MILLIMAN REPORT

2018 Embedded Value Results: Asia

Shifting strategies in search of growth

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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 main change from our previous reports is that, starting this year, we are including EV results from Japan within our year-end and mid-year Asian EV reports. We had previously included Japan results within our European reports, given the similarities in market-consistent EV methodologies used in these markets.

Asia's economic growth remained strong in 2018, helping several of the region's emerging markets post positive percentage rises in life insurance gross written premiums for the year. The past year also saw the emergence of various global and domestic economic headwinds, primarily from a shift towards protectionism in many major economies. Growth in EV was positive across almost all Asian markets. New business margins generally continued to increase, especially for those insurers that have successfully reoriented their product strategies from savings to protection business.

Our report compares and contrasts the various different approaches taken to EV reporting across Asian markets and insurers. A further report containing commentary on the reported mid-year 2019 EV results, as well as any 2018 year-end reporting not disclosed in time for this report, will be produced later in the year. A report on shareholder value reporting in Europe will be available in September 2019.

Once again, we would appreciate any feedback you have on our report content and format.

Best regards,

Paul Sinnott
Michael Daly
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Executive summary

BACKGROUND

Asia's economic performance continues to be strong, with 5.5% gross domestic product (GDP[1]) growth recorded for 2018, compared with the overall global GDP growth of 3.6%. India, Vietnam and China posted the highest 2018 GDP growth rates of 7.1%, 7.1% and 6.6%, respectively.

Total estimated gross written premium[2] (GWP) for the markets covered in our report increased by 4% in 2018. China reported the largest increase in GWP of approximately USD 31 billion, while other markets saw similar GWP levels in comparison to the previous year.

Capital regulations continue to evolve throughout Asia. Insurers in China are performing quantitative impact studies for Phase II of China Risk Oriented Solvency System (C-ROSS2), a regulatory initiative to further refine industry capital requirements

The Insurance Regulatory and Development Authority of India (IRDAI) has announced plans to move to a risk-based capital (RBC) regime, although the planned timing of such a move remains uncertain. We expect greater clarity in the coming months as the IRDAI starts the design process, including the selection of consultants.

In Hong Kong, the Insurance Authority (IA) is also in the process of developing a new RBC framework for the industry. Two Quantitative Impact Studies (QIS) have been completed and an additional pilot test (QIS 2.5) was carried out during May and June 2019, on a voluntary basis. The third QIS (QIS 3) is likely to commence in August 2019 and require submission by the end of November 2019. The new RBC framework is expected to be implemented in 2020-21.

The Monetary Authority of Singapore (MAS) has announced that RBC2 will be implemented from 1 January 2020, with parallel runs required for year-end 2018 (this is currently ongoing and insurers were expected to submit their results by 2 July 2019) and year-end 2019.

In Japan, the Financial Services Agency (FSA) has been conducting extensive field tests on a new solvency capital regime. However, given the predominance of Market-Consistent Embedded Value (MCEV) reporting in the market there will be limited impact on EV results (through frictional costs), although the split between required capital and free surplus is likely to change.

The EV methodologies used in the region remain varied, including Traditional Embedded Value (TEV), European Embedded Value (EEV), Market-Consistent Embedded Value (MCEV[3]) and Indian Embedded Value (IEV). As mentioned in last year's report, the number of European multinational corporations (MNCs) reporting EV has reduced, as their parent companies have switched to using Solvency II (SII) as their primary shareholder value reporting metric. Aviva and AXA have stopped publishing EV results but continued to disclose value of new business (VNB) figures. Insurers in China, South Korea and Taiwan continue to report on a TEV basis. In contrast, all insurers in Japan adopt MCEV or a Market-Consistent EEV (MC-EEV) approach. In India, almost all companies[4] that report EV now do so on an IEV or MCEV basis. Reliance Nippon Life is the only company that still reports on a TEV basis.

[1] Real GDP. Sourced from the International Monetary Fund (IMF).

[2] Milliman has estimated market growth rates because not all Asian economies have reported their 2018 total GWPs as at the date of publication of this report. A more precise update will be presented in our report '2018 Mid-Year Embedded Value Results – Asia.' The GWP figures are estimated in USD terms.

[3] The MCEV principles are a copyright of the Stichting CFO Forum Foundation 2008.

[4] Companies covered under this report only.

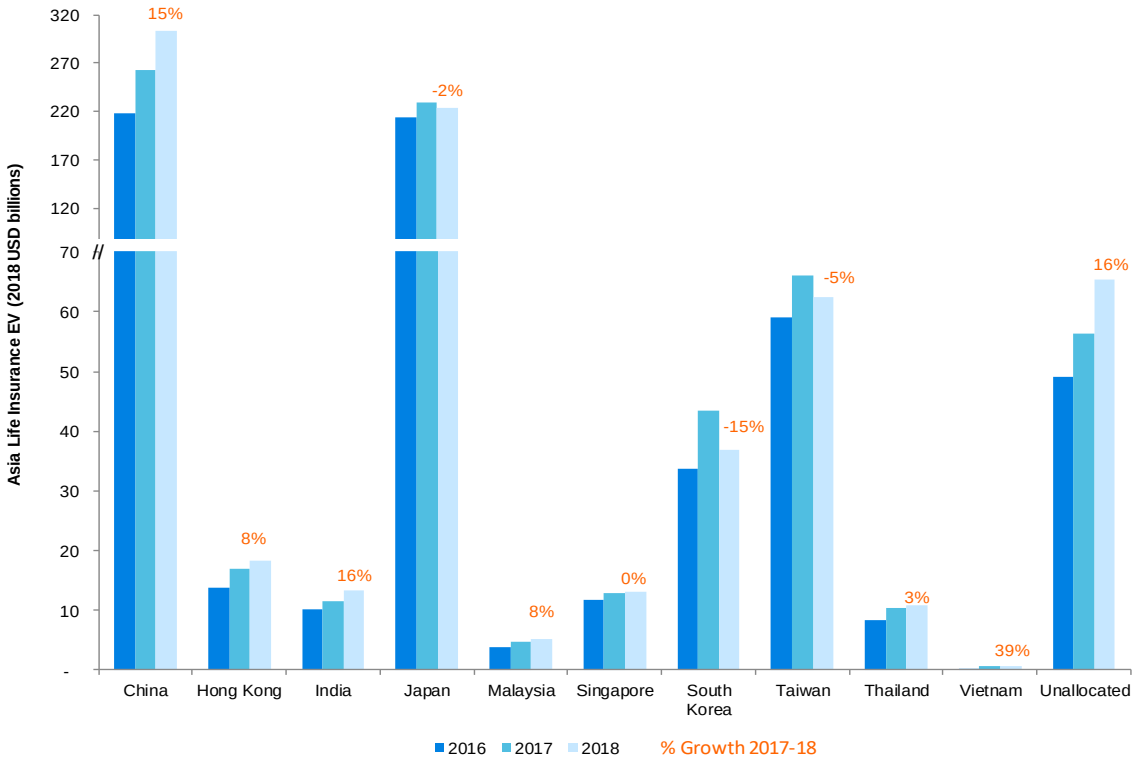
EV RESULTS

This report examines the EV results published by MNCs and domestic insurers within Asia.[5] Our publication on shareholder value reporting in Europe will be released in September 2019.

The scope of this report is limited to EV results directly related solely, or predominantly, to Asian operations. Insurers with a presence in Asia that do not provide separate results for the region are not included in this report. All figures in this section of the report are based on a comparable basis, i.e., comparing only companies that have reported 2016, 2017 and 2018 EV results for Asia.

In 2018, total reported Asian EV grew by 5.3% on a comparable basis[6] to USD 756 billion, up from USD 718 billion in 2017. The companies reporting the largest Asian EV at the 2018 year-end continue to be China Life, Ping An Life and AIA, at USD 116 billion, USD 89 billion and USD 55 billion, respectively.

FIGURE 1: COMPARABLE ASIAN LIFE INSURANCE COVERED EV BY MARKET,[7,8] 2016 TO 2018



Vietnam reported the highest comparable EV growth in 2018 of 39%. However, this is primarily due to its smaller base EV value and because there is only one data point in the market, Dai-ichi Life Vietnam. China and India continue to lead growth in the Asia region. Despite the regulatory clampdown on the sale of high guarantee short-medium term universal life business in China last year, the increased focus on protection business has helped drive positive EV growth. Similarly, in India, increasing sales of protection business is one of the main reasons for the market posting one of the highest EV growth rates in Asia.

[5] For the avoidance of doubt, Asia does not include Australia or New Zealand.

[6] Comparable basis = comparing only companies that have reported 2016, 2017 and 2018 EV results for Asia. For example, Ageas, which discontinued its standalone Asian EV reporting in 2016, is not included in this comparison.

[7] Results for all years have been converted to USD using the prevailing foreign exchange (FX) rate as at the 2018 reporting date to provide comparability and eliminate FX effects.

[8] Unallocated indicates EV figures that are reported by insurers to relate to their Asian operations, but have not been allocated to specific countries.

FIGURE 2: COMPARABLE[9] ASIAN LIFE INSURANCE COVERED ADJUSTED NET WORTH (ANW), 2016 TO 2018

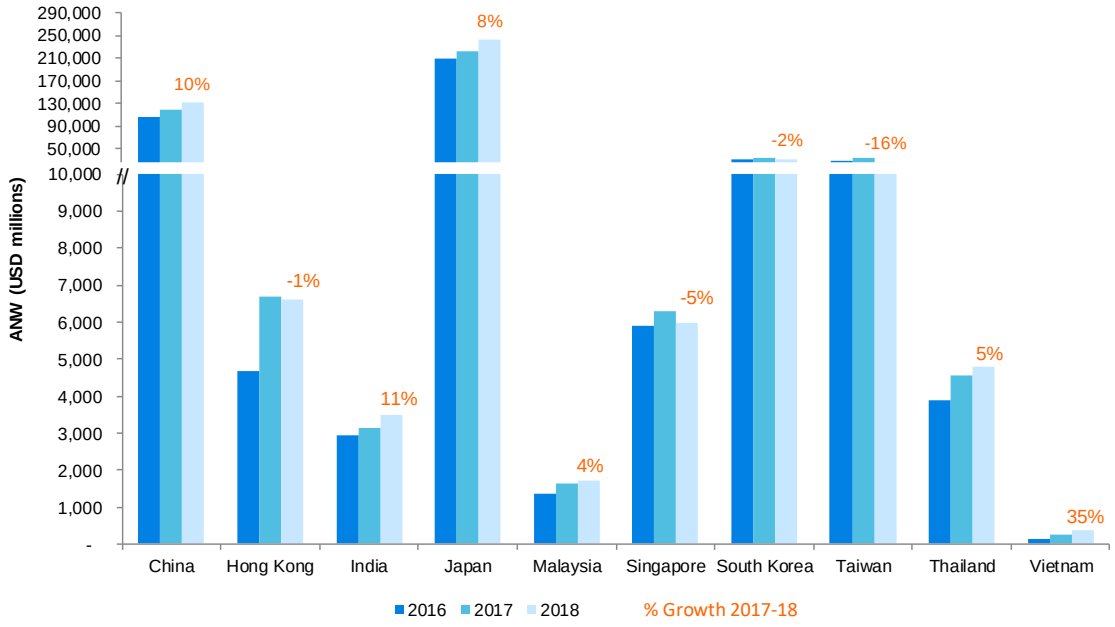
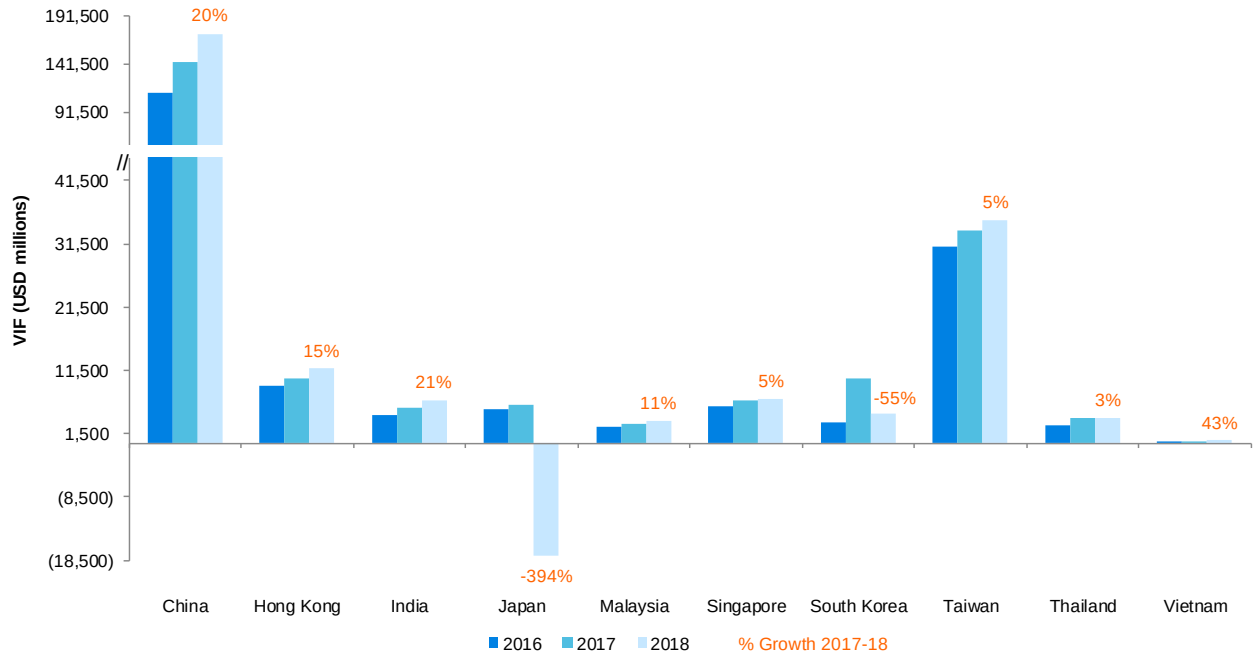


FIGURE 3: COMPARABLE[10] ASIAN LIFE INSURANCE COVERED VALUE OF IN-FORCE (VIF), 2016 TO 2018



Growth in ANW was varied in fiscal year (FY) 2018. Vietnam posted the largest percentage growth in ANW, followed by India and China, while Taiwan reported the biggest fall of 16%.

VIF growth was positive for almost all markets except for Japan and South Korea. Common reasons cited by insurers for increasing VIF results were increased focus on protection products and improved productivity of distribution channels. Insurers in South Korea cited a fall in investment return assumptions as the main reason for their declining VIF results.

[9] Comparable basis = comparing only companies that have reported 2016, 2017 and 2018 EV results for Asia. Insurers that have not yet published their 2018 results as at the data cutoff date include Tahoe Life, Exide Life, DB Insurance and Samsung Fire & Marine.

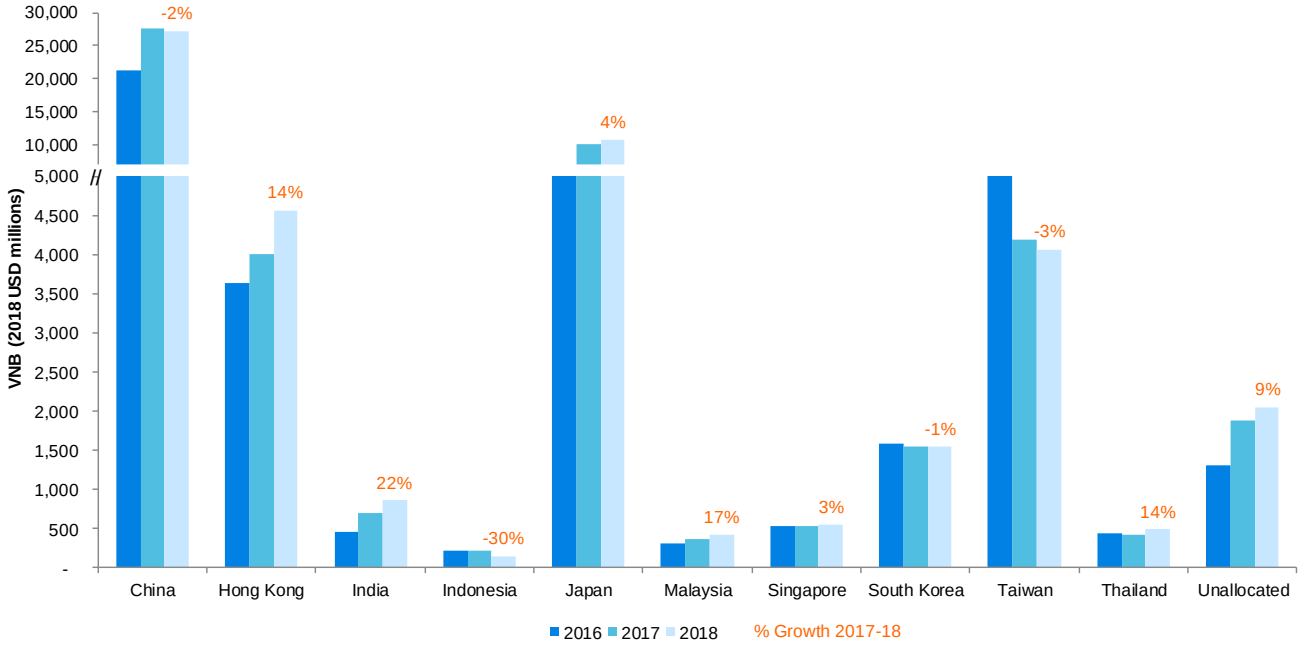
[10] Ibid.

