS, 2018-2022

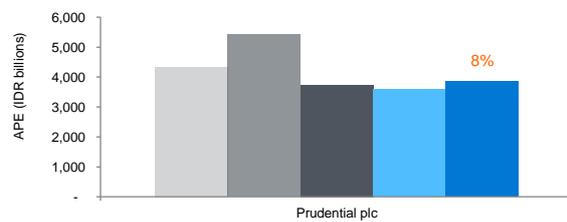
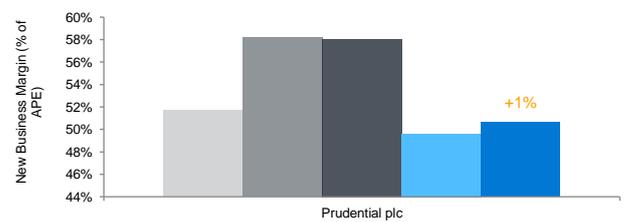


FIGURE 46: REPORTED NEW BUSINESS MARGINS OF INDONESIAN INSURANCE OPERATIONS, 2018-2022



■ 2018 ■ 2019 ■ 2020 ■ 2021 ■ 2022

1-Year Growth % 2021-2022

Percentage point change in margins 2021-2022

<sup>39</sup> VNB and APE throughout this section have been converted to local currency using the prevailing exchange rates applicable at each reporting date (2018, 2019, 2020, 2021 and 2022). These figures are different to the disclosed VNB/APE in local currency terms due to exchange rate differences as VNB/APE presented in EV disclosures have been converted based on average exchange rates rather than the prevailing exchange rate applicable at the reporting date.

<sup>40</sup> The FX rates used for conversion to local currency (for all charts) are listed in Appendix H.

<sup>41</sup> Ibid.

Japan

FIGURE 47: REPORTED EV OF JAPANESE INSURANCE OPERATIONS, 2018-2022<sup>42</sup>

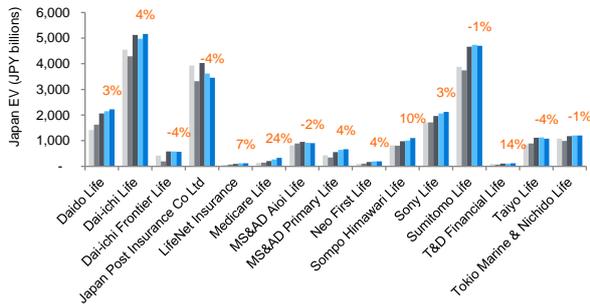


FIGURE 48: REPORTED ANW<sup>43</sup> OF JAPANESE INSURANCE OPERATIONS, 2018-2022

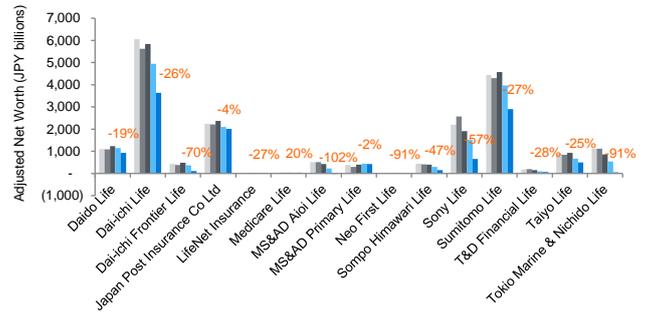


FIGURE 49: REPORTED VIF<sup>44</sup> OF JAPANESE INSURANCE OPERATIONS, 2018-2022

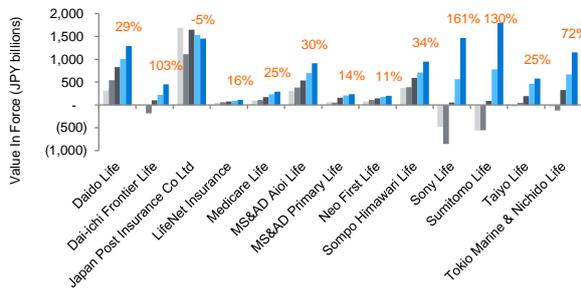


FIGURE 50: REPORTED VIF/ANW SPLIT OF JAPANESE INSURANCE OPERATIONS, 2022

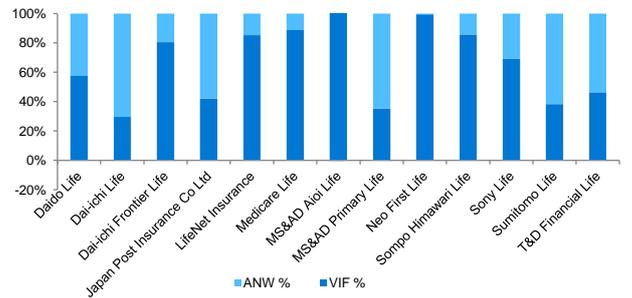


FIGURE 51: REPORTED VNB OF JAPANESE INSURANCE OPERATIONS, 2018-2022

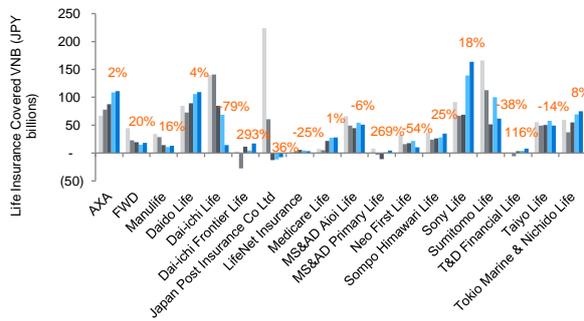


FIGURE 52: REPORTED PVNBP<sup>45</sup> OF JAPANESE INSURANCE OPERATIONS, 2018-2022

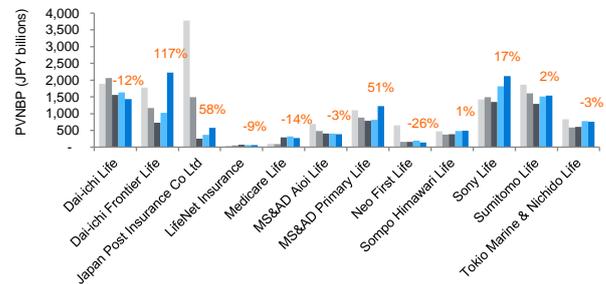
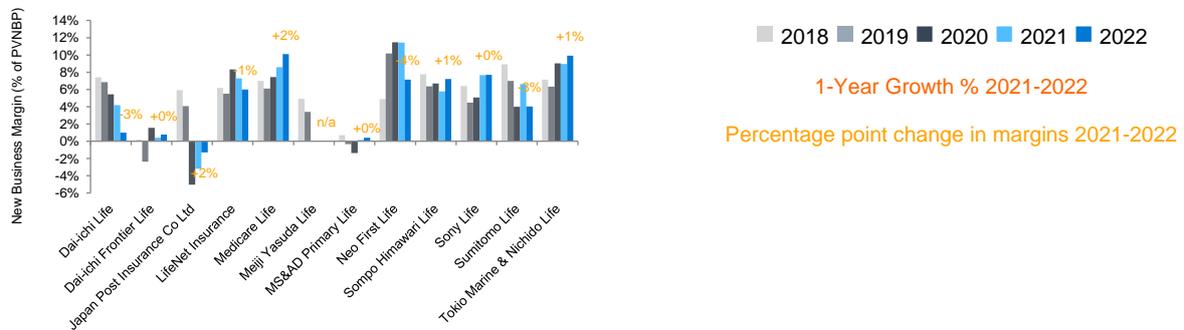


FIGURE 53: REPORTED NEW BUSINESS MARGINS OF JAPANESE INSURANCE OPERATIONS, 2018-2022



<sup>42</sup> Meiji Yasuda Life has replaced EEV with a new indicator Group Surplus, so it has been excluded from the analysis.

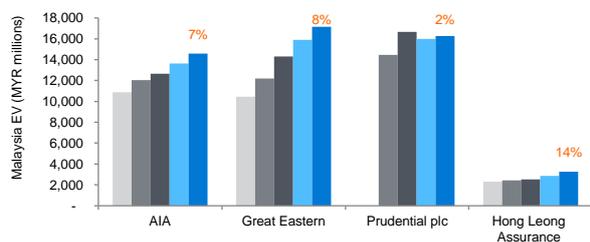
<sup>43</sup> In 2022, Japan Post Insurance Co Ltd and MS&AD Primary Life have included unrealised gains on assets backing liabilities in VIF, instead of ANW.

<sup>44</sup> Ibid.

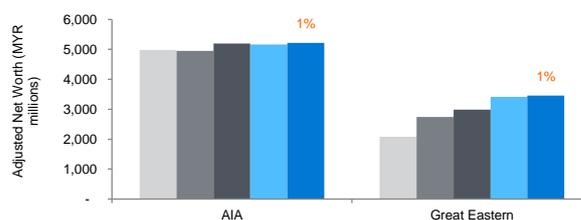
<sup>45</sup> AXA, FWD and Manulife have been excluded from this graph as they do not disclose PVNBP numbers.