A certain amount of caution must be exercised when evaluating Japanese company embedded values, 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 guarantees (in some cases, in excess of 5%). As a result of these two factors, many companies have a very small (or even negative) VIF compared to the size of the in-force block. On a percentage basis, this VIF is extremely sensitive to changes in interest rate environment. However, due to the use of market-consistent approach, and asset liability management, changes in VIF are often substantially offset by changes in adjusted net worth. As a result, overall EV, though sensitive to changing market yields, is far less sensitive than the individual VIF and ANW components.

NEW BUSINESS RESULTS

Total reported VNB for Asia stood at USD 52.6 billion in 2018, compared with USD 51.8 billion in 2017, representing a growth of 1.5%.[11]

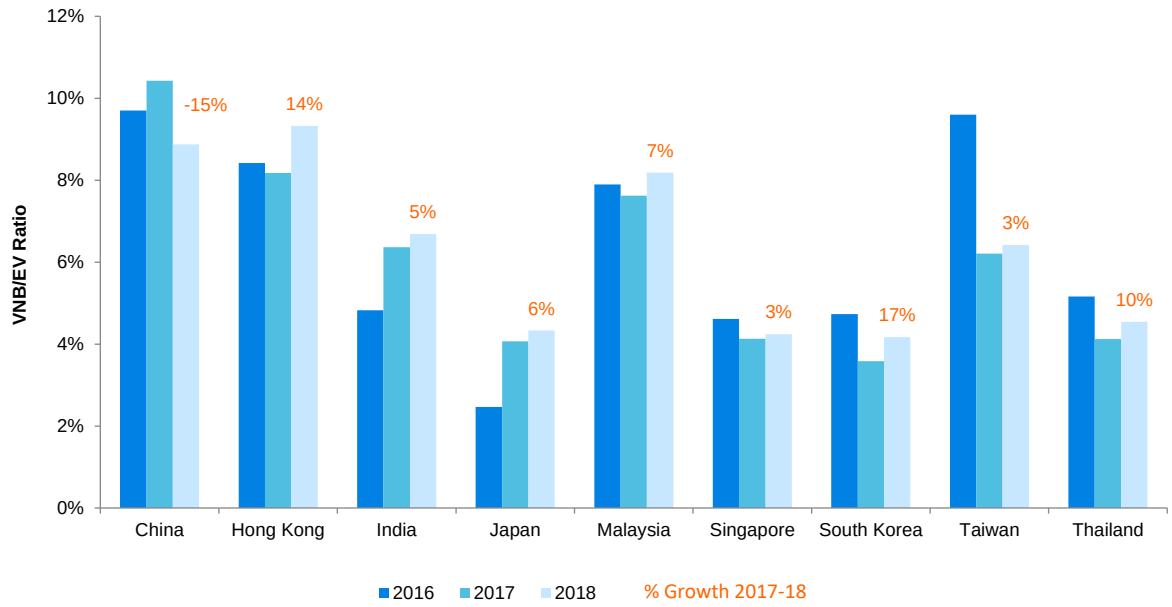
FIGURE 4: COMPARABLE ASIAN LIFE INSURANCE COVERED VNB BY MARKET, 2016 TO 2018



India produced the highest VNB growth, on a constant currency basis, across Asia in 2018; driven primarily by a continued focus on writing profitable protection business. The most common reason cited for Thailand's VNB increase was improvement in agency channel productivity. Indonesia experienced the biggest fall in VNB in USD terms; however, it should be recognised that is only based on one data point, Prudential Indonesia. The insurer cited challenging socioeconomic conditions, compounded by the adverse impact of higher yields, as the reason for declining VNB results. China, South Korea and Taiwan experienced minor reductions in VNB. The decline witnessed in China can be mainly attributed to the significant reduction in VNB reported by China Life of approximately 18%. All other insurers in China reported increasing VNB results. For further details on each country, please refer to the individual country sections in the 'Detailed Market Analysis' section of this report below.

[11] On a comparable basis.

FIGURE 5: VNB/EV RATIO,[12] 2016 TO 2018



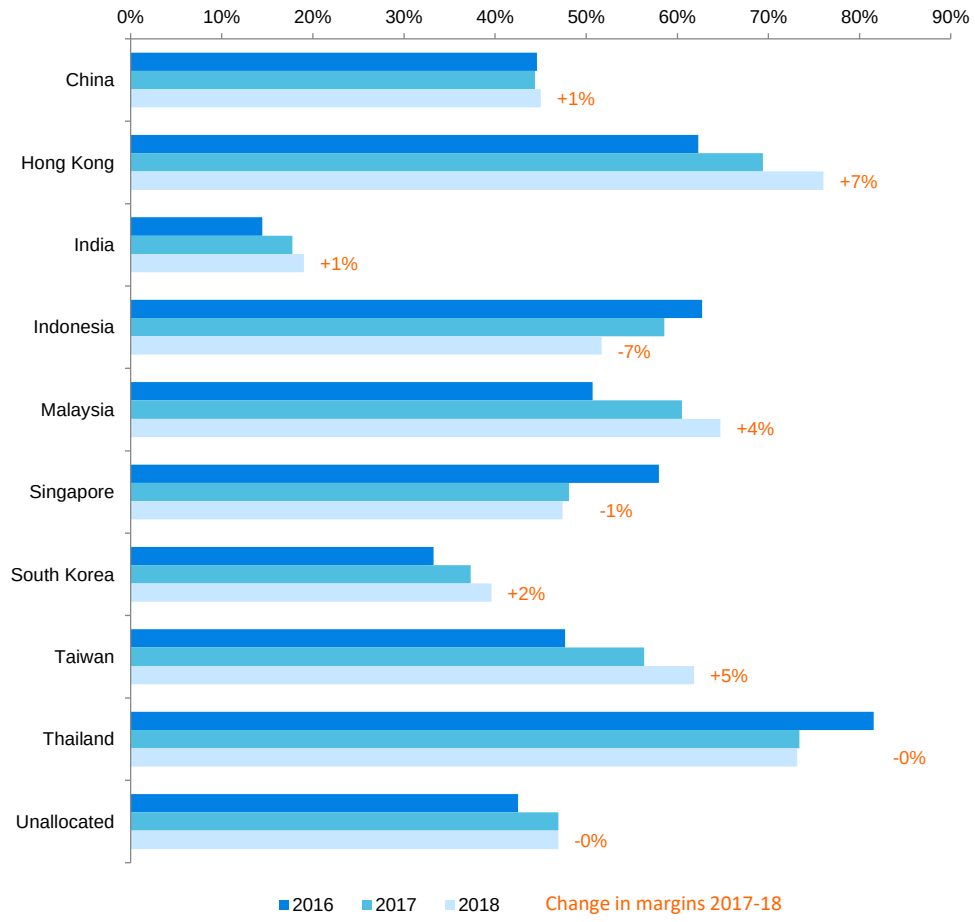
Except for China, all markets saw a rise in VNB/EV ratio over the past year. The developing markets tend to show higher VNB/EV ratios compared with more developed markets.

Thailand witnessed the highest increase in VNB/EV ratio in 2018, primarily as a result of strong new business sales on an annual premium equivalent (APE) basis and lower growth in EV for AIA. South Korea's VNB/EV ratio has increased, but the increase is due to a greater fall in EV compared to a smaller decrease in VNB.

[12] 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.

NEW BUSINESS MARGINS

FIGURE 6: IMPLIED NEW BUSINESS MARGINS[13,14] BY MARKET, 2016-2018



Based solely on companies' EV disclosures, Hong Kong, Taiwan and Malaysia exhibited the highest growth in new business margins in the region, with Indonesia and Singapore posting lower new business margins in 2018. However, as mentioned earlier, the new business margin for Indonesia was only based on one data point, Prudential. The insurer cited adverse impact of higher yields (leading to an increase in risk discount rates) as the cause of decline in new business profitability. Growth in Hong Kong was driven largely by increasing long-term savings and protection product sales. Malaysia's results are based on disclosures by AIA and Great Eastern. AIA launched several new flagship unit-linked and health products in 2018, which helped the company to increase its new business margin by a small amount.

[13] This chart has been developed by taking the sum of all disclosed VNB in each market, divided by the commensurate APE figure sold by these companies in the country. 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 and Thailand, this analysis may not reflect profitability across the whole market. The VNB results will also be a combination of different TEV, EEV and MCEV reported figures in several markets. The following is the breakdown of the companies included by country: China (AIA, Prudential plc, China Life, China Taiping, New China Life, PICC Life and Ping An); Hong Kong (AIA, AXA, Manulife and Prudential Life); India (Aditya Birla Sun Life, ICICI Prudential Life, HDFC Life, Max Life and SBI Life);South Korea (Hanwha Life and Samsung Life); Malaysia (AIA and Great Eastern); Singapore (AIA and Great Eastern); Taiwan (Prudential plc, Cathay Life, Mercuries Life, Shin Kong Life, Taiwan Life and Fubon Life); Thailand (AIA); Indonesia (Prudential plc).

[14] Japan is excluded from this analysis as Japanese insurers do not disclose APE numbers. Instead, they disclose Present Value of New Business Premiums (PVNBP). Figure 57 below compares new business margins calculated using PVNBP numbers for Japanese insurers and is included in the Japan section of 'Detailed Market Analysis' section of this report below.

EV METHODOLOGY HOT TOPICS

Most aspects of EV calculations in Asia are based on established industry practice or published guidelines. However, some critical areas remain open for interpretation. Figure 7 summarises the key areas where insurers' methodologies have diverged significantly in the region. It is important to be aware of these key differences when comparing the EV results of insurers across Asia or within specific markets.

FIGURE 7: SUMMARY OF EV METHODOLOGY HOT TOPICS

HOT TOPIC	COMMENT
Risk discount rate	Aside from IEV, MCEV and MC-EEV reporting insurers, TEV and some EEV reporting firms typically use a risk-free rate plus risk margins to derive their discount rates. A key area of judgement involves the setting of the risk margin. The majority of companies operating within markets typically have a tight range of assumed risk margins, but exceptions do exist. Hong Kong and Taiwan are outlier markets, where the differences between the lowest and highest risk margins can be within the range of 599 basis points (bps) to 705 bps.
Investment return assumptions	Future investment return is a key assumption for calculating VIF and VNB for TEV and EEV reporting companies. Where insurers disclose investment return assumptions by asset classes, the range of assumptions is generally quite narrow. Where portfolio-level assumptions are disclosed, a wide range can be seen in some markets. There is also some divergence among insurers on the implied link between current market yields and future investment return assumptions. Some insurers derive future investment return assumptions from spot bond yields (with risk margins for other asset categories), while others position their investment returns as long-term return assumptions, with increasing divergence from spot bond yields as interest rates have fallen in recent years. The latter approach can potentially introduce some disparity in EV calculations, as insurers take credit in their ANW results for market value uplifts from falling interest rates, but only partially reduce their VIF results as investment return assumptions are not reduced to the same extent as spot yields (or not reduced at all).
Cost of guarantees	Only firms reporting EEV, IEV and MCEV are obligated to calculate the time value of options and guarantees (TVOG). Firms reporting TEV typically only include the intrinsic value of such options and guarantees using their deterministic investment return assumptions but make implicit allowance for TVOG in their choices of risk discount rate.
Expense overruns	The disclosure of expense overruns is critical to communicate the current and expected future situation of the company concerned. However, the disclosure practices of some insurers could be improved to provide greater clarity on the extent and expected trajectory of the overrun, as well as the main reasons for it.
Cost of capital	Insurers need to make assumptions on the future level of required solvency margin when projecting distributable earnings. This is typically based on what insurers perceive to be the minimum level that will prompt regulatory intervention. For most markets, there is broad agreement on this level as a result of clear communication from the regulator or industry precedent. Notable exceptions include Singapore and Malaysia, where different companies will have agreed with the regulator to different minimum levels of regulatory capital. For example, in Singapore, Manulife assumes a minimum level of 200% of risk-based capital whereas AIA Singapore uses 180%. In most markets, the solvency margin is assumed to be above the minimum regulatory level, but most Chinese companies use 100% of the minimum regulatory level for EV purposes, which is in accordance with the China Association of Actuaries (CAA) EV standard of November 2016.[15]

[15] On 22 November 2016, the CAA issued new guidance for embedded value calculations. The new guidance was applied to the EV calculations for AIA China with effect from 30 November 2016. Consistent with prior reporting periods, VNB is calculated as at the point of sale and therefore the new guidance is reflected in the VNB for AIA China with effect from 1 December 2016. The additional Hong Kong reserving and capital requirements continue to apply and therefore there is no material impact of this change to the group's overall results.

RECENT AND UPCOMING REGULATORY CHANGES

EV results by their nature are typically impacted by changes in insurance regulations. Figure 8 provides a summary of some of the major recent or upcoming regulatory changes in the region.

FIGURE 8: SUMMARY OF RECENT AND UPCOMING MAJOR REGULATIONS BY JURISDICTION

JURISDICTION	REGULATION	DESCRIPTION
China	**Foreign direct investment**	In May 2019, the China Banking & Insurance Regulatory Commission (CBIRC) was working on relaxing norms pertaining to foreign companies, allowing more overseas insurers to set up businesses and increase shareholdings in existing joint ventures in China.
	C-ROSS Phase II	Insurers in China are performing quantitative impact studies for Phase II of China Risk Oriented Solvency System (C-ROSS2), with which the regulator hopes to refine industry capital requirements.
	Regulatory intervention	In February 2018, the former insurance regulator China Insurance Regulatory Commission (CIRC) announced that it had officially assumed control of Anbang Insurance Group. China's top regulators, including CIRC, China Securities Regulatory Commission (CSRC) and State Administration of Foreign Exchange (SAFE), have formed a working group to fully take over Anbang's daily management. In February 2019, the insurance regulator announced that it will continue to oversee Anbang Insurance Group for another year.
	Tax-related changes	In May 2019, the Ministry of Finance issued the 'Announcement on the Pre-tax Deduction Policy for the Fees and Commission Expenses of Insurance Enterprises', increasing the allowable handling fees and commission ratio of an insurance company from 10% to 18% of the total premium income in a tax year. Any excess of actual fees and commission expenses above this limit will be allowed to be carried forward to the next year.
Hong Kong	**Risk-based capital regime**	The Insurance Authority (IA) is in the process of developing a new RBC framework for the industry. Two Quantitative Impact Studies (QIS) have been completed. The results from the second study, QIS 2, showed that almost 45% of the insurers participating would be insolvent (i.e., with RBC solvency ratios below 100%) under the QIS 2 draft guidelines. Following the completion of QIS 2, during May and June 2019, the IA carried out an additional pilot test (QIS 2.5), on a voluntary basis, to assess the impact of the revised proposals on volatility adjustment, matching adjustment, Own Assets with Guardrails (OAG), credit spread risk and interest rate risk. The QIS 2.5 results have significantly improved as compared to QIS 2. Most of the participating insurers were financially solvent, mainly driven by the inclusion of a matching adjustment in discounting. The third QIS (QIS 3) is likely to commence in August 2019 and require submission by end of November 2019. The new RBC framework is expected to be implemented by 2021.
	Enterprise risk management (ERM) guidelines	The IA published the Guideline on Enterprise Risk Management (GL21) in early July 2019 following two rounds of industry consultation in May 2018 and January 2019 as a part of the qualitative requirements under the developing RBC framework. GL21 sets out the objectives and requirements on ERM and the Own Risk and Solvency Assessment (ORSA); and provides the impetus for insurers to establish effective tools to identify, monitor, manage and mitigate risks. The guideline shall take effect from 1 January 2020. Authorised insurers would be required to submit their first ORSA reports to the IA for its financial year ending on or after 31 December 2020.
	Regulation of insurance intermediaries	Effective 23 September 2019, the IA will take over from the three self-regulatory organisations (SROs) and will be responsible for all aspects of the regulation of insurance intermediaries in Hong Kong, including granting licenses, conducting inspections and investigations and imposing disciplinary sanctions where applicable.
India	**Changes in product regulations**	On 8 July 2019, IRDAI released regulations on non-linked and linked insurance products which supersede the 2013 regulations. The new regulations offer greater flexibility to insurers in respect of unit-linked plans, pensions plan and annuity plans while tightening minimum surrender value requirements on non-linked plans. The regulations also strengthen with-profits governance. Milliman has published an e-Alert highlighting the key changes in the regulations and discussing the potential business implications for life insurers. The e-Alert is available here.
	Foreign ownership	In the recent budget in July 2019 the Finance Minister announced that the government is considering increasing the foreign equity cap from the current level of 49%.