## Malaysia

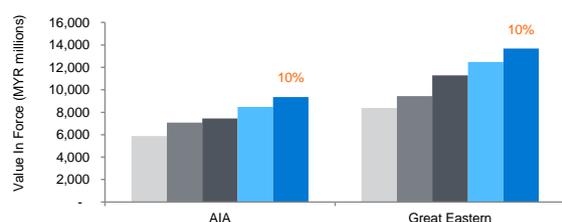
**FIGURE 54: REPORTED EV OF MALAYSIAN INSURANCE OPERATIONS, 2018-2022**<sup>46 47 48</sup>



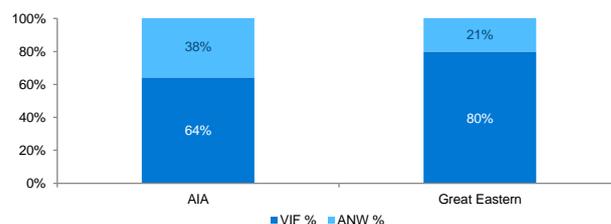
**FIGURE 55: REPORTED ANW OF MALAYSIAN INSURANCE OPERATIONS, 2018-2022**



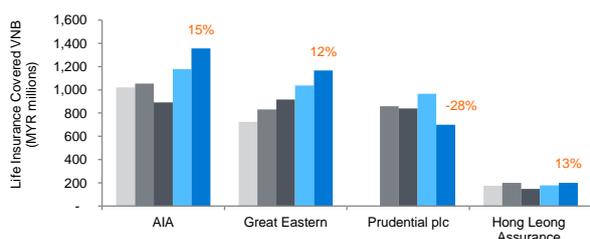
**FIGURE 56: REPORTED VIF OF MALAYSIAN INSURANCE OPERATIONS, 2018-2022**



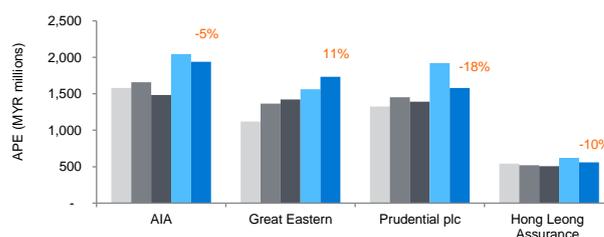
**FIGURE 57: REPORTED VIF/ANW SPLIT OF MALAYSIAN INSURANCE OPERATIONS, 2022**



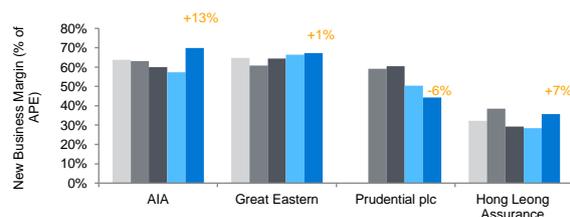
**FIGURE 58: REPORTED VNB<sup>49</sup> OF MALAYSIAN INSURANCE OPERATIONS, 2018-2022**<sup>50</sup>



**FIGURE 59: REPORTED APE<sup>51</sup> OF MALAYSIAN INSURANCE OPERATIONS, 2018-2022**



**FIGURE 60: REPORTED NEW BUSINESS MARGIN OF MALAYSIAN INSURANCE OPERATIONS, 2018-2022**



■ 2018 ■ 2019 ■ 2020 ■ 2021 ■ 2022

1-Year Growth % 2021-2022

Percentage point change in margins 2021-2022

<sup>46</sup> Great Eastern Malaysia's EV (ANW plus VIF) figure includes Great Eastern Takaful Berhad (GETB).

<sup>47</sup> The FX rates used for conversion to local currency (for all charts) are listed in Appendix H.

<sup>48</sup> FY2022 for Hong Leong Assurance (HLA) Malaysia represents the financial year ending 30 June 2022.

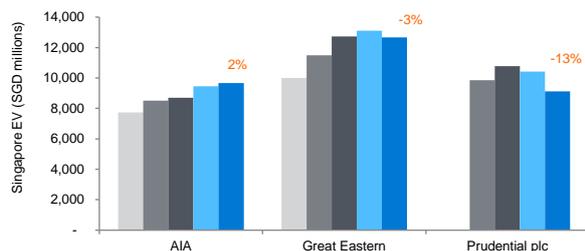
<sup>49</sup> AIA's VNB and APE figures exclude pension business. For HLA, APE has been calculated.

<sup>50</sup> Great Eastern Malaysia's VNB figure excludes GETB.

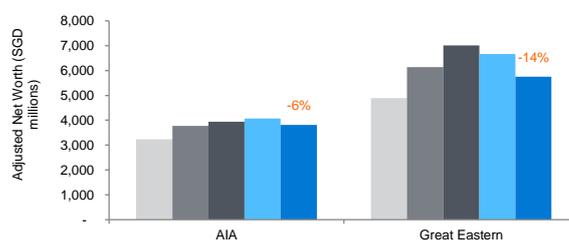
<sup>51</sup> The values have been determined based on APE reported in EV disclosure converted to local currency using the prevailing exchange rate applicable at each reporting date (2018, 2019, 2020, 2021 and 2022). These figures are different from the disclosed APE for AIA and Great Eastern Malaysia in local currency terms due to exchange rate differences as APE presented in EV disclosures have been converted based on average exchange rates rather than the prevailing exchange rate applicable at the reporting date.

## Singapore

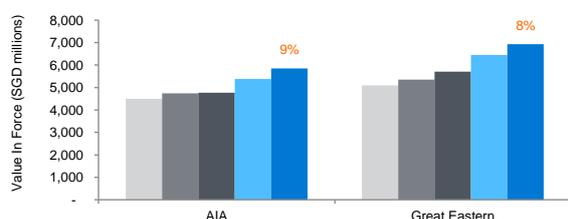
**FIGURE 61: REPORTED EV OF SINGAPOREAN INSURANCE OPERATIONS, 2018-2022<sup>52</sup>**



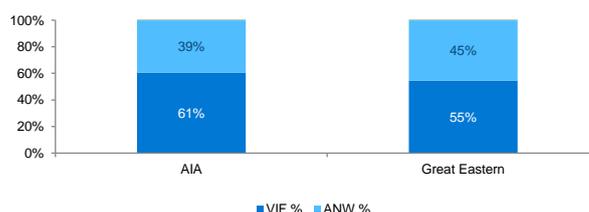
**FIGURE 62: REPORTED ANW OF SINGAPOREAN INSURANCE OPERATIONS, 2018-2022<sup>53</sup>**



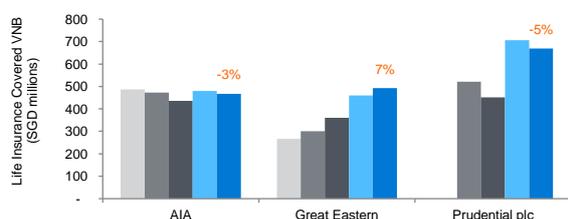
**FIGURE 63: REPORTED VIF OF SINGAPOREAN INSURANCE OPERATIONS, 2018-2022**



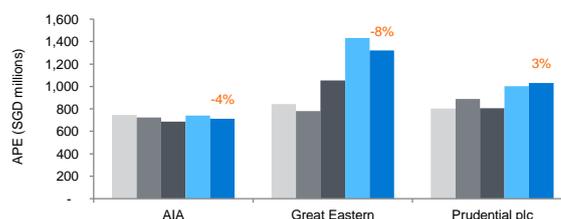
**FIGURE 64: REPORTED VIF/ANW SPLIT OF SINGAPOREAN INSURANCE OPERATIONS, 2022**



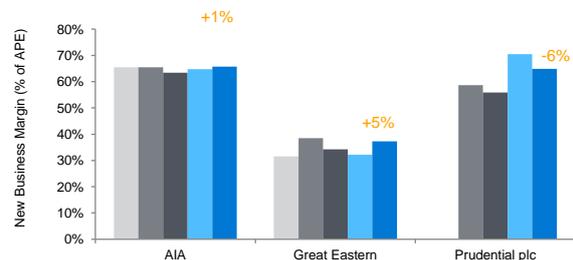
**FIGURE 65: REPORTED VNB OF SINGAPOREAN INSURANCE OPERATIONS, 2018-2022**



**FIGURE 66: REPORTED APE<sup>54</sup> OF SINGAPOREAN INSURANCE OPERATIONS, 2018-2022**



**FIGURE 67: REPORTED NEW BUSINESS MARGIN OF SINGAPOREAN INSURANCE OPERATIONS, 2018-2022**



■ 2018 ■ 2019 ■ 2020 ■ 2021 ■ 2022  
 1-Year Growth % 2021-2022  
 Percentage point change in margins 2021-2022

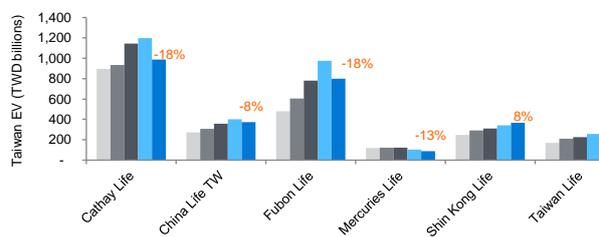
<sup>52</sup> Great Eastern Singapore's EV includes its businesses in Brunei, Hong Kong and Indonesia.

<sup>53</sup> Great Eastern Singapore's ANW includes its businesses in Brunei, Hong Kong and Indonesia.

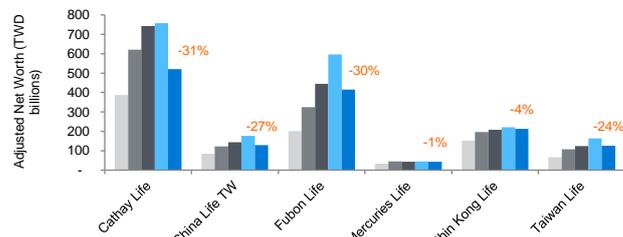
<sup>54</sup> The values shown in Figure 66 have been determined based on APE reported in EV disclosure converted to local currency using the prevailing exchange rate applicable at each reporting date (2018, 2019, 2020, 2021 and 2022). These figures are different from the disclosed APE for Prudential and AIA Singapore in local currency terms due to exchange rate differences as APE presented in EV disclosures have been converted based on average exchange rates rather than the prevailing exchange rate applicable at the reporting date.