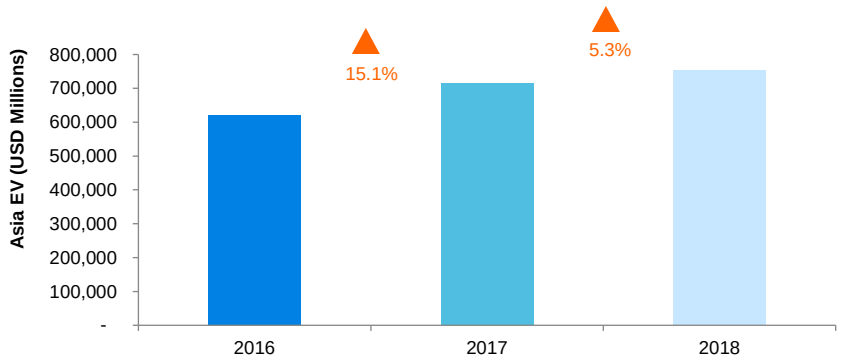
JURISDICTION	REGULATION	DESCRIPTION
Indonesia	**Foreign ownership**	In April 2018 the government formalised the rules pertaining to foreign ownership, both existing and new, for insurance companies. Foreign ownership is capped at 80% of paid-up capital, although the cap is not applicable to publicly listed insurers and privately held insurers where the limit had been exceeded prior to the effective date of the regulation (foreigners had previously been allowed to 'dilute' local partners during capital-raising exercises). In a recent revision to the rule, the Ministry of Finance has proposed that the existing 'grandfathered' companies would be exempted from the 80-20 rule.
	Digital distribution by insurance companies	New legislation covering insurance companies with digital distribution channels was enacted in Q3 2018. The legislation introduces the concept of a 'regulatory sandbox,' which is a testing mechanism to evaluate how reliable business models, processes, financial instruments and operating procedures are. This assessment will last for up to one year but can be extended for a further six months if necessary.
	Syariah companies	The implementation of Syariah window spin-offs continues to be topical amongst the affected industry players. In November 2018, the Financial Services Authority (OJK) noted that 48 insurance companies (comprising 22 life insurers, 24 general insurers and two reinsurers) had not yet spun off their Syariah windows into separate standalone Syariah insurers.
Japan	**Risk-based capital regime**	The existing capital regime in Japan follows a factor-based approach. Due to limitations of the current factor-based approach, the Financial Services Agency (FSA) is contemplating the introduction of an economic value-based solvency regime. The FSA has recently published a brief update on the 2018 FSA Field Test results. The industry capital adequacy ratio (CAR) for life insurance companies increased from 104% as at March 2016 (2016 FSA Field Test) to 141% as at March 2018, primarily due to an increase of equity price.
	Tax	For many years, several Japanese companies have generated significant value through the sale of tax-incentivised Corporate-Owned Life Insurance (COLI) products in the small and medium-size enterprise (SME) market. After mainstream players began to enter this market, sometimes with aggressively designed products, regulators have taken action that will significantly curtail sales of COLI products. While it is a relatively small niche in the context of the overall market, it is nonetheless a significant issue.
Malaysia	**Product guidelines**	In January 2019, Malaysia's insurance regulator Bank Negara Malaysia (BNM), issued a policy document that sets out strengthened requirements on the conduct of unit-linked business with the primary objective to protect the interests of consumers. In April 2019, BNM issued an exposure draft on universal life guidelines. The guidelines are consistent with the investment-linked product (ILP) guidelines, including sustainability requirements and sales illustration rates of 2% and 5%.
	RBC framework	BNM has initiated a review of the current RBC framework, which is expected to be conducted in phases over the next few years. The review is intended to take account of the current insurance and Takaful landscape, as well as developments in global regulatory and accounting standards.
	Tax	The Goods and Services Tax (GST) was zero-rated from 1 June 2018 onwards and has been replaced with the previous Sales and Service Tax (SST) effective 1 September 2019.
Philippines	**Risk-based capital regime**	In March 2018 the Insurance Commission (IC) has made an amendment to the RBC2 framework, allowing reinsurers to set the Margin for Adverse Deviation (MfAD) at 50% and 100% of the company-specific MfAD in year 2018 and 2019 onwards, respectively.
	Distribution of products	The IC issued a circular in January 2018 to strengthen the framework on the use of mobile phones as an alternative distribution channel of insurance products.
	Investment options	In February 2019, the regulator announced a new regulation allowing insurers to invest in state-led infrastructure projects, which it hopes will provide attractive investment options to insurers. The regulation stipulates that any investment in public infrastructure projects will have to be approved by the regulator, and cannot exceed 40% of the overall investment assets of the insurer.
Singapore	**Risk-based capital regime**	After the recent final QIS in July 2019, RBC2 is expected to be effective from 1 January 2020. A key revision to RBC2 is a significant increase in asset risk charges for equities and credit securities, although the impact will be offset by the allowance of diversification and an allowance for negative reserves within the capital calculations.

JURISDICTION	REGULATION	DESCRIPTION
South Korea	**IFRS17/K-ICS**	Given that Korean companies will adopt International Financial Reporting Standard (IFRS) 17 and the South Korean Insurance Capital Standard (K-ICS) from year 2022, they are going through different stages of impact studies and implementation projects. With IFRS17 reporting on the horizon, some companies have stopped reporting EV results to the market, with others likely to follow this trend.
	Policy commissions	The Financial Services Commission (FSC) has come up with a plan to revise insurance policies in order to lower insurance premiums and increase policy surrender payouts. As part of this plan, starting from January 2021, agents will not be paid commissions greater than 12 times the monthly premiums, with a maximum of KRW 1.2 million for an insurance contract with a KRW 100,000 monthly premium.
	Technological innovation	South Korea's insurance companies are focusing on improving their processes and developing various products by working with startup fintech and insurtech companies. The FSC plans to develop comprehensive reform measures in order to stimulate technological innovation in the financial sector and create an ecosystem where fintech startups are unrestricted to experiment with new ideas.
Taiwan	**IFRS17**	Taiwan's Financial Supervisory Commission (FSC) has decided to toughen the regulations for Taiwanese life insurers later this year for the implementation of IFRS17 and to improve low equity-to-asset ratios of insurers. Expected implementation date of the new accounting rules agreed by the Taiwan regulator is January 2025, which is three years behind the international adoption date.
Thailand	**Risk-based capital regime**	A revised risk-based capital framework, known as 'RBC2,' will replace the existing RBC framework. Two quantitative impact studies of the new framework at 95%, 97.5% and 99.5% confidence levels have been carried out by insurers for the Office of Insurance Commission (OIC). The implementation of the framework at the 95% confidence level is expected in the second half of 2019, but the exact implementation details and date of implementation are not known at the time of producing this report.
	ERM and ORSA	Insurance companies will be required to implement ERM and ORSA from 2019 onwards. The requirements are more stringent for Tier 1 companies, i.e., insurers with total asset value of THB 90 billion or more, and for reinsurance companies.
	Developments by OIC	OIC established the Center of Insurtech Thailand (CIT) for research, technological exchange and insurance product development in 2018. The OIC has also circulated two draft regulations that will increase disclosure requirements for all insurers. The draft notifications outline the different types of information that life and non-life insurance companies must disclose, including quantitative and qualitative data on the company's ERM and asset liability management. The objective is to improve comparability of companies within the insurance industry and protect the interests of consumers. For more information, please refer to the Thailand section in the 'Detailed Market Analysis' section in this report below.
Vietnam	**Changes to the legal framework of insurance**	In a proposed amendment to Circular 50 regarding tackling deficits in policyholder funds, the Ministry of Finance (MOF) provided clarification that the assets used to fund these deficits are to be either in cash or deposits coming from the shareholder fund.
	Updates to Valuation Interest Rates (VIR)	With effect from mid-February 2018, the MOF amended its Circular 50 regulation (Point 3.1, Clause 3, Article 18) in respect of the calculation of VIR under the net level premium (NLP) method. The existing VIR basis is updated to 80% of the average yield of government bonds with duration 10 years and longer issued over the past 24 months. Companies will be required to use this new rate for any policies that are issued after 16 February 2019. For policies issued before 16 February 2019, the MOF has prescribed a blended rate, which will help companies to phase into the new VIR basis by 2022. For more information, please refer to the Vietnam section in the 'Detailed Market Analysis' section in this report below.

Introduction and background

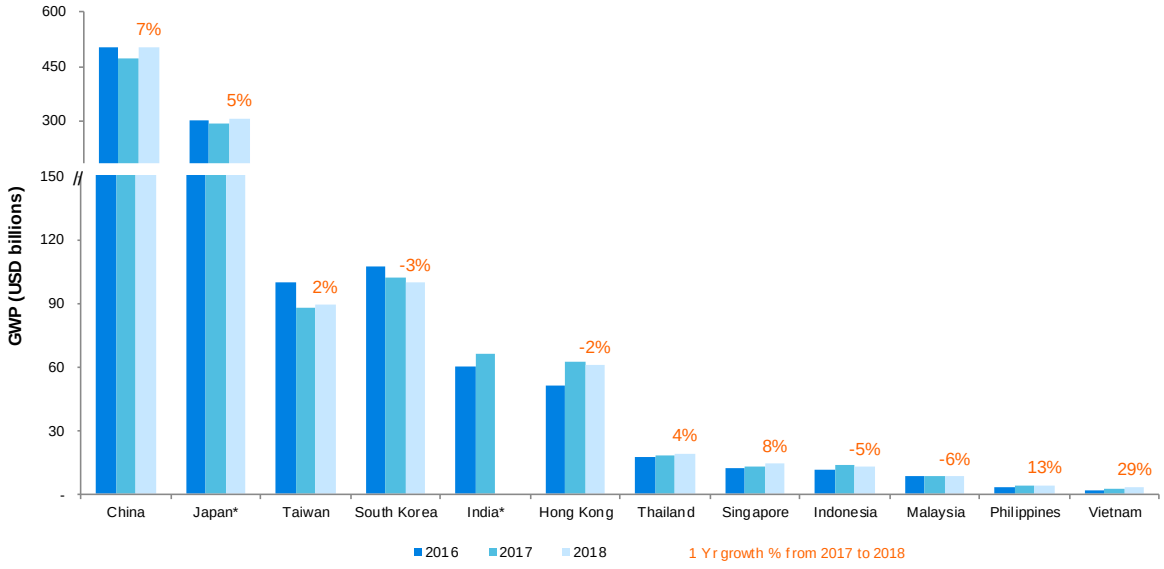
The overall Asian EV results for 2018 show continued growth but at a reduced rate from recent years. Comparing only insurers that have reported 2016 to 2018 EV figures,[16] Asian life insurance EV[17] grew by 5.3% in 2018.

FIGURE 9: REPORTED COMPARABLE ASIA LIFE INSURANCE COVERED EV, 2016-2018



Overall GWP increased on a USD basis (see Figure 10), with APE and new business margins also continuing to rise in most markets (see individual country sections below), helping to fuel the growth in EV. While insurance penetration (see Figure 11) increased for certain markets (e.g., Hong Kong and Vietnam), it declined in others (e.g., South Korea, Taiwan, Singapore). Household income growth continued to increase in USD terms for most markets (see Figure 12). Many Asian equity markets declined during 2018; with the Indian stock market being the notable exception (see Figure 13).

FIGURE 10: LIFE INSURANCE GROSS WRITTEN PREMIUMS IN ASIA[18,19]



* FY2018 GWP for India and Japan was unavailable during the production of this report.

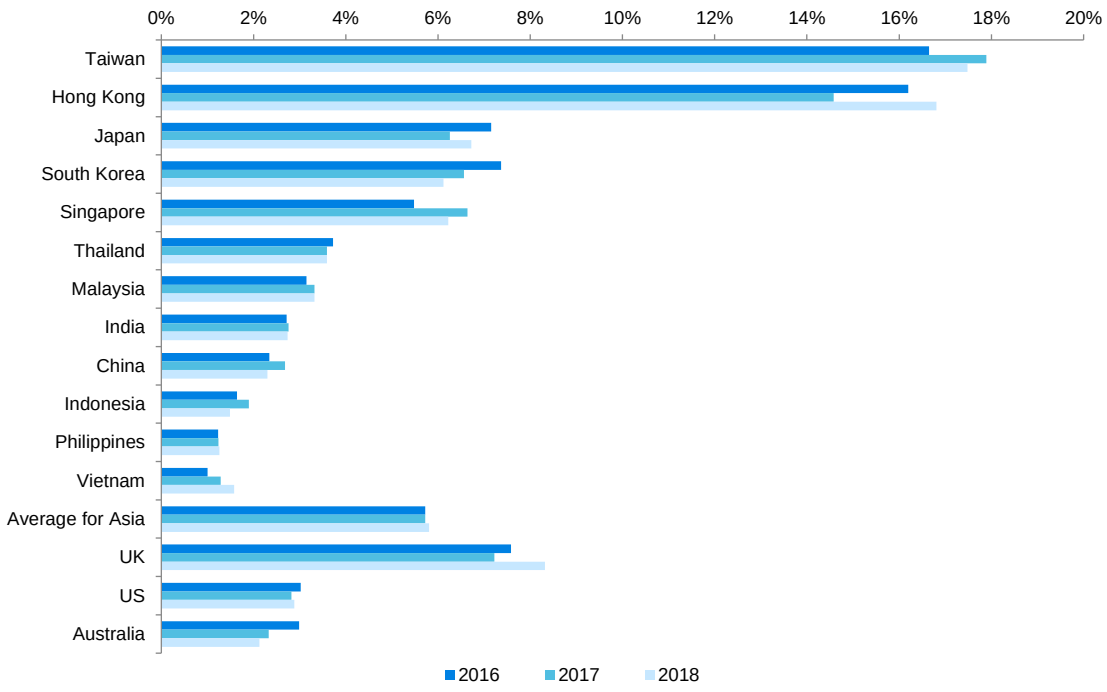
[16] Companies that have not yet disclosed their 2018 EV results have also been excluded in order to provide an appropriate year-to-year comparison. To provide comparability, the EV figures for this chart have been calculated on a constant currency basis, using the FX rate as at each company's 2018 reporting date.

[17] 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, except for long-term insurance written by South Korean general insurance insurers, where EV reporting is available). 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.

[18] Sources: Various life insurance associations and insurance regulators.

[19] GWP for Philippines is based on submitted unaudited quarterly statistics.

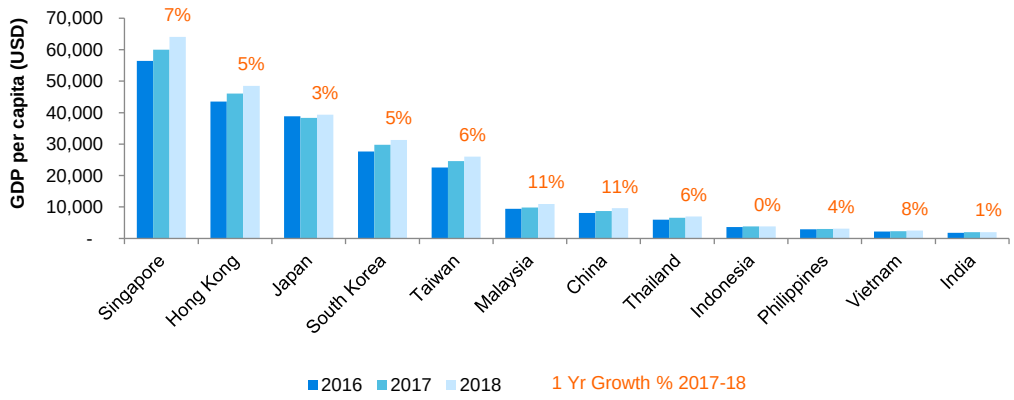
FIGURE 11: ASIAN LIFE INSURANCE PENETRATION,[20,21] 2016-18, % OF GDP PER CAPITA[22]



There was an increase in insurance penetration of about seven basis points over the past year. While insurance penetration increased in some markets, most others posted very small increases or declines. South Korea experienced the biggest decline in insurance penetration, whereas Hong Kong saw the largest increase.

Overall GWP for the markets covered under this report increased on a US dollar basis, driven by rising premiums China, Japan and Taiwan, the three largest markets in Asia. In the near to medium term, China, Japan, South Korea and Taiwan are likely to remain the largest life insurance markets in Asia by GWP, reflecting their large populations, high GDP per capita and high insurance penetration.