## Taiwan

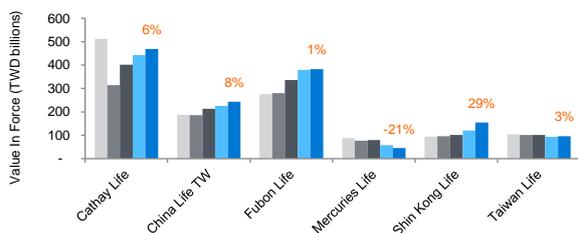
**FIGURE 68: REPORTED EV<sup>55</sup> OF TAIWANESE INSURANCE OPERATIONS, 2018-2022<sup>56</sup>**



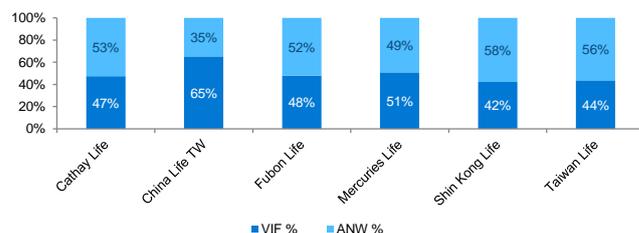
**FIGURE 69: REPORTED ANW OF TAIWANESE INSURANCE OPERATIONS, 2018-2022**



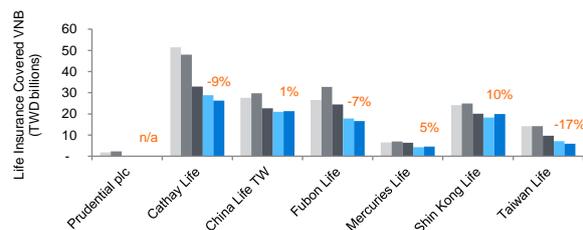
**FIGURE 70: REPORTED VIF OF TAIWANESE INSURANCE OPERATIONS, 2018-2022**



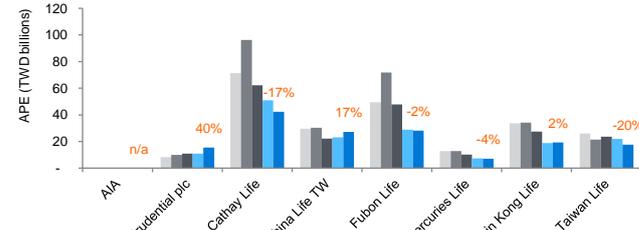
**FIGURE 71: REPORTED VIF/ANW SPLIT OF TAIWANESE INSURANCE OPERATIONS, 2022**



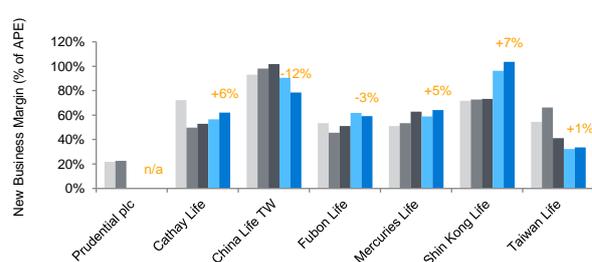
**FIGURE 72: REPORTED VNB OF TAIWANESE INSURANCE OPERATIONS, 2018-2022<sup>57</sup>**



**FIGURE 73: REPORTED APE<sup>58</sup> OF TAIWANESE INSURANCE OPERATIONS, 2018-2022**



**FIGURE 74: REPORTED NEW BUSINESS MARGIN OF TAIWANESE INSURANCE OPERATIONS, 2018-2022**



■ 2018 ■ 2019 ■ 2020 ■ 2021 ■ 2022

1-Year Growth % 2021-2022

Percentage point change in margins 2021-2022

<sup>55</sup> EV, VNB, and APE throughout this section have been converted to local currency using the prevailing exchange rates applicable at each reporting date (2018, 2019, 2020, 2021 and 2022).

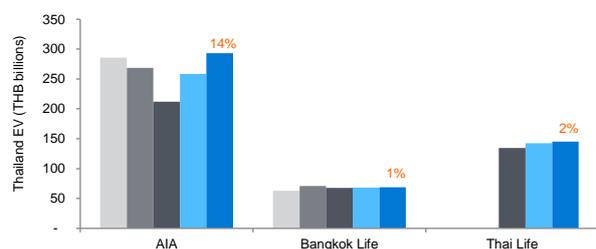
<sup>56</sup> The FX rates used for conversion to local currency (for all charts) are listed in Appendix H.

<sup>57</sup> Prudential plc has not disclosed VNB results for Taiwan for 2020, 2021 and 2022.

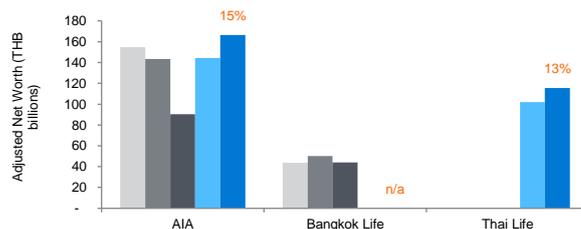
<sup>58</sup> For Cathay Life, China Life TW, Fubon Life, Shin Kong Life, and Taiwan Life, the figures disclosed are based on first-year premium equivalent (FYPE) instead of APE. FYPE = 10% single & flexible premium + 20% x 2-year premium payment term + ... + 50% 5-year premium payment term + 100% 6-year or more premium payment term.

## Thailand

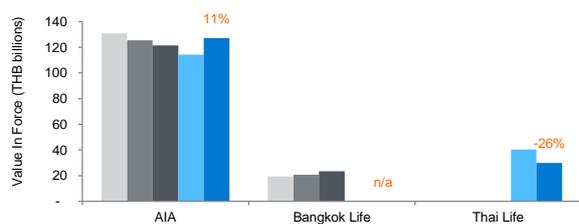
**FIGURE 75: REPORTED EV<sup>59</sup> OF THAILAND INSURANCE OPERATIONS, 2018-2022<sup>60</sup>**



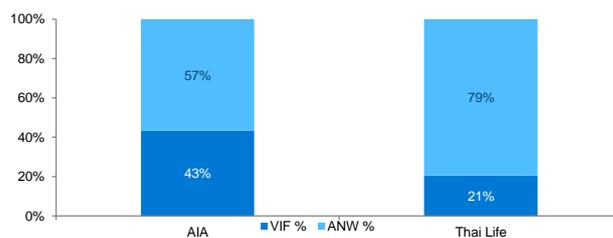
**FIGURE 76: REPORTED ANW OF THAILAND INSURANCE OPERATIONS, 2018-2022**



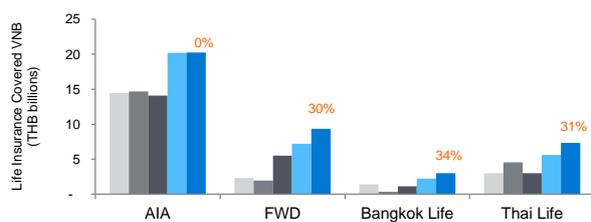
**FIGURE 77: REPORTED VIF OF THAILAND INSURANCE OPERATIONS, 2018-2022**



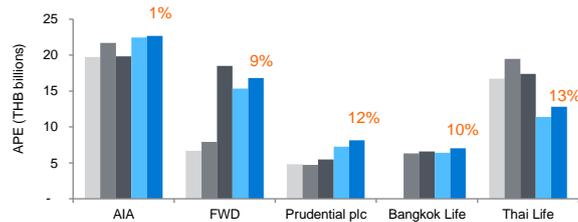
**FIGURE 78: REPORTED VIF/ANW SPLIT OF THAILAND INSURANCE OPERATIONS, 2022**



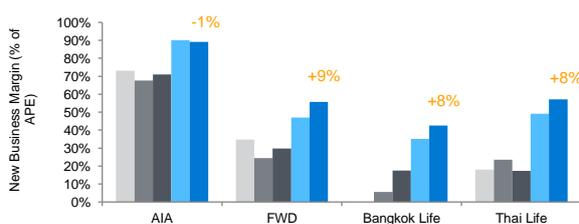
**FIGURE 79: REPORTED VNB OF THAILAND INSURANCE OPERATIONS, 2018-2022**



**FIGURE 80: REPORTED APE OF THAILAND INSURANCE OPERATIONS, 2018-2022<sup>61</sup>**



**FIGURE 81: REPORTED NEW BUSINESS MARGIN OF THAILAND INSURANCE OPERATIONS, 2018-2022**



■ 2018 ■ 2019 ■ 2020 ■ 2021 ■ 2022

1-Year Growth % 2021-2022

Percentage point change in margins 2021-2022

<sup>59</sup> EV, VNB, and APE throughout this section have been converted to local currency using the prevailing exchange rates applicable at each reporting date (2018, 2019, 2020, 2021 and 2022).

<sup>60</sup> The FX rates used for conversion to local currency (for all charts) are listed in Appendix H.

<sup>61</sup> Prudential plc only discloses APE for its Thailand operations.