FIGURE 12: GDP PER CAPITA[23] OF IN-SCOPE ASIAN MARKETS, 2016-2018



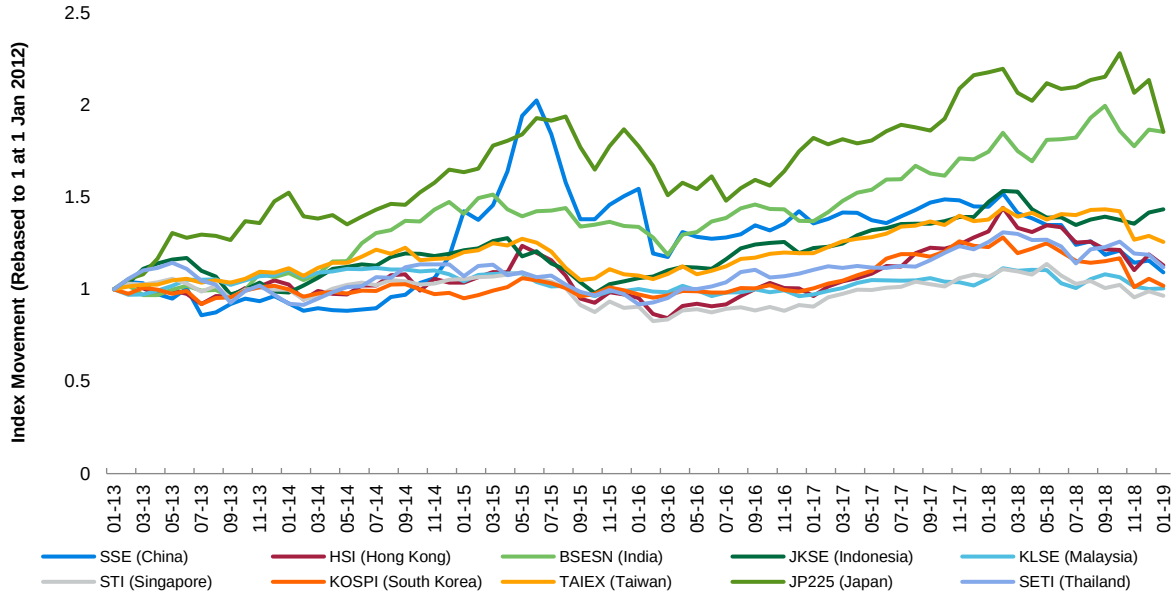
[20] It should be noted that Hong Kong life insurance penetration figures are likely to be distorted by large volumes of business being sold to mainland Chinese visitors.

[21] Note that we have revised the 'Average for Asia' figures as the 2018 report does not provide a consolidated average figure for the Asian region. The report has segregated Asian markets into advanced and emerging markets. The revised figures are a calculated average of life insurance penetration in Asian markets covered under this report.

[22] Source: Swiss Re Sigma.

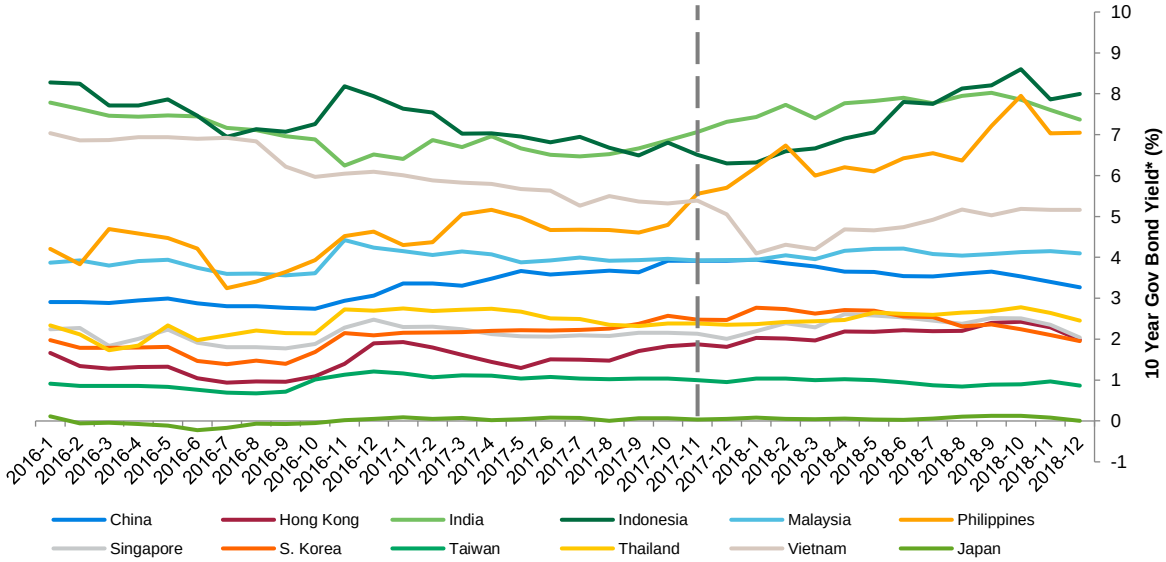
[23] Source: International Monetary Fund, World Economic Outlook Database, April 2019.

FIGURE 13: RECENT EQUITY MARKET PERFORMANCE: GROWTH OF MAJOR EQUITY INDICES[24,25] FROM 1 JANUARY 2013 TO 31 DECEMBER 2018



Overall, in the past five years, the best-performing major equity index in the region has been Japan's Nikkei 225 Stock Market Index, followed by India's Bombay Stock Exchange Sensitive Index (BSE Sensex). However, it is worthwhile to note that at the end of 2018, all equity indices except for BSE Sensex closed at lower levels in comparison to year-end 2017. For the Chinese stock market, 2018 was a particularly difficult year, closing approximately 29% lower than the level at the end of 2017. The ongoing trade war between the US and China continues to disrupt businesses and equity markets in Asia. However, despite rising global trade tensions and increasing prices of crude oil, the Indian stock market was one of the best performers in 2018.

FIGURE 14: 10-YEAR SOVEREIGN BOND YIELDS,[26] 2016-2018



[24] The following stock indices have been used for each country: 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 Index; Taiwan: Taiwan Weighted Index.

[25] Source: Investing.com.

[26] Source: Investing.com.

Asian yield curves moved in different directions during 2018, with Indonesia experiencing the highest increase, and the highest in its 10-year government bond yield, and China experiencing the biggest decline. The weakening of China's 10-year bond yield has been attributed to its slowing economy, impacted by the ongoing trade war with the US. China's industrial production has slowed down and retail sales growth rate fell to its lowest level in more than a decade. Indonesia on the other hand became the highest yielding bond market in Asia, after the 10-year government bond yield closed at 8.05% at the end of 2018. Economists have attributed this to growing investor confidence in the Indonesian government and inflation being within the targeted range.

Overall, emerging markets in Asia are projected to experience favourable growth over the near to medium term. However, maintaining robust economic growth momentum will require several key challenges to be addressed, including:

- Major global economies are aiming to boost exports as protectionist government policies become more common. Many economists believe that continued structural reforms in Asia will be important to mitigate the risks posed by increasing trade protectionism.
- The Organisation for Economic Co-operation and Development (OECD) highlighted the need for Asia to avoid the economic pitfalls of regulations curtailing developments in the financial technology sector. Despite several advancements, including improvements in lending and capital-raising platforms, mobile payments and machine learning tools for managing financial assets, regulatory progress has been uneven and policy gaps related to potential risks remain.[27]

On the regulatory front, RBC-type solvency frameworks are already embedded, or are in the process of being introduced or enhanced, in many Asian markets. China's C-ROSS Phase II, Hong Kong's upcoming RBC framework and Singapore and Thailand's RBC2 enhancements, are in various stages of development, while Malaysia is reviewing its RBC framework and India is planning to move to a RBC regime. These changes will likely impact cost of capital calculations, although it is too early to be definitive about the exact impact, given, in most cases, that the new rules have still not yet been finalised.

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 the local and regional insurers, which almost entirely use TEV. In Japan and India, however, there has been a convergence towards market-consistent methodologies, with more companies adopting the IEV approach in the latter.

In June 2019, the International Accounting Standards Board (IASB) proposed amendments to IFRS17 to alleviate concerns and challenges raised about implementing the standard. The IASB has also proposed to delay the implementation of IFRS17 by one year. Previously, the target effective date for implementation was set as January 2021.

In this publication, we focus on EV results as at financial year-end 2018.[28] In addition to providing an overview of the methodology insurers used and commenting on any new developments, we have included the following current 'hot topics' that insurers may wish to consider when enhancing their EV approaches in the future:

- Determining the risk discount rate
- Setting appropriate investment return assumptions
- Setting appropriate future solvency capital assumptions
- Evaluating the time value of options and guarantees (TVOG)
- Disclosures in EV reporting
- Other measures of value (e.g., market capitalisation, financial reports based on IFRS or GAAP)

Before covering these topics in detail, we provide a high-level overview of the history of EV, the key components of EV calculations and the differences between the various types of EV methodologies.

[27] Economic Outlook for Southeast Asia, China and India 2018 (OECD Development Centre).

[28] For India and Japan, the financial year-end 2018 is 31 March 2019.

Overview of embedded value

The EV of an insurer is intended to be a measure of the value of the shareholders' interests in the business. Over time, various principles and guidance have been issued by industry bodies to achieve consistency among companies and reporting periods within their own governing territories. For example, guidance notes have been issued in the UK, Canada, and the US. The two main sets of guidance currently widely used by European companies and their subsidiaries around the world are the EEV principles and MCEV principles.[29]

Common to all the various EV principles are the following two major components:

1. Value of in-force business (VIF): The discounted future distributable earnings arising from policies in-force as at the valuation date.
2. The adjusted net worth (ANW): The shareholders' net assets, including free surpluses and required capital, i.e., the amount returned to shareholders should all assets be sold and liabilities settled immediately.

The above two items relate purely to existing policies and do not take into account new business potentially written in the future. When the value of future new business (akin to goodwill, representing the ability of the insurer to sell profitable future new business) is added to the two existing components, it results in an appraisal value, a common metric used to assess the overall economic value of insurance companies.

EV reporting is typically only applicable to long-term life, accident/health and group risk insurance business, often referred to as 'covered business.' This is a critical factor to keep in mind, as there are currently no standards or guidance in applying EV to general insurance businesses. Hence, for composite insurers (i.e., those that write general insurance in addition to life insurance), the relationship between market capitalisation and life insurance EV may be weaker than for pure life insurers. In Asia, however, we do have the anomaly that South Korean general insurers are allowed to write long-term insurance business, which would, in most jurisdictions, be categorised as life insurance business. As listed South Korean general insurers produce EV results for their long-term insurance business, we have included them in this report.

In the following section, we present a brief history of EV reporting, its introduction into Asia and current practices.

HISTORY OF EV REPORTING

EV reporting started in the UK in the 1980s as a way for life insurance companies to give better guidance to analysts and shareholders on their underlying economic values. At that time, accounting standards were not fully equipped to handle the unique nature of life insurance businesses, and it was very difficult to use the standard financial statements to assess a life insurer's economic value.

The methodology has since spread globally. Early EV methodologies, using deterministic approaches to value cash flows and implicitly allowing for the cost of policyholder options and guarantees, asset/liability mismatch risk, credit and other risks and the economic cost of capital through the use of a risk discount rate, are often characterised as TEV.

Following some TEV-related criticism in the investment community, a group of leading European insurers, known as the European Insurance CFO Forum (CFO Forum), published more detailed agreements on principles for EV calculations and disclosures in 2004, which formed the basis for what is now referred to as European EV (EEV) methodology. EEV provides more standardisation of definitions, required calculations and disclosures, providing greater comparability among insurers.

The latest evolution in EV reporting came in 2008, with the introduction of the MCEV principles by the same CFO Forum. These principles introduced mandatory market-consistent valuation of assets, liabilities and financial risks, while also introducing more specific disclosure requirements. The CFO Forum had originally intended introducing MCEV as the mandatory standard for its members from 2012 onwards, but this requirement was withdrawn in 2011 pending the development of Solvency II and IFRS.

[29] Formally known as the European Insurance CFO Forum Market Consistent Embedded Value Principles. The MCEV principles are a copyright of the Stichting CFO Forum Foundation 2008.

The prevalence of EV reporting continues to grow among insurers outside of Europe, including those in Canada and Asia. However, the future of EV reporting in Europe is in some doubt since the introduction of Solvency II and developments in IFRS financial reporting. Over the last few years, a number of companies have discontinued EV reporting, citing the new Solvency II regime's market-consistent framework which incorporates best estimate cash flows for assets and liabilities. Some companies have started using new shareholder value metrics, based on Solvency II Own Funds, adjusted for certain features (e.g., contract boundaries, cost of capital, ring-fenced funds restrictions and matching adjustment application restrictions), which are considered by the companies producing these metrics as not being consistent with their economic views.

EV IN ASIA

EV was initially introduced into Asia through the subsidiaries and joint ventures of European companies. Since then, many domestic insurers have introduced EV reporting, with major life insurers in the significant Asian insurance markets now calculating and disclosing EV in some form. There are currently different EV methodologies being used in Asia: domestic insurers outside of India and Asian MNCs tend to report on a TEV basis, while European MNCs and Japanese insurers favour MCEV, EEV[30] or Market Consistent EEV[31] (MC-EEV). A summary of EV methodologies adopted by life insurers across Asia is shown in Figure 15.

FIGURE 15: EMBEDDED VALUE REPORTING STATISTICS BY DOMICILE OF INSURANCE GROUP

GROUP DOMICILE	TEV	EEV	MCEV / IEV	MC-EEV	TOTAL
Asian MNC	2	-	-	-	2
European MNC	-	2	2	-	4
North American MNC	1	-	-	-	1
China	6	-	-	-	6
Hong Kong	1	-	-	-	1
India	1	-	9	-	10
Japan	-	-	6	10	16
South Korea	4	-	-	-	4
Taiwan	6	-	-	-	6
Thailand	1	-	-	-	1
Vietnam	1	-	-	-	1
Total	23	2	17	10	52

Apart from certain European MNCs, the only companies operating in Asia that are reporting Indian EV (IEV) or MCEV are the Indian and Japanese insurers. Several insurers in India, including ICICI Prudential Life, SBI Life and HDFC Life, first adopted IEV during their respective initial public offerings (IPOs). These insurers continue to publish annual EV market disclosures based on the IEV methodology. Other insurers have also followed suit and started to publish their EVs either on an MCEV or an IEV basis.

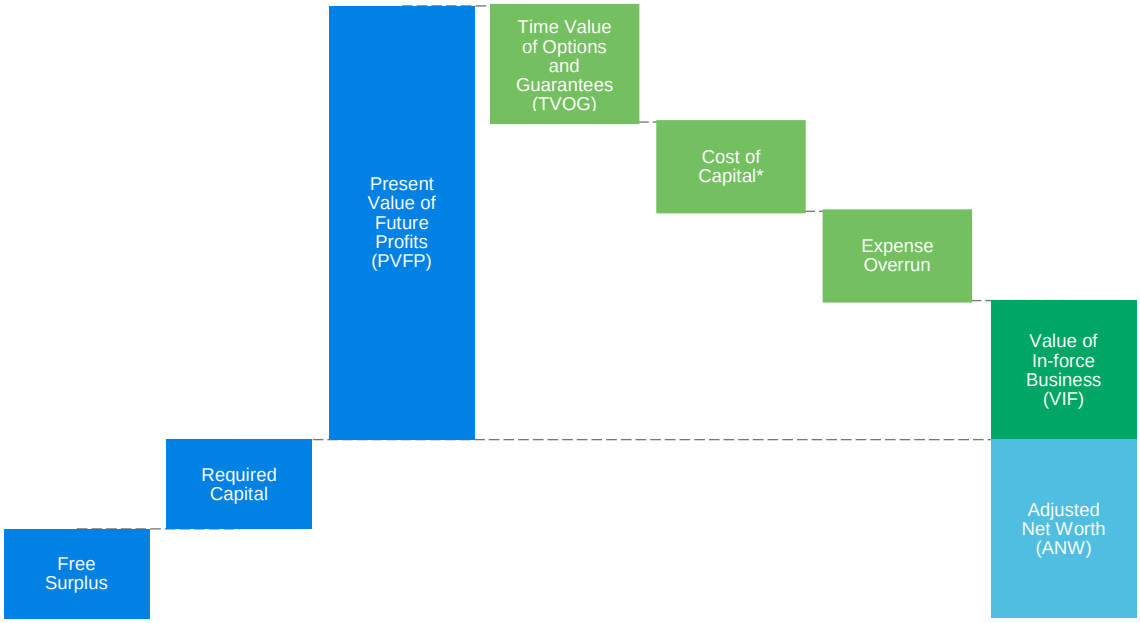
A majority of insurers in the rest of the Asia still use a TEV methodology. The prevalence of so many different EV reporting methodologies across Asia brings major challenges in comparing EV results, making a good understanding of the differences between the methodologies critical. In the next section, we present a brief overview of the primary differences among the three main EV methodologies.

[30] Including AXA and Prudential.

[31] Including Allianz, Aviva and Zurich.

COMPONENTS OF EV

FIGURE 16: COMPONENTS OF EV



The VIF is calculated as the sum of:

- **Present value of future profits (PVFP):** The present value of net (of tax) distributable earnings from existing in-force business and the assets backing the associated liabilities.
- **TVOG:** A requirement for EEV, IEV and MCEV only. This represents the additional value (for policyholders) of financial options and guarantees above the intrinsic value already allowed for in the calculation of the PVFP.
- **Cost of capital (CoC):** Represents the additional cost (to the shareholders) from investing in assets backing the required capital via an insurer relative to the shareholders' required rate of return on these assets.

  For MCEV, this component is further split into:

  - *Frictional cost of capital (FCoC):* This reflects the tax and investment costs that arise on the assets backing the required capital.
  - *Cost of residual non-hedgeable risks (CRNHR):* This is the expected cost of capital related to non-hedgeable risks that can have an asymmetric impact on shareholder value (to the extent that these risks have not already been reflected in the PVFP or TVOG). They can include both financial and non-financial risk, with operational risk being a typical inclusion.

An **expense overrun** is reported by some insurers, particularly for new operations or those in an expansion phase. The expense assumptions underlying EV are normally based on current 'fully allocated' expense levels, but this can cause insurers with fledgling operations that have yet to achieve scale to show seemingly unprofitable businesses. As a consequence, some EV results are presented as 'pre-overrun,' where the EV figures will be calculated based on long-term target expense levels, and as 'post-overrun,' which reflect the current actual expense position. At a company level, the difference between the actual current expense level and the targeted long-term level is commonly referred to as the expense overrun.

The **ANW** is typically calculated as the sum of:

- **Required capital:** Defined as the market value of the undistributable assets attributed to the business over and above that required to back the liabilities for the business. The level of required capital may be set by reference to regulatory capital requirements, levels of capital requirements that achieve a target credit rating, internal model capital requirements or a combination of these factors.
- **Free surplus:** The market value of any assets allocated to, but not required to support, the in-force business as at the effective date of the EV calculation.

Figure 17 summarises the main differences between TEV, EEV and MCEV for each of the above components.

FIGURE 17: COMPARISON OF TEV, EEV AND MCEV

ITEM	TEV	EEV	MCEV
PVFP	Projection of future profits using real-world investment return assumptions, discounted using subjective risk discount rate.	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.
TVOG	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.
Cost of Capital	There is no standardisation of this, but cost of capital 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.
Discount Rate	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.
Expenses	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 startup 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.
Investment Returns	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 US 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 are at, or close to, historic lows, not explicitly allowing for TVOG is an obvious and significant flaw in companies' TEV financial reporting.

INDIAN EV

In 2013, the Institute of Actuaries of India published Actuarial Practice Standard 10 (APS10), 'Determination of the Embedded Value,' establishing a standard for what is now known as Indian EV (IEV). It explicitly takes inspiration from, and is generally commensurate with, the MCEV principles. APS10 provided minimum disclosure requirements for Indian life insurers that are seeking an IPO share flotation.

For voluntary ongoing reporting and disclosures that are not related to an IPO, Indian insurers are free to choose their preferred EV methodologies, with no requirement to adopt IEV. In fact, Indian insurers have chosen almost every variety of EV reporting principles, with IEV, TEV and MCEV all present in the market, although we have started to see a gradual convergence towards market-consistent methodologies (IEV, MCEV) in recent years.

Embedded value results

This section presents EV results under three different lenses:

1. Asia-wide
2. Company by company
3. Detailed market-level

We have also provided a summary of changes in EV/VNB disclosures in the region.

The majority of our commentary is included in the ‘Detailed Market Analysis’ section below.

The values presented in this section relate to EV results for life insurance and other long-term insurance operations in Asia. Because of the way some companies group their business, Asian operations are sometimes included under ‘international’ or ‘emerging markets’ business units, which may include non-Asian operations.

For these 'grouped' business units (i.e., those that include Asian and non-Asian operations), the total value has been included in this report when we believe that most of the value has been generated in Asia.

RECENT UPDATES ON REPORTED DISCLOSURES

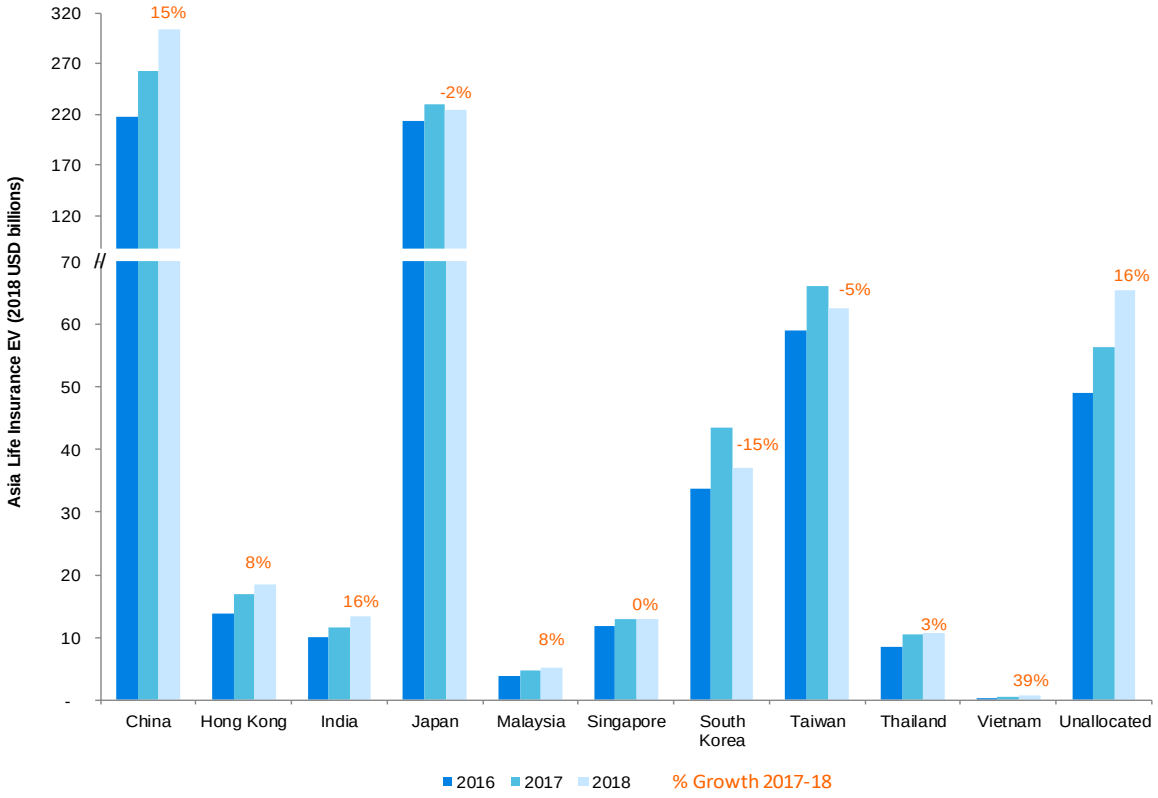
A summary of the changes in company-level disclosures in each market over the past year is provided below:

MARKET	
China	Manulife has not reported EV/VNB results for China this year.
Hong Kong	AXA and Tahoe Life (formerly Dah Sing Life) have not disclosed their EV results.
Indonesia	Manulife has not reported EV/VNB results for Indonesia this year.
Singapore	Manulife has not reported EV/VNB results for Singapore this year.
Thailand	Bangkok Life has not reported ANW, VIF and new business margin this year. Bangkok Life also stopped disclosing its APE numbers in 2016.
Vietnam	Manulife has not reported EV/VNB results for Vietnam this year. Dai-ichi Life has not reported APE results.

EV IN ASIA

In 2018, reported Asian life insurance EV grew by 5.3% on a comparable basis[32] to USD 756 billion, up from USD 718 billion in 2017. The companies reporting the largest Asian EV at the 2018 year-end were China Life, Ping An Life and AIA, at USD 116 billion, USD 89 billion and USD 55 billion, respectively. Figure 18 sets out the total EV growth by market (to the extent that such a breakdown has been disclosed by companies).

FIGURE 18: COMPARABLE ASIAN LIFE INSURANCE COVERED EV,[33,34] 2016 TO 2018



Besides Japan, South Korea and Taiwan, all other Asian markets posted positive EV growth in USD terms in 2018. Vietnam reported the highest comparable EV growth in 2018 of 39%, followed by India with16% growth. However, it is important to note that Dai-ichi Life Vietnam is currently the only company which discloses EV results for Vietnam. South Korea recorded the highest decrease in EV results in 2018 of 15%; most insurers cited reductions in investment return assumptions as the main cause. This is discussed further in the South Korea section below. In Taiwan, all the insurers recorded a significant fall in ANW, while the 2018 VIF numbers changed marginally from those reported in 2017, resulting in an overall decrease in EV.

It should be noted that the results in Figure 18 are based on converting results in local currency to USD using prevailing exchange rates at the same (financial year-end 2018) reporting date for all years, i.e., using a constant currency basis. In contrast, the results shown in the country sections later in the report are based on exchange rates as at the respective valuation dates, and hence may differ.

[32] As at the data cutoff date, some insurers have not yet disclosed their 2018 EV figures. Hence, this chart and subsequent commentary only include insurers that have a complete set of 2016, 2017 and 2018 EV figures. The results of the remaining companies will be included in our '2019 Mid-year Embedded Value Results – Asia' report. The missing companies include Tahoe Life, DB Insurance, Exide Life and Samsung Fire & Marine.

[33] To provide comparability and eliminate FX effects, results for all years have been converted to USD using the prevailing FX rate as at the 2018 reporting date.

[34] 'Unallocated' indicates EV figures that are reported by insurers to relate to their Asian operations, but have not been allocated to specific countries.

FIGURE 19: COMPARABLE ASIAN LIFE INSURANCE COVERED ANW, 2016 TO 2018

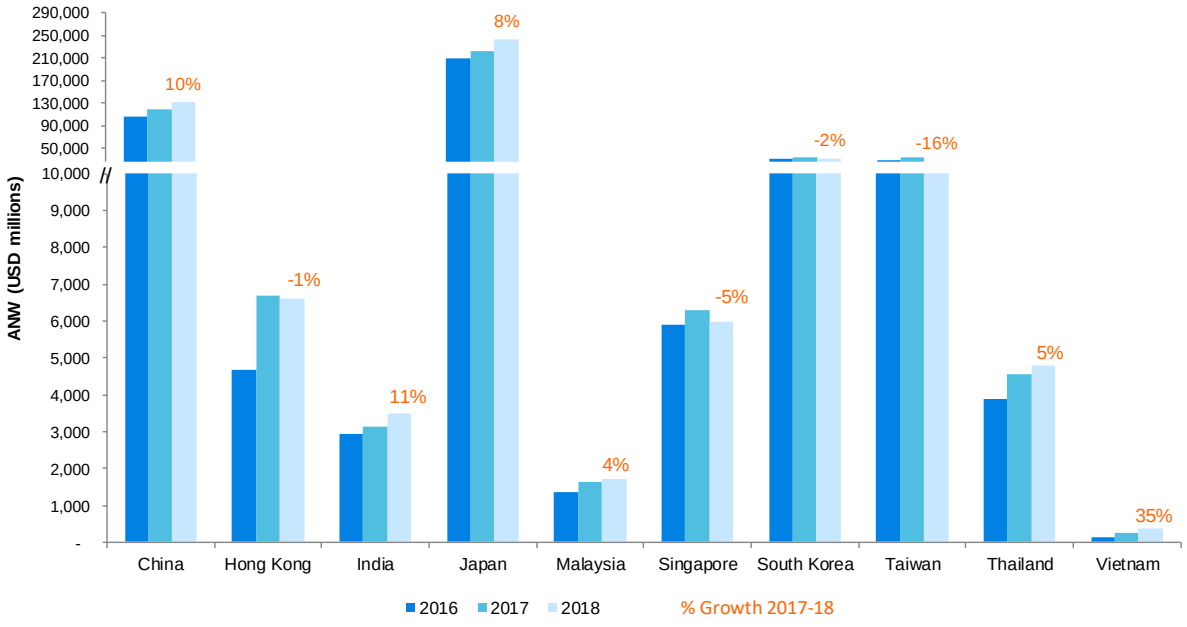
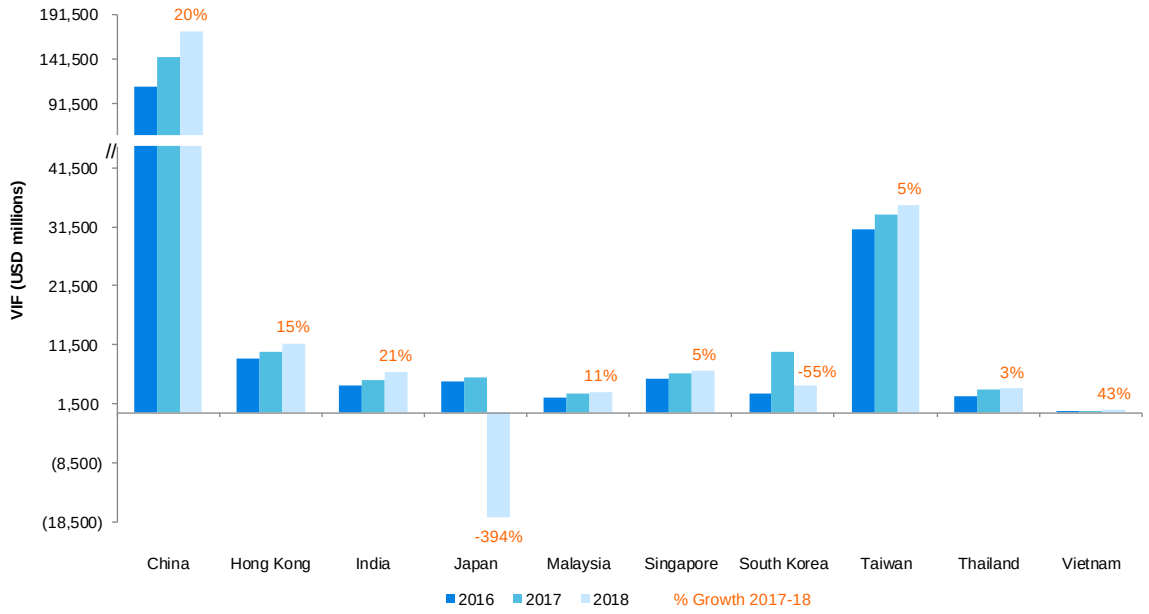


FIGURE 20: COMPARABLE ASIAN LIFE INSURANCE COVERED VIF, 2016 TO 2018

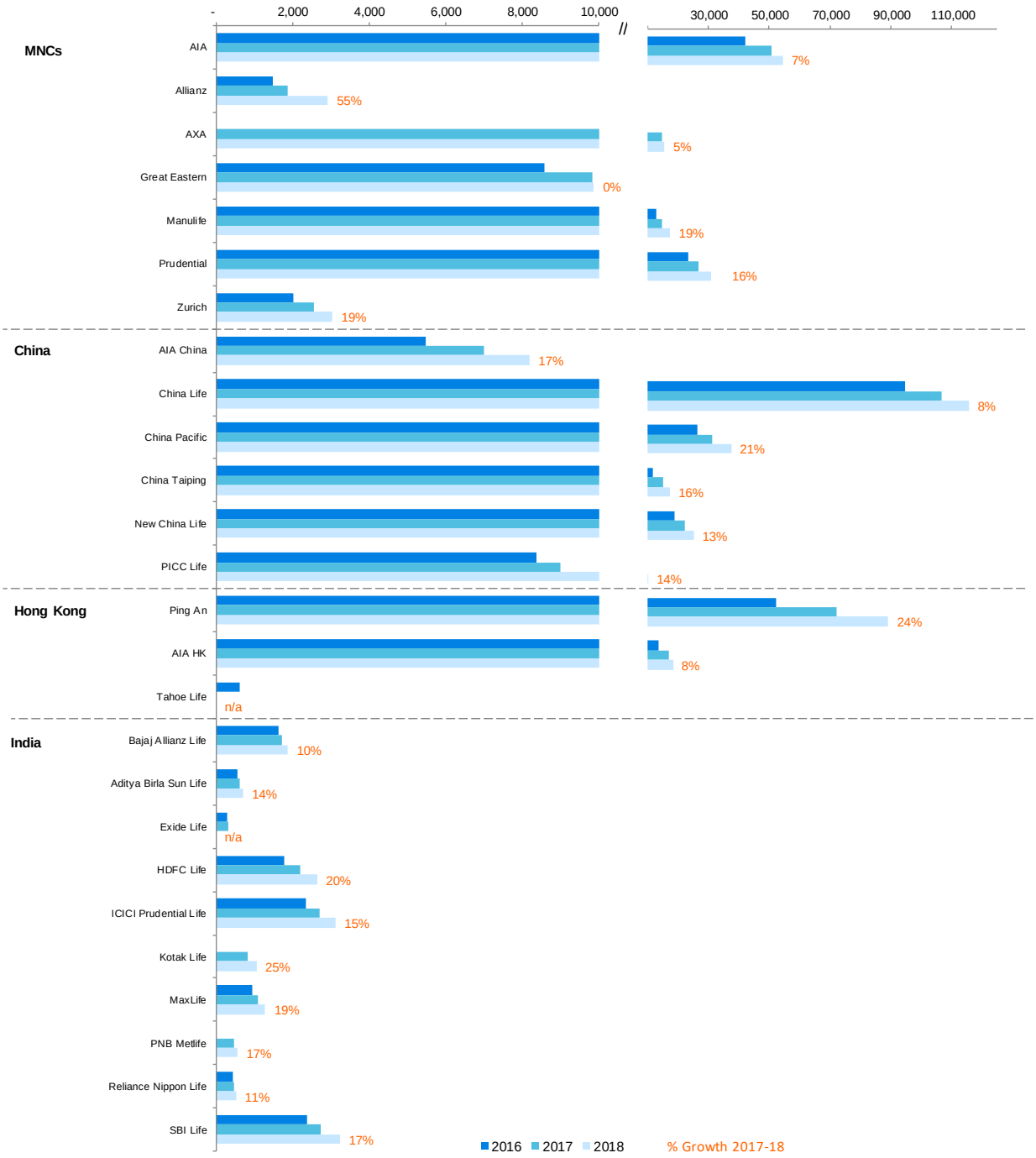


The aggregate ANW for the Asian life insurance sector increased in 2018, despite four markets individually reporting a fall last year (namely Hong Kong, Singapore, South Korea and Taiwan). Vietnam reported the highest increase of 35%, followed by India with a 21% growth. In contrast, Taiwan recorded the greatest fall of 16% in 2018.