Vietnam

FIGURE 82: REPORTED EV OF VIETNAM INSURANCE OPERATIONS, 2018-2022

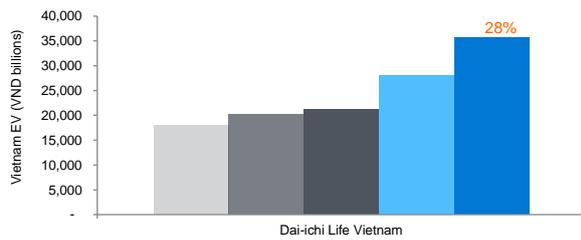


FIGURE 83: REPORTED ANW OF VIETNAM INSURANCE OPERATIONS, 2018-2022

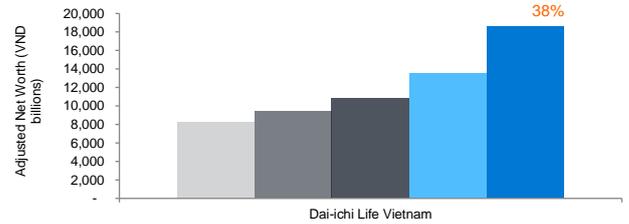


FIGURE 84: REPORTED VIF OF VIETNAM INSURANCE OPERATIONS, 2018-2022

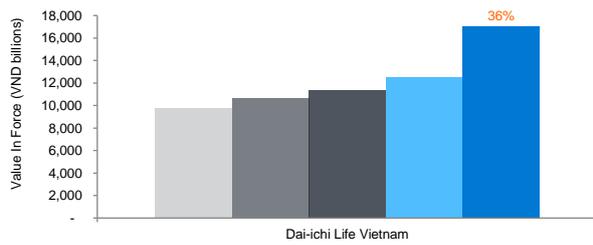


FIGURE 85: REPORTED VIF/ANW SPLIT OF VIETNAM INSURANCE OPERATIONS, 2022

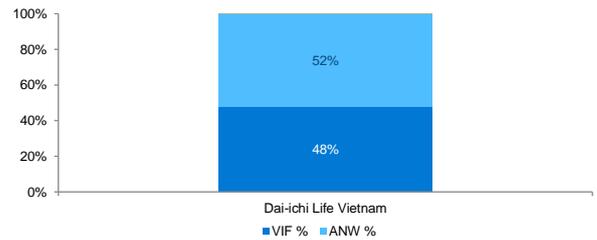


FIGURE 86: REPORTED VNB OF VIETNAM INSURANCE OPERATIONS, 2018-2022

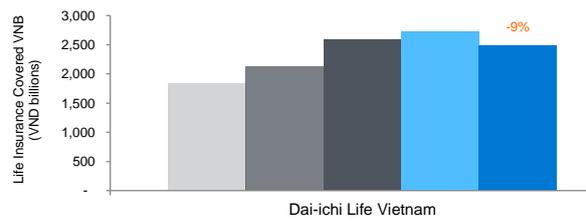


FIGURE 87: REPORTED PVNBP OF VIETNAM INSURANCE OPERATIONS, 2018-2022

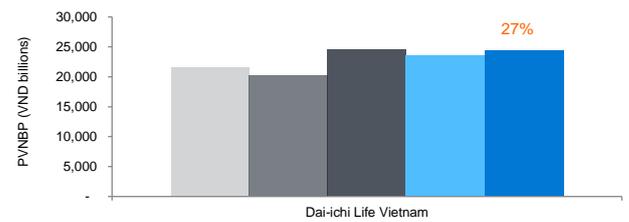
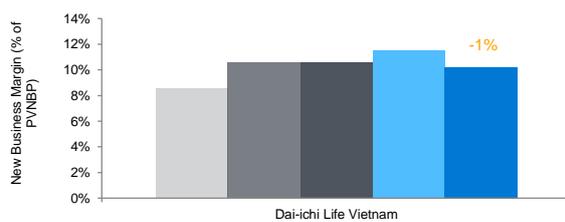


FIGURE 88: REPORTED NEW BUSINESS MARGIN<sup>62</sup> OF VIETNAM INSURANCE OPERATIONS, 2018-2022



■ 2018 ■ 2019 ■ 2020 ■ 2021 ■ 2022

1-Year Growth % 2021-2022

Percentage point change in margins 2021-2022

<sup>62</sup> Dai-ichi Life Vietnam discloses new business margins on a PVNBP basis rather than on an APE basis.

## Appendix D: RDR and investment return assumptions

**FIGURE 89: RDR AND INVESTMENT RETURN ASSUMPTIONS OF MNCS<sup>63</sup>**

COMPANY	EV PRINCIPLE	RDR	INVESTMENT RETURNS
<b>AIA</b>	TEV	China: 9.69%. Hong Kong: 7.46%. Indonesia: 13.09%. South Korea: 8.91%. Malaysia: 8.92%. Philippines (Philam Life): 12.10%. Singapore: 7.27%. Sri Lanka: 21.00%. Taiwan: 7.67%. Thailand: 8.09%. Vietnam: 9.57%.	China: Equities 9.30%, 10Y Gov't Bonds 3.70%. Hong Kong: Equities 7.50%, 10Y Gov't Bonds 3.00%. Indonesia: Equities 12.00%, 10Y Gov't Bonds 7.50%. South Korea: Equities 7.30%, 10Y Gov't Bonds 3.00%. Malaysia: Equities 9.10%, 10Y Gov't Bonds 4.50%. Philippines (Philam Life): Equities 10.80%, 10Y Gov't Bonds 5.80%. Singapore: Equities 7.40%, 10Y Gov't Bonds 2.90%. Sri Lanka: Equities 12.00%, 10Y Gov't Bonds 10.00%. Taiwan: Equities 6.10%, 10Y Gov't Bonds 1.50%. Thailand: Equities 8.20%, 10Y Gov't Bonds 3.20%. Vietnam: Equities 9.30%, 10Y Gov't Bonds 4.00%.
<b>AXA</b>	EEV	Risk-free interest rate curves, allowing for credit risk adjustment and volatility adjustment.	Risk-free interest rate curves, allowing for credit risk adjustment and volatility adjustment.
<b>FWD</b>	TEV	Hong Kong: 7.55%. Japan: 6.00%. Indonesia: 14.00%. Malaysia: 9.00%. Philippines: 12.75%. Singapore: 7.15%. Thailand: 8.75%. Vietnam: 10.75%	Hong Kong: Equities 7.90%, 10Y Gov't Bonds 2.75% (USD), 2.40% (HKD). Japan: 10Y Gov't Bonds 0.25%. Indonesia: Equities 11.50%, 10Y Gov't Bonds 7.50%. Malaysia: Equities 8.79%, 10Y Gov't Bonds 4.00%. Philippines: Equities 11.62%, 10Y Gov't Bonds 5.75%. Singapore: Equities 6.50%, 10Y Gov't Bonds 2.40%. Thailand: Equities 8.95%, 10Y Gov't Bonds 3.20%. Vietnam: Equities 9.70%, 10Y Gov't Bonds 4.00%.
<b>GENERALI</b>	MCEV	Risk-free interest rate curves, allowing for credit risk adjustment and volatility adjustment.	Risk-free interest rate curves, allowing for credit risk adjustment and volatility adjustment.
<b>GREAT EASTERN</b>	TEV	Singapore: 6.00%. Malaysia: 7.75%. Indonesia: 12.50%.	Not disclosed.
<b>MANULIFE</b>	TEV	Hong Kong: 9.75%. Japan: 6.5%.	Hong Kong: Equities 9.50% 10Y Gov't Bonds (immediate to ultimate reinvestment rate): 3.61% to 4.10%. Japan: Equities 6.00% 10Y Gov't Bonds (immediate to ultimate reinvestment rate): 0.41% to 3.36%.

<sup>63</sup> Entries shaded in blue indicate that the 2022 RDR and investment assumptions have not yet been disclosed, and that the assessment has been based on 2021 disclosures instead.

COMPANY	EV PRINCIPLE	RDR	INVESTMENT RETURNS
<b>PRUDENTIAL PLC</b>	EEV	China: 7.40% (NB), 7.40% (IF). Hong Kong: 4.80% (NB), 5.50% (IF). Indonesia: 10.00% (NB), 10.60% (IF). Malaysia: 5.80% (NB), 6.50% (IF). Philippines: 14.50% (NB), 14.50% (IF). Singapore: 5.00% (NB), 5.20% (IF). Taiwan: 3.50% (NB), 4.0% (IF). Thailand: 10.00% (NB), 10.00% (IF). Vietnam: 6.90% (NB), 6.70% (IF).	China: Equities 6.90%, 10Y Gov't Bonds 2.90%. Hong Kong: Equities 7.40%, 10Y Gov't Bonds 3.90%. Indonesia: Equities 11.50%, 10Y Gov't Bonds 7.30%. Malaysia: Equities 7.60%, 10Y Gov't Bonds 4.10%. Philippines: Equities 11.50%, 10Y Gov't Bonds 7.30%. Singapore: Equities 6.60%, 10Y Gov't Bonds 3.1%. Taiwan: Equities 5.30%, 10Y Gov't Bonds 1.30%. Thailand: Equities 7.00%, 10Y Gov't Bonds 2.70%. Vietnam: Equities 9.30%, 10Y Gov't Bonds 5.00%.
<b>ZURICH</b>	MCEV	Risk-free interest rate curves, allowing for volatility adjustment.	Risk-free interest rate curves, allowing for volatility adjustment.

There is a clear divide between the MNCs and domestic insurers when it comes to disclosing long-term investment return assumptions. MNCs typically disclose investment return assumptions on an asset class basis. In contrast, domestic insurers disclose investment returns mostly on a portfolio basis, without much information on the assumed asset mix (although this can often be inferred from their regulatory returns).

FIGURE 90: RDR AND INVESTMENT ASSUMPTIONS OF INSURERS BY MARKET<sup>64 65</sup>

MARKET	COMPANY	EV PRINCIPLE	RDR	INVESTMENT RETURNS
<b>CHINA</b>	<b>Chinese 10-year government bond yield at 31 December 2022: 2.884%</b>			
	AIA	TEV	9.69%.	Equities 9.30%, 10Y Gov't Bonds 3.70%.
	China Life	TEV	10.00%.	Assumed to be 5.00%.
	China Pacific	TEV	11.00%.	Long-term business: 5.00%. Short-term business: based on the latest one-year bank deposit base rate.
	China Taiping	TEV	11.00%.	Assumed to be 4.80% with an increase of 0.05% annually up to 5.00% and thereafter remain unchanged.
	New China Life	TEV	11.00%.	Non-participating, Participating, & Universal Life: 5.00%. New Non-participating: 5.25%. Specific Participating: 5.00%. Specific Non-participating: 5.25%. Unit-linked: 6.00%.
	PICC Life	TEV	10.00%.	5.00%.
	Ping An	TEV	11.00%.	Non-investment-linked: 4.75% in Year 1 and 5.00% thereafter Investment-linked: slightly higher than non-investment-linked.
	Prudential plc	EEV	China: 7.40% (NB), 7.40% (IF).	Equities 6.90%, 10Y Gov't Bonds 2.90%.
<b>HONG KONG</b>	<b>Hong Kong 10-year government bond yield at 31 December 2022: 3.708%</b>			
	AIA	TEV	7.46%.	Equities 7.50%, 10Y Gov't Bonds 3.00%.