With the exceptions of Japan and South Korea, VIF growth was positive for all markets. Vietnam recorded the highest increase of 43% in 2018, followed by India with a 21% growth. Japan recorded the greatest fall in VIF of 394% in 2018, where the total life insurance sector VIF turned negative in 2018, but this fall was offset by gains in ANW, leading to a small reduction in EV. South Korea also saw a decline in VIF of 55%, driven mainly from reduced investment return assumptions for all insurers.

EV BY COMPANY

FIGURE 21: ASIAN LIFE INSURANCE COVERED BUSINESS EV BY COMPANY,[35,36,37] 2016 TO 2018



[35] To provide comparability and eliminate FX effects, results for all years have been converted to USD using the prevailing FX rate as at the 2018 reporting date.

[36] Please note that some companies have not yet disclosed their 2018 EV results as at the data cutoff date of this report. The 2018 results for these companies have consequently been left blank. The insurers that have not yet published their 2018 results as at the data cutoff date include DB Insurance, Exide Life and Samsung Fire & Marine.

[37] The definition of MNC is any company that has operations outside of its home country. 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

FIGURE 21: ASIAN LIFE INSURANCE COVERED BUSINESS EV BY COMPANY, 2016 TO 2018 (CONTINUED)

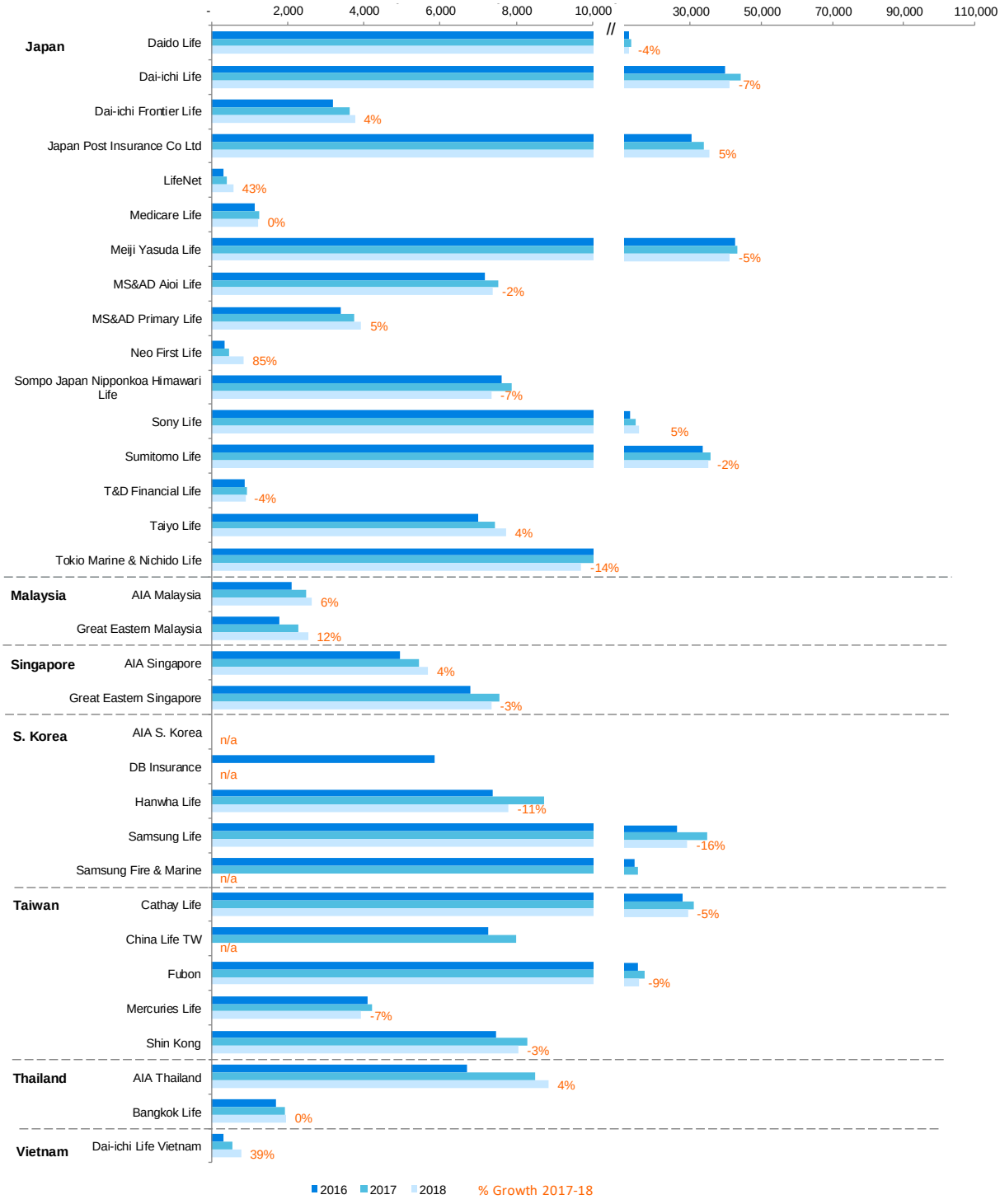


FIGURE 22: SPLIT OF 2018 ASIAN LIFE INSURANCE EV BETWEEN VIF AND ANW BY COMPANY

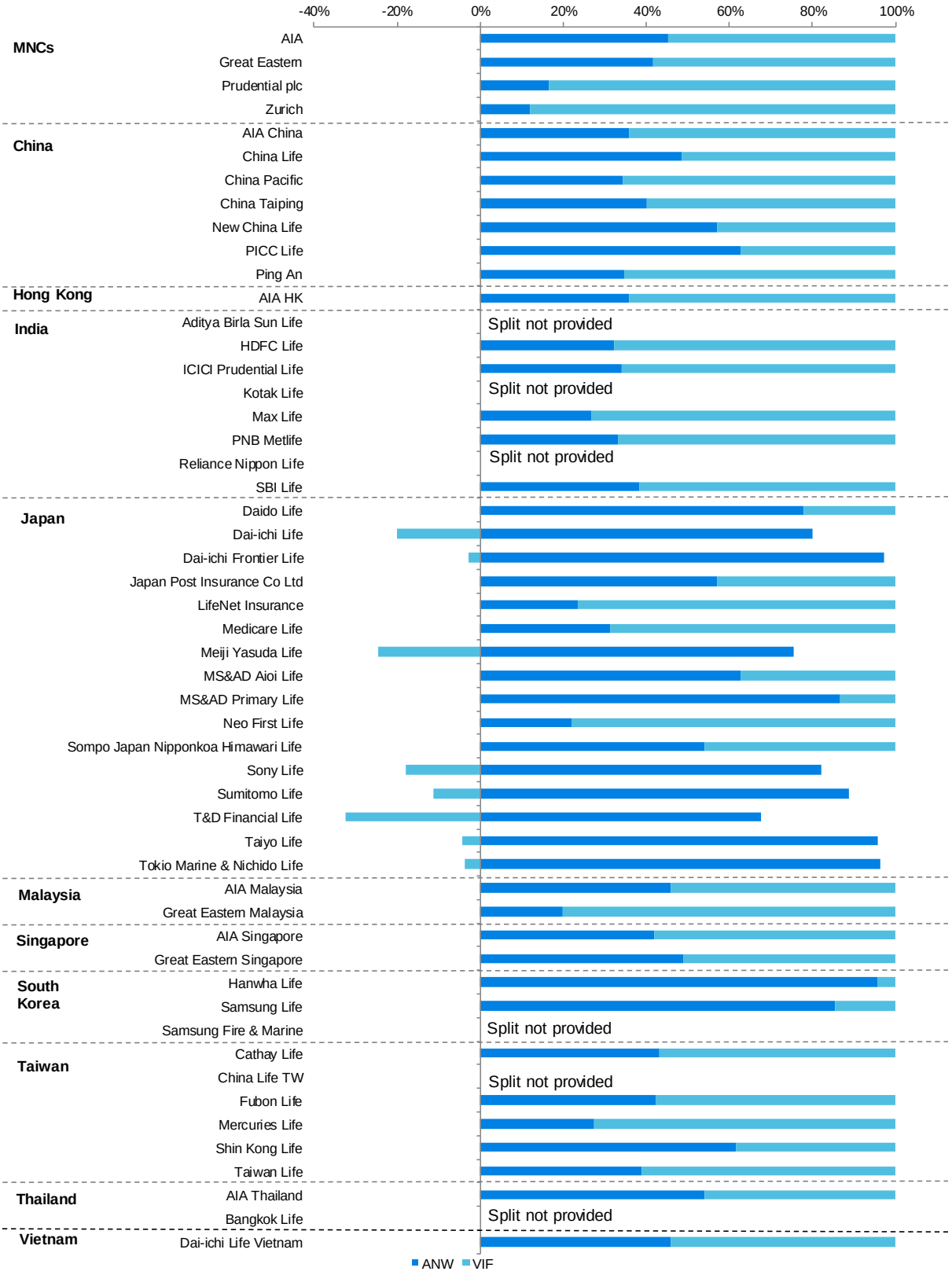


Figure 21 above shows the growth in EV by individual company. Allianz reported significant EV growth of 55%. Allianz cited the successful sale of its legacy high-guarantee in-force book in Taiwan as the main driver of its EV growth in the Asia Pacific region.

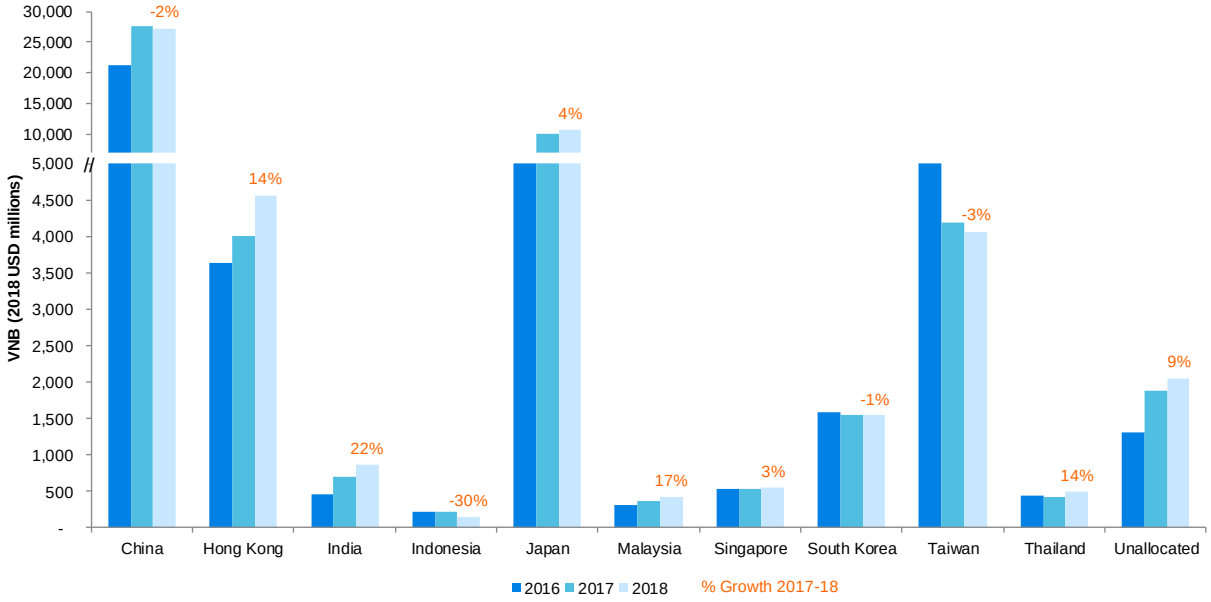
Indian life insurers reported high growth in EV in 2018, which was mainly due to significant new business sales (on an APE basis) and improved new business margins because of an increasing share of protection business in the product mix.

Figure 22 breaks down reported EV for 2018 into its VIF and ANW components for each market. In general, insurers in South Korea and Japan show a higher proportion of their EV coming from ANW, compared with insurers in other markets. The key factor for those markets with value more weighted to ANW is the persistent low interest rate environment and the predominantly non-participating in-force portfolios in the case of South Korea.

VNB IN ASIA

Total reported VNB for Asia stood at USD 52.5 billion in 2018, compared with USD 51.8 billion in 2017, representing growth of 1.5%.[38] Figure 23 provides a market-by-market comparison of growth in VNB through the disclosures made.

FIGURE 23: REPORTED VNB OF ASIAN OPERATIONS ON A COMPARABLE BASIS,[39] 2016 TO 2018



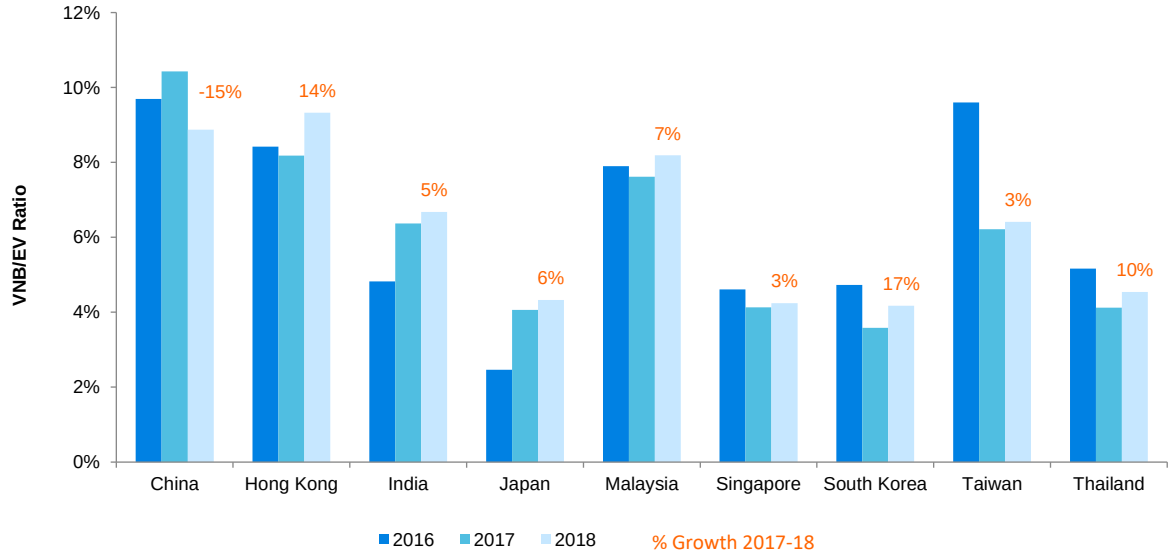
India and Malaysia reported the highest growth in VNB on a constant currency basis, largely driven by significantly higher new business volumes (on an APE basis) and increases in protection business sales in the case of India. Indonesia saw a large reduction in VNB of 30% in 2018. For Indonesia, our VNB analysis was only based on one data point, Prudential Indonesia. The insurer blamed challenging socioeconomic conditions compounded by the adverse impact of higher yields for its decline in VNB. China, South Korea and Taiwan experienced minor reductions in VNB in USD terms.