<sup>64</sup> Entries shaded in blue indicate that the 2022 RDR and investment assumptions have not yet been disclosed, and that the assessment has been based on 2021 disclosures instead.

<sup>65</sup> Source for the 10-year government bond yields for all markets is <https://www.investing.com>, and yields may differ from those shown in EV disclosures of specific companies.

MARKET	COMPANY	EV PRINCIPLE	RDR	INVESTMENT RETURNS
<b>HONG KONG (continued)</b>	AXA	EEV	Risk-free interest rate curves, allowing for credit risk adjustment and volatility adjustment.	Risk-free interest rate curves, allowing for credit risk adjustment and volatility adjustment.
	FWD	TEV	7.55%.	Equities 7.90%, 10Y Gov't Bonds 2.75% (USD), 2.40% (HKD).
	Manulife	TEV	9.75%.	Equities 9.50% 10Y Gov't Bonds (immediate to ultimate reinvestment rate): 3.61% to 4.10%.
	Prudential plc	EEV	4.80% (NB), 5.50% (IF).	Equities 7.40%, 10Y Gov't Bonds 3.90%.
<b>INDIA</b>	<b>Indian 10-year government bond yield at 31 March 2023: 7.315%</b>			
	Bajaj Allianz Life	MCEV	Risk-free yield curve.	Risk-free yield curve.
	Aditya Birla Sun Life	MCEV	Not disclosed (although expected to be risk-free yield curve given the valuation methodology).	Not disclosed (although expected to be risk-free yield curve given the valuation methodology).
	HDFC Life	IEV	Risk-free yield curve extrapolated beyond 40 years using suitable methodology and adjusted to allow for liquidity premium in case of annuities.	Risk-free yield curve extrapolated beyond 40 years using suitable methodology and adjusted to allow for liquidity premium in case of annuities.
	ICICI Prudential Life	IEV	Risk-free yield curve.	Risk-free yield curve.
	Kotak Life	IEV	Not disclosed (although expected to be risk-free yield curve given the valuation methodology).	Not disclosed (although expected to be risk-free yield curve given the valuation methodology).
	Max Life	MCEV	Risk-free yield curve.	Risk-free yield curve.
	PNB MetLife	IEV	Risk-free yield curve.	Risk-free yield curve.
	Reliance Nippon Life	TEV	Not disclosed.	Not disclosed.
	LIC	IEV	Not disclosed (although expected to be risk-free yield curve given the valuation methodology).	Not disclosed (although expected to be risk-free yield curve given the valuation methodology).
	SBI Life	IEV	Risk-free yield curve.	Risk-free yield curve.
<b>INDONESIA</b>	<b>Indonesian 10-year government bond yield at 31 December 2022: 6.925%</b>			
	AIA	TEV	13.09%.	Equities 12.00%, 10Y Gov't Bonds 7.50%.
	FWD	TEV	14.00%.	Equities 11.50%, 10Y Gov't Bonds 7.50%.
	Great Eastern	TEV	12.50%.	Not disclosed.
	Prudential plc	EEV	NB: 10.00% , IF: 10.60%.	Equities 11.50%, 10Y Gov't Bonds 7.30%.
<b>JAPAN</b>	<b>Japanese 10-year government bond yield at 31 March 2023: 0.324%</b>			
	AXA	MCEEV	Risk-free interest rate curves, allowing for credit risk adjustment and volatility adjustment.	Risk-free interest rate curves, allowing for credit risk adjustment and volatility adjustment.
	FWD	TEV	6.00%.	10Y Gov't Bonds 0.25%.
	Manulife	TEV	6.50%.	Equities 6.00% 10Y Gov't Bonds (immediate to ultimate reinvestment rate): 0.41% to 3.36%.
	Daido Life	MCEV	Risk-free rate (JPY): Based on Japanese Government Bond (JGB) and Ultimate forward rates (UFRs). Risk-free rate (Foreign currencies): Based on government bond yields.	Risk-free interest rate curves.

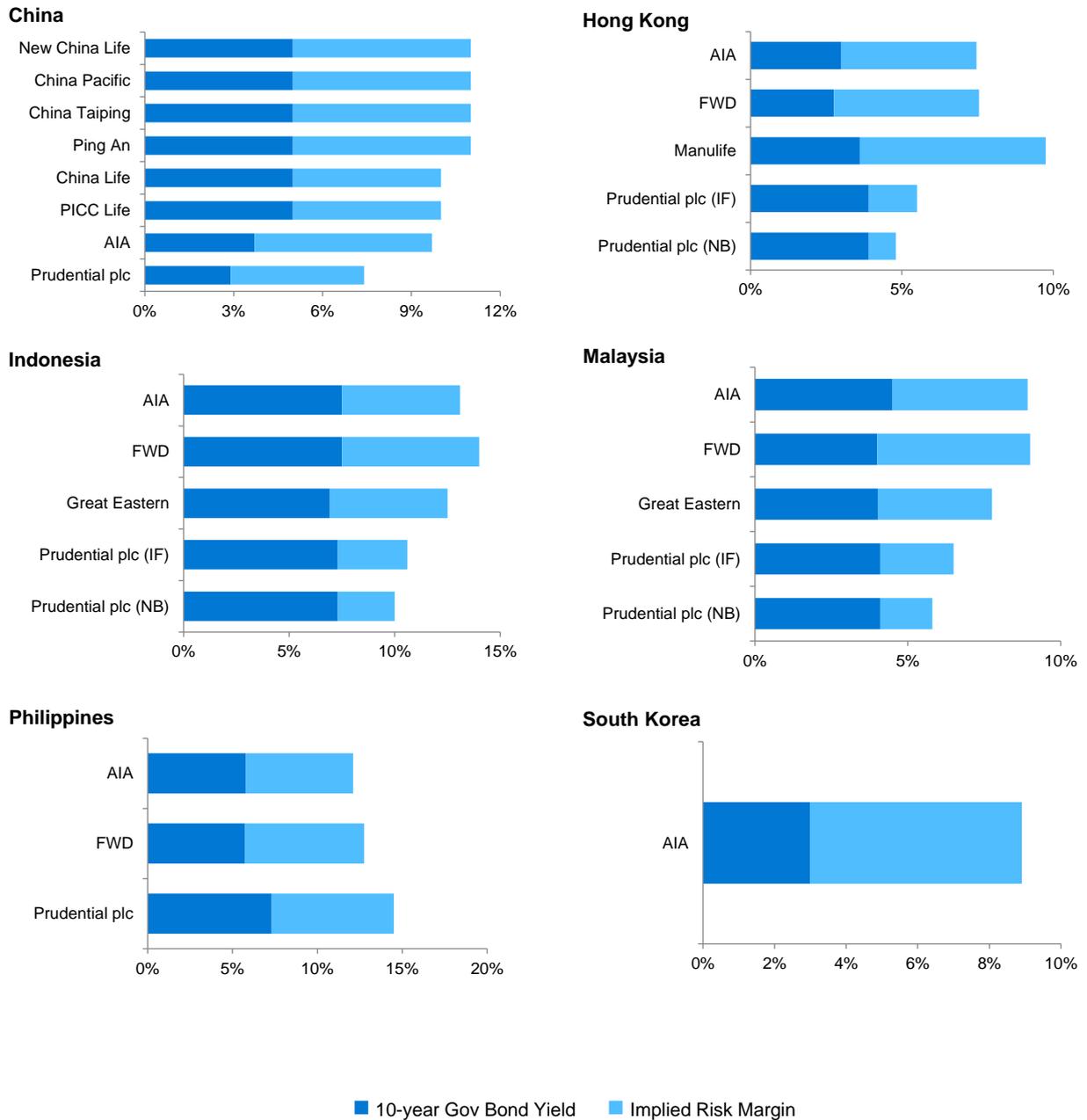
MARKET	COMPANY	EV PRINCIPLE	RDR	INVESTMENT RETURNS
JAPAN (continued)	Dai-ichi Life	MC-EEV	Risk-free rate (JPY): Based on JGB and UFRs.  Risk-free rate (Foreign currencies): Based on government bond yields extrapolated by assuming that forward rates in the 31st year and beyond were equal to those in the 30th year.	Risk-free interest rate curves.
	Dai-ichi Frontier Life	MC-EEV	Total of Risk-free rate (JPY): Based on JGB and UFRs and spread that exceeds risk-free rate considering the assets held.  Total of Risk-free rate (Foreign currencies): Based on government bond yields extrapolated by assuming that forward rates in the 31st year and beyond were equal to those in the 30th year and spread that exceeds risk-free rate considering the assets held.	Total of Risk-free interest rate curves and spread that exceeds risk-free rate considering the assets held.
	Japan Post Insurance Co Ltd	MC-EEV	Risk-free rate (based on JGB and UFRs).	Risk-free interest rate curves.
	LifeNet Insurance	MC-EEV	Risk-free rate (based on JGB and UFRs).	Risk-free interest rate curves.
	Medicare Life	MC-EEV	Risk-free rate (Based on Japanese, U.S., and Australian Government Bond and UFRs).	Risk-free interest rate curves.
	MS&AD Aioi Life	MC-EEV	Risk-free rate: Based on JGB and extrapolated by assuming forward rates in the 41st year and beyond were equal to those in the 40th year.	Risk-free interest rate curves.
	MS&AD Primary Life	MC-EEV	JPY swap rates extrapolated by assuming that forward rates in the 41st year and beyond were equal to those in the 40th year.  Fixed insurance product (JPY, USD and AUD): Total of swap rates (JPY, USD and AUD) and spread that exceeds risk-free rate considering the assets held.	Risk-free interest rate curves.  Fixed insurance product (JPY, USD and AUD): Total of Risk-free interest rate curves and spread that exceeds risk-free rate considering the assets held.
	Neo First Life	MC-EEV	Risk-free rate (JPY): Based on JGB and UFRs.  Risk-free rate (Foreign currencies): Based on government bond yields extrapolated by assuming that forward rates in the 31st year and beyond were equal to those in the 30th year.	Risk-free interest rate curves.
	Sompo Himawari Life	MCEV	Risk-free rate (Based on JGB and UFRs).	Risk-free interest rate curves.
	Sony Life	MCEV	Risk-free rate (Based on Japanese, U.S., and Australian Government Bond and UFRs).	Risk-free interest rate curves.
	Sumitomo Life	MC-EEV	Risk-free rate (Based on Japanese, U.S., and Australian Government Bond and UFRs).	Risk-free interest rate curves.
	T&D Financial Life	MCEV	Risk-free rate (JPY): Based on JGB and UFRs.  Risk-free rate (Foreign currencies): Based on government bond yields.	Risk-free interest rate curves.