[38] This percentage has been calculated on a comparable basis, i.e., only companies that have disclosed a full set of 2016, 2017 and 2018 numbers have been included here.

[39] As at the data cutoff date, some insurers have not yet disclosed their 2018 EV figures. Hence, this chart and subsequent commentary only includes insurers that have a complete set of 2016, 2017 and 2018 EV figures. The performance of the remaining companies will be included in our mid-year EV update report. The missing companies include DB Insurance, Exide Life and Samsung Fire & Marine.

When analysing VNB, it is sometimes instructive to examine the ratio of VNB to EV over time, as this can provide an indication of the relative maturity of the market.

FIGURE 24: VNB/EV RATIO,[40] 2016 TO 2018



Except for China, the VNB/EV ratios for all other markets increased in 2018. Developing markets tend to show higher VNB/EV ratios compared with more developed markets.

Thailand witnessed the highest increase in VNB/EV ratios in 2018, primarily as a result of strong new business sales (on an APE basis) and lower growth in EV for AIA. South Korea's VNB/EV ratio has increased, but the increase is due to a greater fall in EV compared to a smaller decrease in VNB.

[40] 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 25 presents each individual company's VNB from 2016 to 2018.

FIGURE 25: ASIAN VNB BY COMPANY, 2016 TO 2018

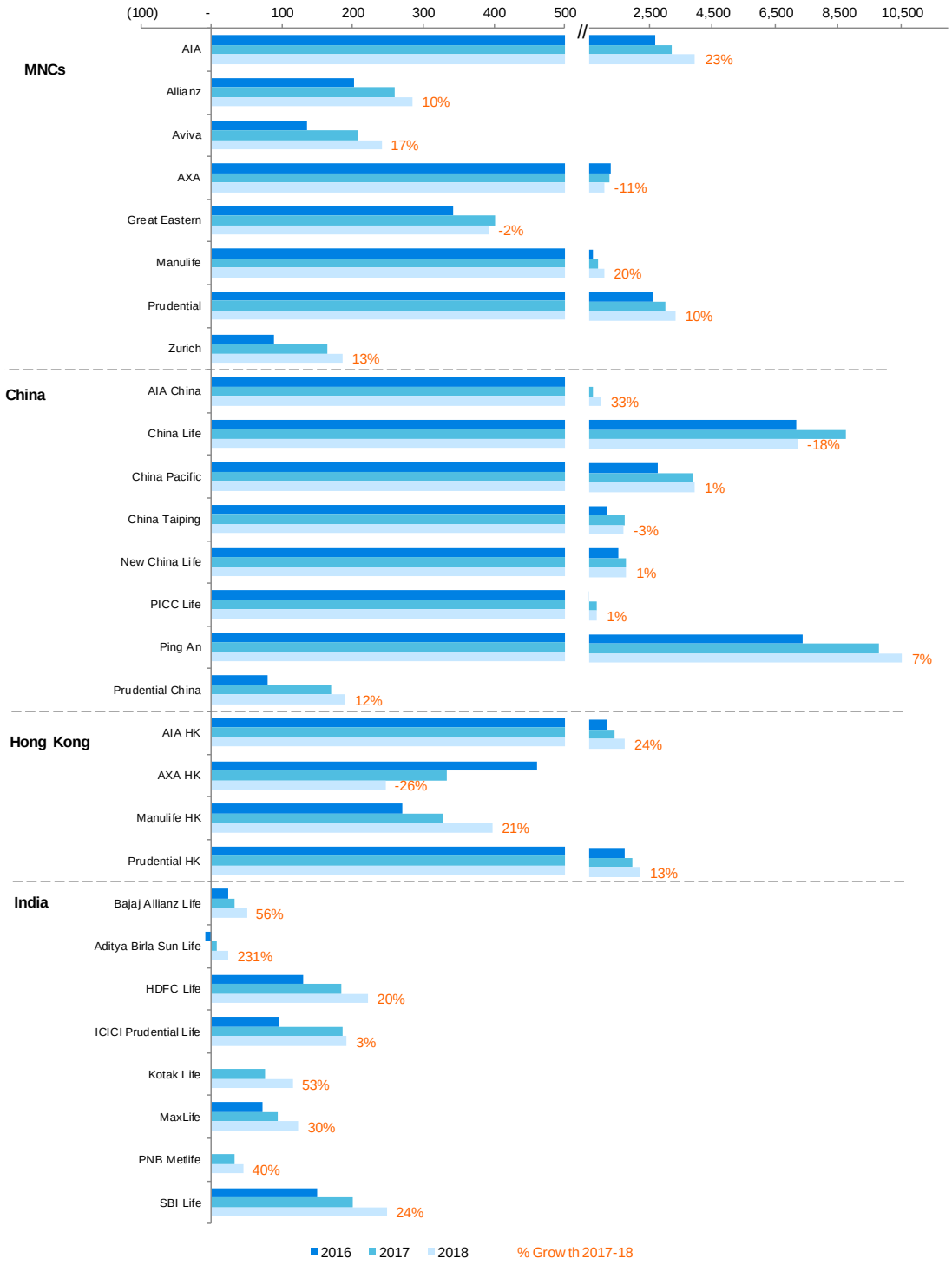
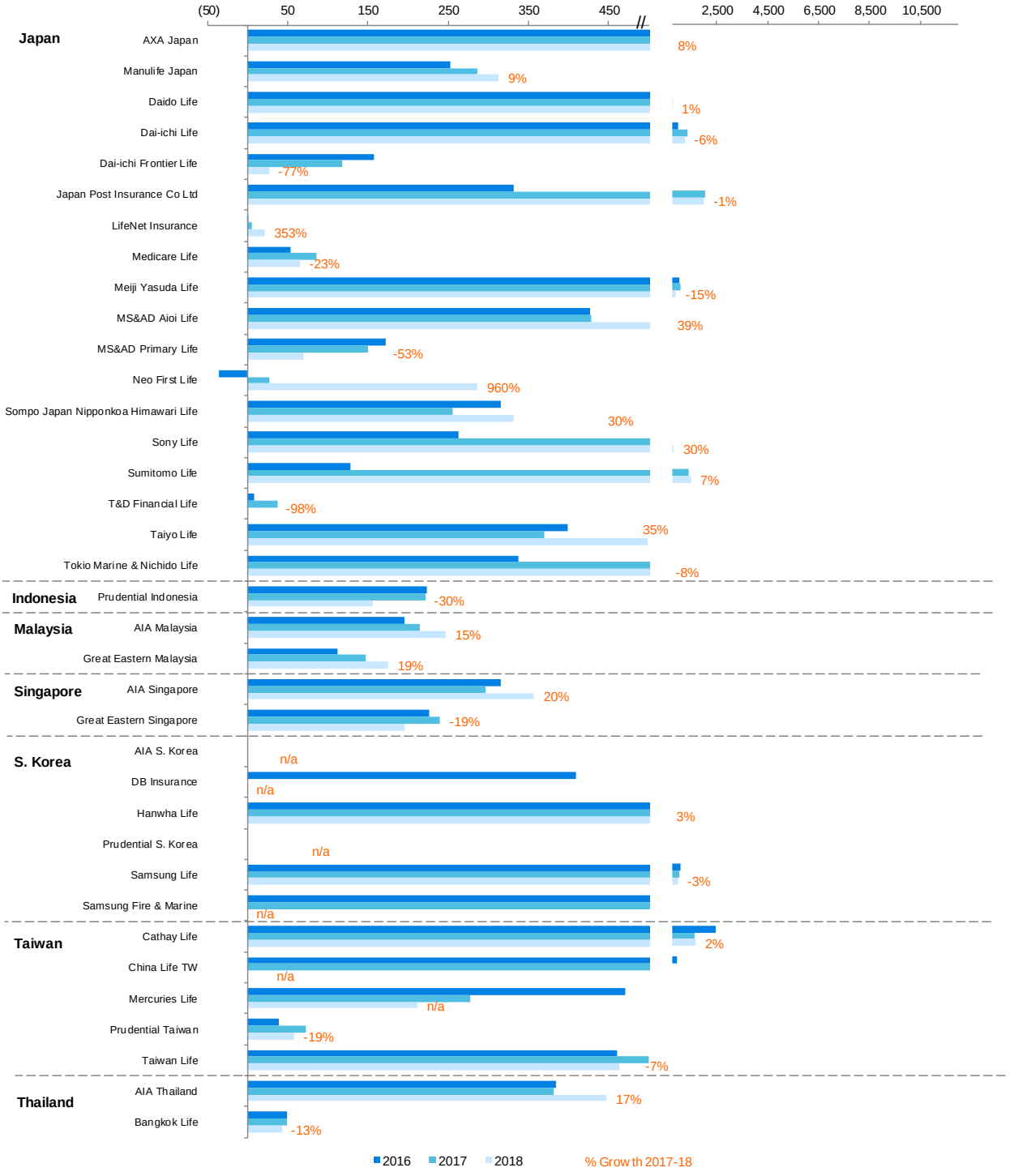


FIGURE 25: ASIAN VNB BY COMPANY, 2016 TO 2018 (CONTINUED)



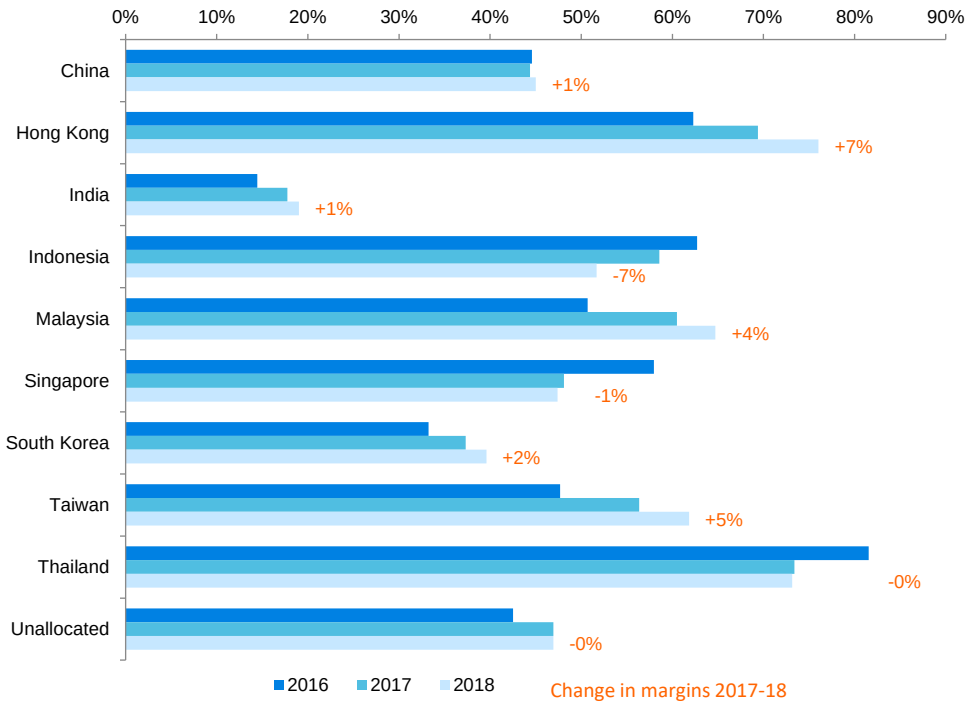
The highest increases in 2018 VNB were posted by Neo First Life at 960% (a growth of JPY 29 billion in absolute amounts) and LifeNet Insurance at 353% (a growth of JPY 1.9 billion in absolute amounts).

Insurers in the Indian market recorded the strongest overall VNB growth in comparison to other markets, mainly as a result of increased focus on protection business sales.

AIA posted strong VNB growth across various Asian markets, led by its subsidiaries in China (33%) and Hong Kong (24%). AIA cited increased productivity from its distribution channels and improvements in its digital platform, enabling increased sales, as the key reasons for VNB growth across its markets.[41]

NEW BUSINESS MARGINS[42] IN ASIA

FIGURE 26: IMPLIED NEW BUSINESS MARGINS[43] BY MARKET, 2016-2018



The chart in Figure 26 compares the total disclosed new business margins for each market. The reliability of this analysis is inherently linked to the number of disclosures available. Hong Kong, Taiwan and Malaysia exhibited the highest growth in new business margins in the region, with Indonesia and Singapore posting lower new business margins in 2018. However, the new business margin for Indonesia was only based on one data point, Prudential. The insurer cited adverse impact of higher yields as the cause of decline in new business profitability. Growth in Hong Kong was driven largely by increased focus on increasing health and protection product sales. Malaysia's results are based on disclosures by AIA and Great Eastern. AIA attributed the launch of several new flagship unit-linked and health products in 2018 as the main driver of growth

[41] Source: AIA 2018 Annual Report.

[42] New business margin has been defined as the ratio of VNB and APE as commonly used in Asia, except for Japanese companies that report new business margins as the ratio of VNB to the present value of new business premiums, as defined by the MCEV principles.

[43] This chart has been calculated by taking the sum of all disclosed VNB in each market besides Japan, divided by the commensurate APE figure sold by the company in the country. 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 Taiwan, Indonesia, Malaysia, Singapore and Thailand, this analysis may not reflect profitability across the whole market. For further detail, please refer to the individual countries in the 'Detailed Market Analysis' section below.

DETAILED MARKET ANALYSIS

This section presents EV and VNB results by market, together with some commentary on relevant issues in each jurisdiction.

In order to provide a clearer picture of each market's performance, all EV and VNB results in this section have been converted to local currency using the prevailing exchange rate as at each insurer's reporting dates for each year (2016, 2017 and 2018[44]). This is in contrast to 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 2018. As a result of exchange rate differences, the 2018 growth rates for each MNC's subsidiary may not be the same as those presented in the previous sections.

[44] Please note that not all the financial years of insurers coincide with calendar years. In this report, we have defined 2018 results to be the financial year results that contain the majority of 2018 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 2019. Hence, when referring to Indian and Japanese insurers, FY2018 refers to the year ending 31 March 2019.

China

FIGURE 27: REPORTED EV OF CHINESE INSURANCE OPERATIONS, 2016-2018

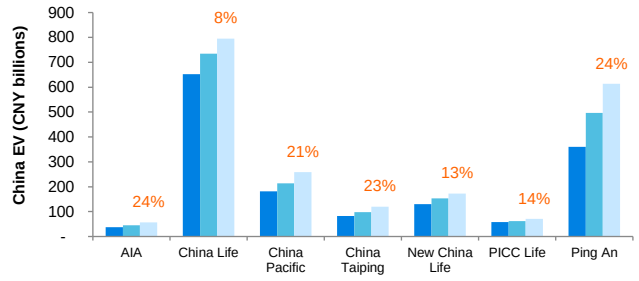


FIGURE 28: REPORTED ANW OF CHINESE INSURANCE OPERATIONS, 2016-2018

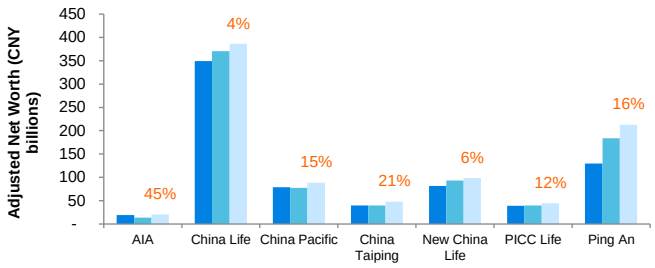


FIGURE 29: REPORTED VIF OF CHINESE INSURANCE OPERATIONS, 2016-2018

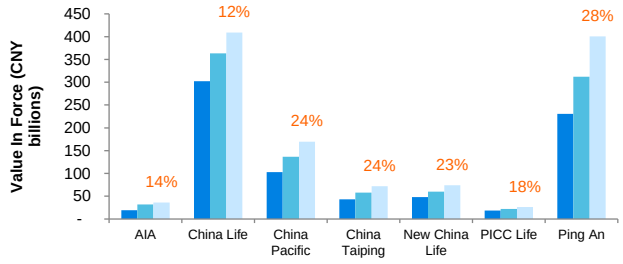


FIGURE 30: REPORTED VIF/ANW SPLIT OF CHINESE INSURANCE OPERATIONS, 2018

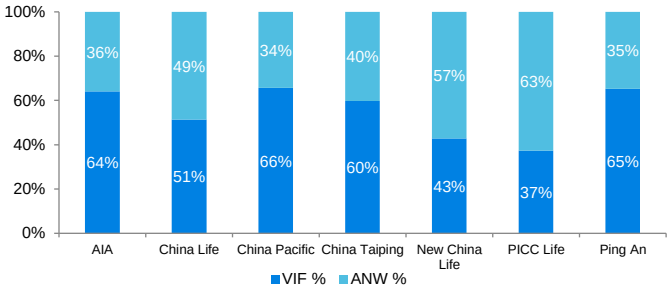


FIGURE 31: REPORTED VNB OF CHINESE INSURANCE OPERATIONS, 2016-2018

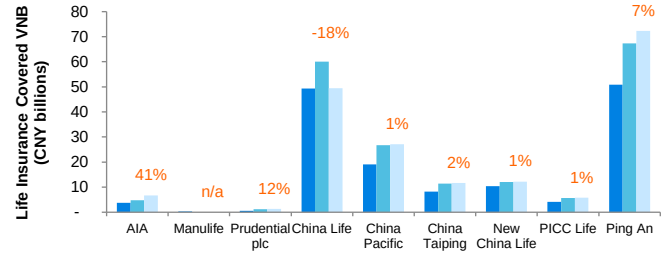


FIGURE 32: REPORTED APE[45,46] OF CHINESE INSURANCE OPERATIONS, 2016-2018

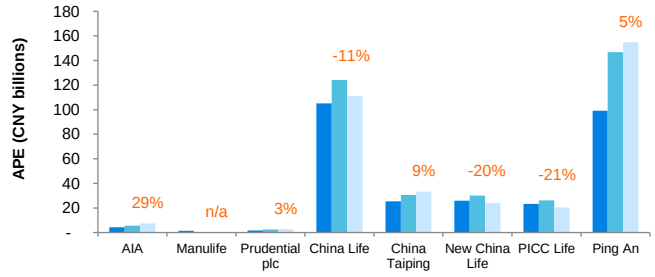
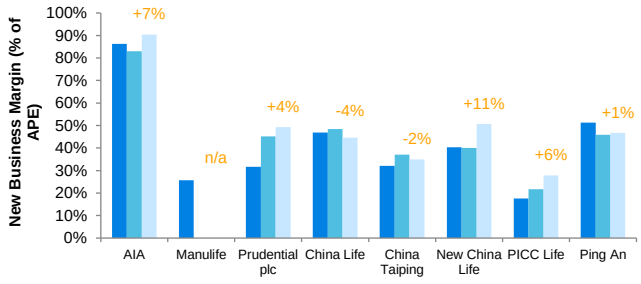