MARKET	COMPANY	EV PRINCIPLE	RDR	INVESTMENT RETURNS
<b>JAPAN</b> (continued)	Taiyo Life	MCEV	Risk-free rate (JPY): Based on JGB and UFRs. Risk-free rate (Foreign currencies): Based on government bond yields.	Risk-free interest rate curves.
	Tokio Marine & Nichido Life	MCEV	Risk-free rate (JPY): Based on JGB and 41st year and thereafter are set to the 40-year spot rate adjusted based on historical interest rate movement.	Risk-free interest rate curves.
<b>MALAYSIA</b>	<b>Malaysian 10-year government bond yield at 31 December 2022: 4.015%</b>			
	AIA	TEV	8.92%.	Equities 9.10%, 10Y Gov't Bonds 4.50%.
	FWD	TEV	9.00%.	Equities 8.79%, 10Y Gov't Bonds 4.00%.
	Great Eastern	TEV	7.75%.	Not disclosed.
	Hong Leong Assurance	TEV	Not disclosed.	Not disclosed.
	Prudential plc	EEV	5.80% (NB), 6.50% (IF).	Equities 7.60%, 10Y Gov't Bonds 4.10%.
<b>PHILIPPINES</b>	<b>Philippines 10-year government bond yield at 31 December 2022: 6.981%</b>			
	AIA	TEV	12.10%.	Equities 10.80%, 10Y Gov't Bonds 5.80%.
	FWD	TEV	12.75%.	Equities 11.62%, 10Y Gov't Bonds 5.75%.
	Prudential plc	EEV	14.50% (NB), 14.50% (IF).	Equities 11.50%, 10Y Gov't Bonds 7.30%.
<b>SINGAPORE</b>	<b>Singaporean 10-year government bond yield at 31 December 2022: 3.092%</b>			
	AIA	TEV	7.27%.	Equities 7.40%, 10Y Gov't Bonds 2.90%.
	FWD	TEV	7.15%.	Equities 6.50%, 10Y Gov't Bonds 2.40%.
	Great Eastern	TEV	6.00%.	Not disclosed.
	Prudential plc	EEV	5.00% (NB), 5.20% (IF).	Equities 6.60%, 10Y Gov't Bonds 3.10%.
<b>SOUTH KOREA</b>	<b>South Korean 10-year government bond yield at 31 December 2022: 3.735%</b>			
	AIA	TEV	8.91%.	Equities 7.30%, 10Y Gov't Bonds 3.00%.
	Hanwha Life	TEV	8.00%.	3.30%.
	Samsung Life	TEV	7.50%.	3.63%.
<b>TAIWAN</b>	<b>Taiwanese 10-year government bond yield at 31 December 2022: 1.335%</b>			
	AIA	TEV	7.67%.	Equities 6.10%, 10Y Gov't Bonds 1.50%.
	Cathay Life	TEV	9.50%.	VNB: TWD Products: 2.60% ~ 4.56% (2042+) and USD Products: 5.19% ~ 5.27% (2042+). VIF: TWD Products: 3.78% ~ 4.74% (2042+) and USD Products: 4.43% ~ 5.34% (2042+).
	China Life TW	TEV	9.50%.	TWD Policies: Year 1 ~ Year 19: 2.98% ~ 4.77%. Year 20+: 4.77%. Non-TWD Policies: Year 1 ~ Year 19: 4.45% ~ 5.42%. Year 20+: 5.42%.

MARKET	COMPANY	EV PRINCIPLE	RDR	INVESTMENT RETURNS
TAIWAN (continued)	Fubon	TEV	VNB: 9.00%. VIF: 9.00%.	VNB TWD Traditional Policies: Year 2022 to Year 2041 at 3.68%~4.84% (2042+). USD Policies: Year 2022 to Year 2041 at 4.03%~5.30% (2042+). VIF TWD Traditional Policies: Year 2023 to Year 2046 at 3.37%~4.88% (2047+). USD Policies: Year 2023 to Year 2033 at 3.92%~5.32% (2034+).
	Mercuries Life	TEV	9.50%.	VNB TWD Products: 3.30% ~ 4.85% (2043+) USD Products: 5.40% ~ 6.00% (2026+).. VIF TWD Products: 2.95% ~ 4.70% (2052+). USD Products: 3.20% ~ 6.00% (2049+).
	Prudential plc	EEV	3.50% (NB), 4.00% (IF).	Equities 5.30%, 10Y Gov't Bonds 1.30%.
	Shin Kong	TEV	9.50%.	VNB TWD Products: 3.31% ~ 4.96%. USD Products: 4.61% ~ 5.33%. VIF TWD Products: 2.90% ~ 4.98%. USD Products: 3.87% ~ 5.44%.
	Taiwan Life	TEV	10.00%.	TWD Policies: Year 2022 to Year 2042 at 3.56% ~ 4.09% (2043+). USD Policies: Year 2021 to Year 2042 at 4.31% ~ 5.33% (2043+).
	<b>THAILAND</b>	<b>Thai 10-year government bond yield at 31 December 2022: 2.520%</b>		
AIA	TEV	8.09%.	Equities 8.20%, 10Y Gov't Bonds 3.20%.	
Bangkok Life	TEV	8.30%.	3.75%.	
FWD	TEV	8.75%.	Equities 8.95%, 10Y Gov't Bonds 3.20%.	
Prudential plc	EEV	10.00% (NB), 10.00% (IF).	Equities 7.00%, 10Y Gov't Bonds 2.70%.	
Thai Life	TEV	8.00%.	Equities 8%, 10Y Gov't Bonds 2.7%.	
<b>VIETNAM</b>	<b>Vietnamese 10-year government bond yield at 31 December 2022: 5.037%</b>			
AIA	TEV	9.57%.	Equities 9.30%, 10Y Gov't Bonds 4.00%.	
Dai-ichi Life Vietnam	TEV	10.50%.	Not disclosed.	
FWD	TEV	10.75%.	Equities 9.70%, 10Y Gov't Bonds 4.00%.	
Prudential plc	EEV	6.90% (NB), 6.70% (IF).	Equities 9.30%, 10Y Gov't Bonds 5.00%.	

The charts in Figure 91 compare long-term 10-year government bond yields and RDRs assumed by different companies for each market. The implied risk margin is also illustrated for each company.

**FIGURE 91: ILLUSTRATIVE SPLIT OF ASSUMED RDR INTO 10-YEAR GOVERNMENT BOND YIELDS AND IMPLIED RISK MARGINS<sup>66 67</sup> BY COMPANY<sup>68</sup> FOR EACH MARKET**

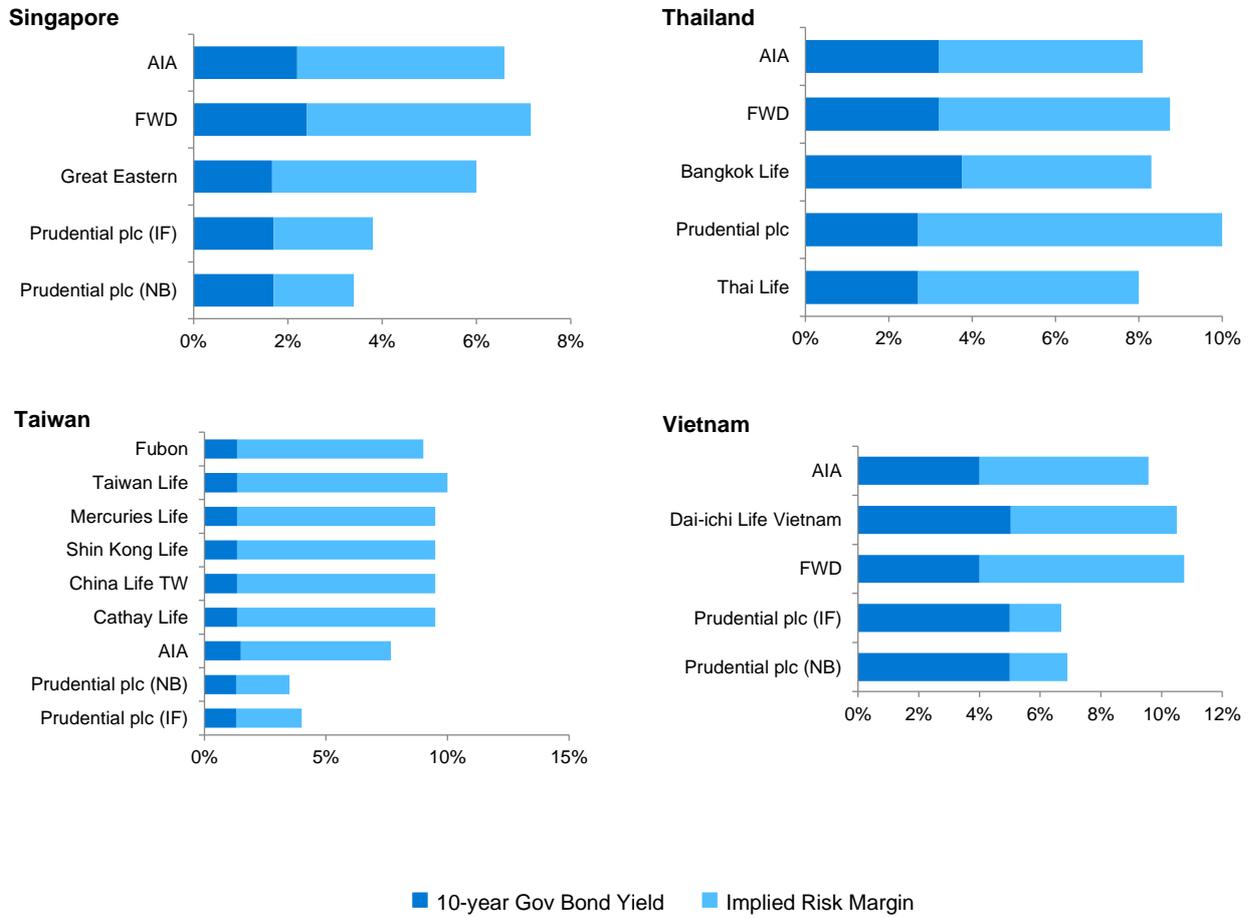


<sup>66</sup> In this case, the risk margin has been defined as the difference between the assumed RDR and the yield on a 10-year government bond as at each insurer's 2022 reporting date.

<sup>67</sup> The 10-year government bond yields have been extracted from <http://www.investing.com> for those companies that have not published the 10-year government yield.

<sup>68</sup> Note that only TEV- and EEV-reporting companies using RDRs have been included in this analysis. Companies reporting on MCEV, IEV, or MC-EEV (i.e., using a discount curve similar to MCEV) bases have not been included. Companies that have not published their EV results in time for this report have also been excluded.

FIGURE 91: ILLUSTRATIVE SPLIT OF ASSUMED RDR INTO 10-YEAR GOVERNMENT BOND YIELDS AND IMPLIED RISK MARGINS BY COMPANY FOR EACH MARKET (CONTINUED)



## Appendix E: Solvency margin requirements

**FIGURE 92: SUMMARY OF SOLVENCY MARGIN REQUIREMENTS BY COMPANY<sup>69</sup>**

CATEGORY	COMPANY	EV METHODOLOGY	REQUIRED CAPITAL
MNC	AIA	TEV	China: 100% of required capital as specified under the CAA EV assessment guidance. Hong Kong: 100% RBC. Indonesia: 120% RBC. Malaysia: 170% RBC. Philippines: 125% RBC. Singapore: Higher of 135% of capital adequacy requirement and 80% of Tier 1 capital requirement under RBC. South Korea: 150% RBC. Sri Lanka: 120% RBC. Taiwan: 250% RBC. Thailand: 140% RBC. Vietnam: 100% minimum SM.
MNC	AXA	SII/EEV	150% for entities outside European Economic Area (EEA) with limitations on soft capital to half of the target solvency capital.
MNC	FWD	TEV	Hong Kong: 100% RBC. Indonesia: 120% RBC. Japan: 600% RBC for FWD Life Japan. Malaysia: 195% RBC. Philippines: 100% RBC for 2020, 125% thereafter. Singapore: 125% of RBC. Thailand: 140% RBC. Vietnam: 100% minimum SM.
MNC	Generali	MCEV	For non-EEA: maximum of 100% of the local regulatory required capital and the Solvency II capital based on Standard Formula, net of the relevant free coverage.
MNC	Great Eastern	TEV	Requirements are based on the RBC framework as set out in local regulations for Singapore and Malaysia.
MNC	Manulife	TEV	China: 100% of the required capital as specified under the C-ROSS II solvency rules prescribed by the CBIRC. Indonesia: 120% RBC. Malaysia: 160% CAR. Philippines: 125% RBC. Singapore: 120% CAR. Vietnam: 100% minimum SM.
MNC	Prudential plc	EEV	Amount at least equal to local statutory notification requirements.
MNC	Zurich	MCEV	At least at the level equal to the regulatory required capital and in addition, an adequate buffer to cover short-term volatilities in solvency due to financial and non-financial risks or to achieve the capital required to maintain the desired credit rating.
CHINA	China Life	TEV	Calculated as specified under the CAA EV assessment guidance.
CHINA	China Pacific	TEV	Calculated as specified under the CAA EV assessment guidance.
CHINA	China Taiping	TEV	100% of the required capital as specified under the C-ROSS II solvency rules prescribed by the CBIRC.
CHINA	New China Life	TEV	100% of the required capital as specified under the C-ROSS II solvency rules prescribed by the CBIRC.
CHINA	PICC Life	TEV	Not disclosed.
CHINA	Ping An	TEV	Not disclosed.
INDIA	Bajaj Allianz Life	MCEV	Not disclosed.

<sup>69</sup> Blue shaded entries indicate that the 2022 required solvency capital information has not yet been disclosed, and that the assessment has been based on 2021 disclosures instead.

CATEGORY	COMPANY	EV METHODOLOGY	REQUIRED CAPITAL
INDIA	Aditya Birla Sun Life	MCEV	Not disclosed.
INDIA	HDFC Life	IEV	170% of RSM less the funds for future appropriations (FFA) in the participating funds.
INDIA	ICICI Prudential Life	IEV	Not disclosed.
INDIA	Kotak Life	IEV	Not disclosed.
INDIA	Max Life	MCEV	180% of RSM.
INDIA	PNB MetLife	IEV	170% of RSM.
INDIA	Reliance Nippon Life	TEV	Not disclosed.
INDIA	LIC	IEV	150% (160% from 1 April 2021) of RSM less the FFA in respect of ULIP business and less the provisions for solvency margin requirements within the policy liabilities/insurance reserves/current liabilities.
INDIA	SBI Life	IEV	180% of RSM.
JAPAN	Daido Life	MCEV	Higher of Japanese regulatory minimum capital requirement (200% SM Ratio) and 133% of economic capital.
JAPAN	Dai-ichi Life	MC-EEV	Capital required to maintain 400% SM Ratio.
JAPAN	Dai-ichi Frontier Life	MC-EEV	Capital required to maintain 400% SM Ratio.
JAPAN	Japan Post Insurance Co Ltd	MC-EEV	Capital required to maintain 600% SM Ratio.
JAPAN	LifeNet Insurance	MC-EEV	Capital required to maintain 500% Japanese Statutory Solvency Margin Ratio.
JAPAN	Medicare Life	MC-EEV	Not disclosed.
JAPAN	MS&AD Aioi Life	MC-EEV	Capital required to maintain 600% Target SM Ratio.
JAPAN	MS&AD Primary Life	MC-EEV	Capital required to maintain 600% Target SM Ratio.
JAPAN	Neo First Life	MC-EEV	Capital required to maintain 400% SM Ratio.
JAPAN	Sompo Himawari Life	MCEV	Capital required to maintain 600% statutory SM ratio.
JAPAN	Sony Life	MCEV	Higher of Japanese regulatory minimum capital requirement (200% SM Ratio) or internal target.
JAPAN	Sumitomo Life	MC-EEV	Not disclosed (market-consistent approach).
JAPAN	T&D Financial Life	MCEV	Higher of Japanese regulatory minimum capital requirement (200% SM Ratio) and 133% of economic capital.
JAPAN	Taiyo Life	MCEV	Higher of Japanese regulatory minimum capital requirement (200% SM Ratio) and 133% of economic capital.
JAPAN	Tokio Marine & Nichido Life	MCEV	Higher of statutory minimum requirement level and internal target.
TAIWAN	Cathay Life	TEV	200% RBC.
TAIWAN	China Life TW	TEV	200% RBC.
TAIWAN	Fubon	TEV	200% RBC.
TAIWAN	Mercuries Life	TEV	200% RBC.
TAIWAN	Shin Kong	TEV	200% RBC.
TAIWAN	Taiwan Life	TEV	200% RBC.
THAILAND	Bangkok Life	TEV	Not disclosed.
THAILAND	Thai Life	TEV	140% CAR.
VIETNAM	Dai-ichi Life Vietnam	TEV	Not disclosed.

## Appendix F: TVOG approaches

**FIGURE 93: SUMMARY OF TVOG APPROACHES<sup>70</sup>**

COMPANY TYPE	COMPANY	OPTIONS AND GUARANTEES	SCENARIOS	USE OF DYNAMIC POLICYHOLDER BEHAVIOUR	CALCULATED TVOG (ASIA VALUE)
MNC	AXA	Market-consistent, stochastic	At least 1,000	Yes	Yes (EUR 53.0 million for VNB)
MNC	Generali	Market-consistent, stochastic	1,000	Yes	Not disclosed
MNC	Prudential plc	Stochastic	Not disclosed	Yes	Not disclosed
MNC	Zurich	Market-consistent, stochastic	1,000	Yes	Yes (USD 24.0 million)
India	Aditya Birla Sun Life	Not disclosed	Not disclosed	Not disclosed	Not disclosed
India	ICICI Prudential Life	Stochastic	Not disclosed	Not disclosed	Not disclosed
India	HDFC Life	Not disclosed	Not disclosed	Not disclosed	Not disclosed
India	SBI Life	Not disclosed	Not disclosed	Not disclosed	Not disclosed
India	Kotak Life	Not disclosed	Not disclosed	Not disclosed	Not disclosed
India	Max Life	Stochastic	5,000	Not disclosed	Not disclosed
Japan	Daido Life	Stochastic	5,000	Yes	Yes (JPY 85.0 billion)
Japan	Dai-ichi Life	Stochastic	5,000	Yes	Yes (JPY 48.4 billion)
Japan	Dai-ichi Frontier Life	Stochastic	5,000	Yes	Yes (JPY 11.4 billion)
Japan	Japan Post Insurance Co Ltd	Stochastic	5,000	Yes	Yes (JPY 159.4 billion)
Japan	Neo First Life	Not disclosed	Not disclosed	Not disclosed	Not disclosed
Japan	LifeNet Insurance	TVOG is zero	Not used	No	Set as NIL
Japan	Medicare Life	Stochastic	5,000	Yes	Yes (JPY 0.4 billion)
Japan	MS&AD Aioi Life	Stochastic	5,000	Yes	Yes (JPY 93.6 billion)
Japan	MS&AD Primary Life	Stochastic	5,000	Yes	Yes (JPY 26.5 billion)
Japan	Sompo Himawari Life	Stochastic	1,000	Yes	Yes (JPY 19.1 billion)
Japan	Sony Life	Stochastic	1,000	Yes	Yes (JPY 125 billion)
Japan	Sumitomo Life	Stochastic	5,000	Yes	Yes (JPY 97.8 billion)
Japan	Tokio Marine & Nichido Life	Stochastic	1,000	Yes	Yes (JPY 134.3 billion)
Japan	T&D Financial Life	Stochastic	5,000	Yes	Yes (JPY 8.4 billion)
Japan	Taiyo Life	Stochastic	5,000	Yes	Yes (JPY 40.6 billion)

<sup>70</sup> Blue shaded entries indicate that the 2022 required TVOG approaches information has not yet been disclosed, and that the assessment has been based on 2021 disclosures instead.

## Appendix G: Total Asian EV by company by territory

FIGURE 94: TOTAL ASIAN EV BY COMPANY (USD MILLIONS<sup>71 72</sup>)

TYPE	COMPANY	EV PRINCIPLE	CHINA	HONG KONG	INDIA	JAPAN	KOREA	MALAYSIA	SINGAPORE	TAIWAN	THAILAND	INDONESIA	PHILIPPINES	VIETNAM	UNALLOCATED	TOTAL
MNC	AIA	TEV	13,089	25,588	-	-	-	3,311	7,209	-	8,479	-	-	-	11,189	68,865
	AXA	EEV	-	-	-	-	-	-	-	-	-	-	-	-	17,816	17,816
	FWD	TEV	-	-	-	-	-	-	-	-	-	-	-	-	6,066	6,066
	Generali	MCEV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Great Eastern	TEV	-	-	-	-	-	3,894	9,459	-	-	-	-	-	-	13,353
	Manulife	TEV	-	-	-	-	-	-	-	-	-	-	-	-	21,011	21,011
	Prudential plc	EEV	3,259	16,576	-	-	-	3,695	6,806	-	-	1,833	-	-	6,688	38,857
CHINA	China Life	TEV	178,102	-	-	-	-	-	-	-	-	-	-	-	-	178,102
	China Pacific	TEV	57,633	-	-	-	-	-	-	-	-	-	-	-	-	57,633
	China Taiping	TEV	31,058	-	-	-	-	-	-	-	-	-	-	-	-	31,058
	New China Life	TEV	36,992	-	-	-	-	-	-	-	-	-	-	-	-	36,992
	PICC Life	TEV	15,020	-	-	-	-	-	-	-	-	-	-	-	-	15,020
	Ping An	TEV	126,614	-	-	-	-	-	-	-	-	-	-	-	-	126,614
INDIA	Bajaj Allianz Life	MCEV	-	-	2,263	-	-	-	-	-	-	-	-	-	-	2,263
	Aditya Birla Sun Life	MCEV	-	-	1,098	-	-	-	-	-	-	-	-	-	-	1,098
	HDFC Life	IEV	-	-	4,814	-	-	-	-	-	-	-	-	-	-	4,814
	ICICI Prudential Life	IEV	-	-	4,340	-	-	-	-	-	-	-	-	-	-	4,340
	Kotak Life	IEV	-	-	1,524	-	-	-	-	-	-	-	-	-	-	1,524
	Max Life	MCEV	-	-	1,981	-	-	-	-	-	-	-	-	-	-	1,981
	PNB MetLife	IEV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Reliance Nippon Life	TEV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	LIC	IEV	-	-	70,908	-	-	-	-	-	-	-	-	-	-	70,908
SBI Life	IEV	-	-	5,607	-	-	-	-	-	-	-	-	-	-	5,607	
JAPAN	Daido Life	MCEV	-	-	-	16,739	-	-	-	-	-	-	-	-	-	16,739
	Dai-ichi Life	MC-EEV	-	-	-	38,865	-	-	-	-	-	-	-	-	-	38,865
	Dai-ichi Frontier Life	MC-EEV	-	-	-	4,246	-	-	-	-	-	-	-	-	-	4,246
	Japan Post Insurance Co Ltd	MC-EEV	-	-	-	26,088	-	-	-	-	-	-	-	-	-	26,088
	LifeNet Insurance	MC-EEV	-	-	-	939	-	-	-	-	-	-	-	-	-	939
	Medicare Life	MC-EEV	-	-	-	2,479	-	-	-	-	-	-	-	-	-	2,479
	MS&AD Aioi Life	MC-EEV	-	-	-	6,839	-	-	-	-	-	-	-	-	-	6,839
	MS&AD Primary Life	MC-EEV	-	-	-	5,005	-	-	-	-	-	-	-	-	-	5,005
Neo First Life	MC-EEV	-	-	-	1,492	-	-	-	-	-	-	-	-	-	1,492	

<sup>71</sup> EV results have been converted at the prevailing USD exchange rate as at the reporting date.<sup>72</sup> Blue-shaded entries indicate that the 2022 EV results have not yet been disclosed as at the data cutoff date of this report.

## MILLIMAN REPORT

TYPE	COMPANY	EV PRINCIPLE	CHINA	HONG KONG	INDIA	JAPAN	KOREA	MALAYSIA	SINGAPORE	TAIWAN	THAILAND	INDONESIA	PHILIPPINES	VIETNAM	UNALLOCATED	TOTAL
JAPAN (CONTINUED)	Sompo Life	MCEV	-	-	-	8,342	-	-	-	-	-	-	-	-	-	8,342
	Sony Life	MCEV	-	-	-	15,975	-	-	-	-	-	-	-	-	-	15,975
	Sumitomo Life	MC-EEV	-	-	-	35,384	-	-	-	-	-	-	-	-	-	35,384
	T&D Financial Life	MCEV	-	-	-	953	-	-	-	-	-	-	-	-	-	953
	Taiyo Life	MCEV	-	-	-	8,166	-	-	-	-	-	-	-	-	-	8,166
	Tokio Marine & Nichido Life	MCEV	-	-	-	9,033	-	-	-	-	-	-	-	-	-	9,033
MALAYSIA	Hong Leong Assurance	TEV	-	-	-	-	-	739	-	-	-	-	-	-	-	739
TAIWAN	Cathay Life	TEV	-	-	-	-	-	-	-	32,251	-	-	-	-	-	32,251
	China Life TW	TEV	-	-	-	-	-	-	-	12,136	-	-	-	-	-	12,136
	Fubon	TEV	-	-	-	-	-	-	-	26,068	-	-	-	-	-	26,068
	Mercuries Life	TEV	-	-	-	-	-	-	-	2,912	-	-	-	-	-	2,912
	Shin Kong	TEV	-	-	-	-	-	-	-	11,999	-	-	-	-	-	11,999
	Taiwan Life	TEV	-	-	-	-	-	-	-	7,230	-	-	-	-	-	7,230
THAILAND	Bangkok Life	TEV	-	-	-	-	-	-	-	-	1,990	-	-	-	-	1,990
	Thai Life	TEV	-	-	-	-	-	-	-	-	4,194	-	-	-	-	4,194
VIETNAM	Dai-ichi Life Vietnam	TEV	-	-	-	-	-	-	-	-	-	-	-	1,511	-	1,511

## Appendix H: Exchange rates

**FIGURE 95: EXCHANGE RATES USED IN THE REPORT**

Exchange rate (USD per currency) as at valuation dates:

Currency	31 Mar 2023	31 Dec 2022	31 Mar 2022	31 Dec 2021	31 Mar 2021	31 Dec 2020	31 Mar 2020
<b>CAD</b>	0.7393	0.7386	0.8011	0.7902	0.7955	0.7841	0.7083
<b>CHF</b>	1.0952	1.0818	1.0856	1.0967	1.0618	1.1308	1.0391
<b>CNY</b>	0.1456	0.1447	0.1577	0.1574	0.1526	0.1532	0.1412
<b>EUR</b>	1.0872	1.0732	1.1096	1.1377	1.1743	1.2228	1.1024
<b>GBP</b>	1.2368	1.2102	1.3152	1.3536	1.3798	1.3663	1.2455
<b>HKD</b>	0.1274	0.1280	0.1277	0.1282	0.1286	0.1290	0.1290
<b>INR</b>	0.0122	0.0121	0.0132	0.0134	0.0137	0.0137	0.0133
<b>IDR</b>	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
<b>JPY</b>	0.0075	0.0076	0.0082	0.0087	0.0090	0.0097	0.0093
<b>KRW</b>	0.0008	0.0008	0.0008	0.0008	0.0009	0.0009	0.0008
<b>MYR</b>	0.2261	0.2271	0.2378	0.2400	0.2414	0.2486	0.2318
<b>SGD</b>	0.7521	0.7462	0.7386	0.7415	0.7439	0.7566	0.7034
<b>THB</b>	0.0293	0.0289	0.0301	0.0301	0.0320	0.0333	0.0306
<b>TWD</b>	0.0328	0.0326	0.0349	0.0361	0.0351	0.0356	0.0331
<b>VND*</b>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>USD</b>	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

\* The exchange rate of VND per USD as at 31 March 2023 was 0.0000423443.

Source: <https://www.xe.com>.



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