FIGURE 33: REPORTED NEW BUSINESS MARGINS[47] OF CHINESE INSURANCE OPERATIONS, 2016-2018



[45] APE figures, if not disclosed explicitly by the company, have been calculated by Milliman based on disclosed regular premium and single premium new business figures, and may not represent actual APE of the respective companies. For China Pacific, the EV disclosures did not provide sufficient information to calculate APE.

[46] APE figures include short-term insurance premiums as life insurers write both, short-term and long-term business for both life and health insurance.

[47] Note that the margins are calculated as the disclosed VNB divided by the calculated APE in Figure 33, and may not represent actual margins of the respective companies.

Seven companies reported 2018 EV results in China, almost all of which managed double-digit growth for the year, with the only exception being China Life. AIA and Ping An reported the highest growth at 24%, followed by China Taiping and China Pacific, which recorded growth rates of 23% and 21%, respectively. Prudential only disclosed VNB and APE results for its China joint venture, CITIC-Prudential, which have also been included in the analysis (on an EEV basis with the rest of the market reporting TEV).

VNB growth rates were mixed in 2018, with AIA posting the highest figure of 23%, followed by CITIC-Prudential recording a 12% increase. China Life was the only insurer that reported a fall in VNB, which was mainly due to a lower new business volume. New China Life sustained its VNB growth despite witnessing a fall in APE, primarily due to an increasing proportion of protection business sales. The company also recorded the highest growth in new business margin in China last year.[48] Similarly, Ping An cited optimisation of its product mix as the main reason behind its VNB growth.

The majority of insurers have kept their discount rate assumptions unchanged since 2017. However, Prudential decreased its discount rate from 9.7% in 2017 to 8.1% in 2018, in response to the fall in the 10-year government bond yield from 3.92% in 2017 to 3.27% in 2018. All life insurers have maintained their investment return assumptions in 2018 with the only exception being Prudential. The full set of economic assumptions disclosed in the market is set out in Figure 100 below. The domestic life insurers typically assume investment returns rising from around 4.5% to 5%, with risk discount rates of around 11%.

In recent developments, the PICC Group completed ‘A share’ listing (shares quoted in RMB only) in Shanghai in November 2018. It became the fifth Chinese insurance company to list in both Hong Kong and Mainland China. The other four are Ping An, China Life, New China Insurance and CPIC.

In May 2019, the China Banking & Insurance Regulatory Commission (CBIRC) announced plans to relax restrictions on foreign companies, aiming to:

- Increase foreign direct investment in the insurance sector.
- Improve the mixture and sources of capital of foreign-invested insurance companies established in China, by allowing qualified non-insurance foreign financial institutions to invest in the former. This is inadmissible under the current regime.

Insurers in China are performing quantitative impact studies for Phase II of the China Risk Oriented Solvency System (C-ROSS2), with which the regulator hopes to refine industry capital requirements.

[48] Among the Chinese insurers covered under this report.

Hong Kong

FIGURE 34: REPORTED EV OF HONG KONG INSURANCE OPERATIONS, 2016-2018[49]

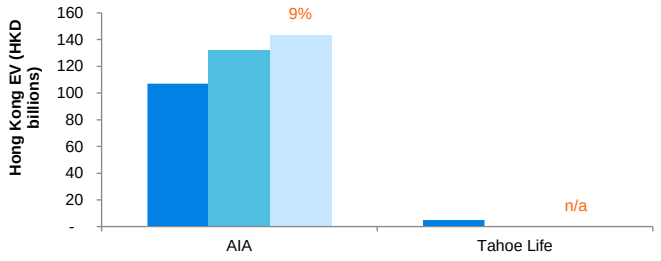


FIGURE 35: REPORTED ANW OF HONG KONG INSURANCE OPERATIONS, 2016-2018

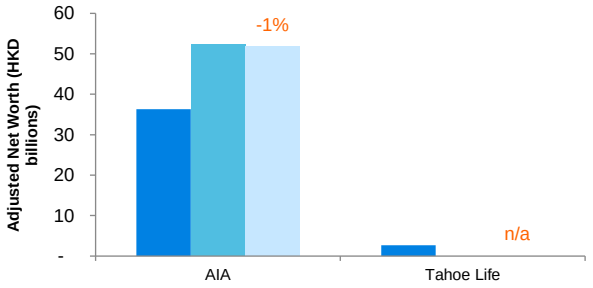


FIGURE 36: REPORTED VIF OF HONG KONG INSURANCE OPERATIONS, 2016-2018

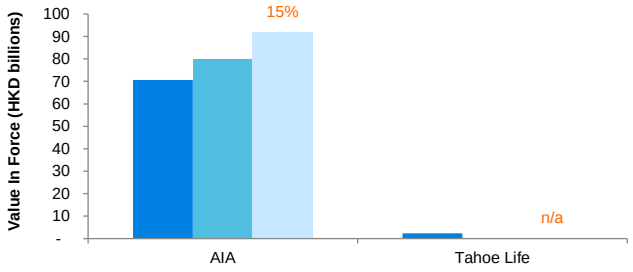


FIGURE 37: REPORTED VIF/ANW SPLIT OF HONG KONG INSURANCE OPERATIONS, 2018

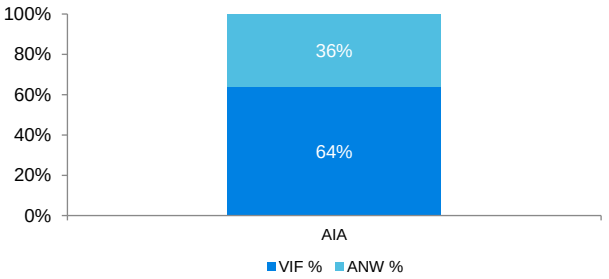


FIGURE 38: REPORTED VNB OF HONG KONG INSURANCE OPERATIONS, 2016-2018

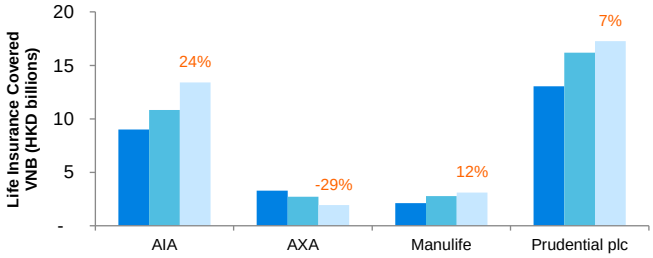


FIGURE 39: APE OF HONG KONG INSURANCE OPERATIONS, 2016-2018

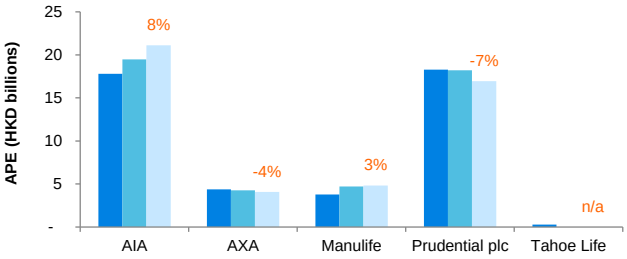
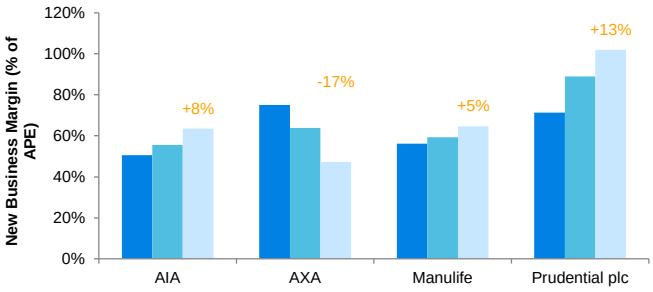


FIGURE 40: REPORTED NEW BUSINESS MARGIN (% OF APE) OF HONG KONG INSURANCE OPERATIONS, 2016-2018



[49] The FX rates used for conversion to local currency (for all charts) are listed in Appendix B.

AIA is the only company that continues to disclose EV results for its Hong Kong operation, with AXA and Tahoe Life (formerly Dah Sing Life) having discontinued this practice. Prudential and Manulife only disclose VNB and new business margins for their Hong Kong businesses.

The growth in VNB was positive for all insurers, except AXA, which recorded a fall of 29%. AIA posted the highest figure of 24%, crediting the results to the continued success of its internal Premier Agency strategy, significant retail Independent Financial Adviser (IFA) business, its long-term strategic partnership with Citibank, and the broad-based growth from both domestic and Mainland China visitor customer segments. Manulife cited higher sales of its profitable critical illness products as the main driver of its VNB growth.

Our analysis covers AIA, AXA, Manulife and Prudential plc. The growth in APE was mixed in local currency terms.[50] AIA and Manulife reported positive growth of 8% and 3%, respectively. In contrast, Prudential recorded the highest fall of 7%, followed by AXA with a reduction of 4%.

There has been an overall rise in new business margins, with Prudential reporting the highest growth of 13%. AIA and Manulife reported increases of 8% and 5%, respectively, in new business margins. The drop in new business margin of AXA was mainly attributed to the increase in sales of savings products, with relatively lower margins coupled with its protection product redesign.

Despite APE declining for the insurers covered in this analysis, according to the IA, Hong Kong's overall individual non-linked business premiums increased by 4.0% to HKD 396.5 billion, whereas linked business premiums increased by 9.9% to HKD 34.8 billion over the course of 2018. In respect of Mainland China visitor sales, new office premiums in 2018 decreased by 6.4% to HKD 47.6 billion when compared with 2017, representing 29.4% of the total new individual business.

As part of the development of the new RBC regime, the QIS 2 was conducted by the IA in late 2018. Milliman has published an e-Alert highlighting the QIS 2 long-term business results, including commentary on key components affecting solvency ratios and the next steps insurance companies could take before the next quantitative impact study. The e-Alert is available here.

The solvency ratio results for the insurers participating in QIS 2 were generally poor. The IA subsequently carried out a pilot test (QIS 2.5) on a voluntary basis for companies to assess the impact of the revised technical specification during May and June 2019, with several moderations introduced to the standard. The QIS 2.5 results have significantly improved as compared to QIS 2, with most of the participating insurers now financially solvent, which was mainly driven by the inclusion of the matching adjustment in discounting. QIS 3 is likely to commence in August 2019 and require submission by the end of November 2019. The new RBC framework is expected to be implemented by 2021.

The IA published the Guideline on Enterprise Risk Management (GL21) in early July 2019, following two rounds of industry consultation in May 2018 and January 2019 as a part of the qualitative requirements under the developing RBC framework. GL21 sets out the objectives and requirements on ERM and ORSA; and provides the impetus for insurers to establish effective tools to identify, monitor, manage and mitigate risks. The guideline shall take effect from 1 January 2020. An authorised insurer should submit its first ORSA report to the IA for its financial year ending on or after 31 December 2020.

Effective 23 September 2019, the IA will take over from the three self-regulatory organisations (SROs) and will be responsible for all aspects of the regulation of insurance intermediaries in Hong Kong, including granting licenses, conducting inspections and investigations and imposing disciplinary sanctions where applicable. The IA has formulated two sets of rules—Insurance (Maximum Number of Authorised Insurers) Rules and the Insurance (Financial and Other Requirements for Licensed Insurance Broker Companies) Rules—which will take effect on 23 September 2019, subject to approval by the Legislative Council.

[50] APEs throughout this section have been converted to local currency using the prevailing exchange rates applicable at each reporting date (2016, 2017 and 2018). These figures are different from the disclosed APEs in reported currency terms.

India

FIGURE 41: REPORTED EV OF INDIAN INSURANCE OPERATIONS, 2016-2018[51]

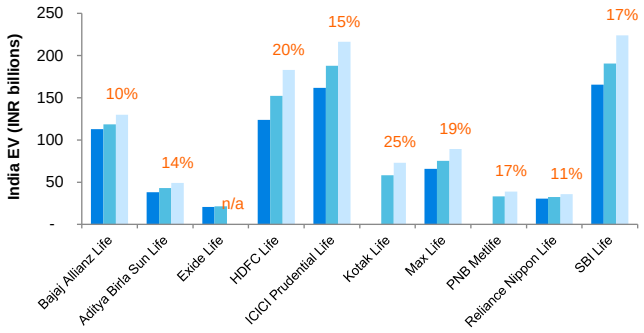


FIGURE 42: REPORTED ANW OF INDIAN INSURANCE OPERATIONS, 2016-2018[52]

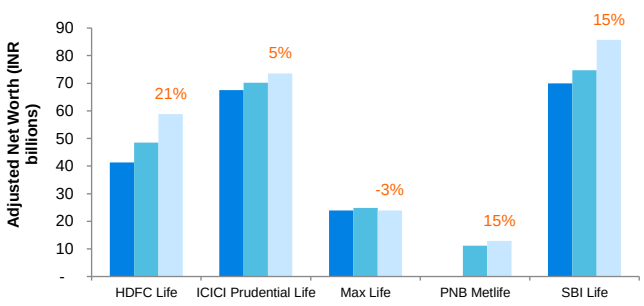


FIGURE 43: REPORTED VIF OF INDIAN INSURANCE OPERATIONS, 2016-2018

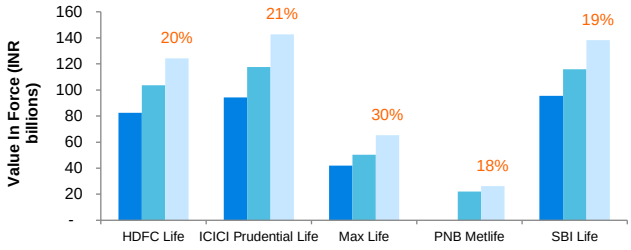


FIGURE 44: REPORTED VIF/ANW SPLIT OF INDIAN INSURANCE OPERATIONS, 2018

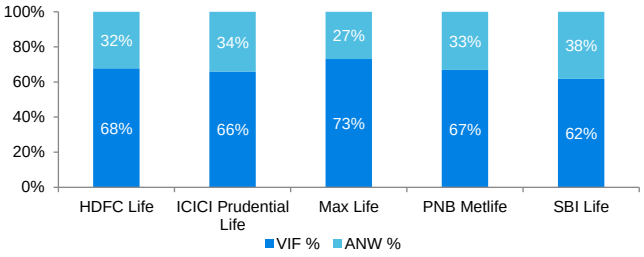


FIGURE 45: REPORTED VNB[53] OF INDIAN INSURANCE OPERATIONS, 2016-2018

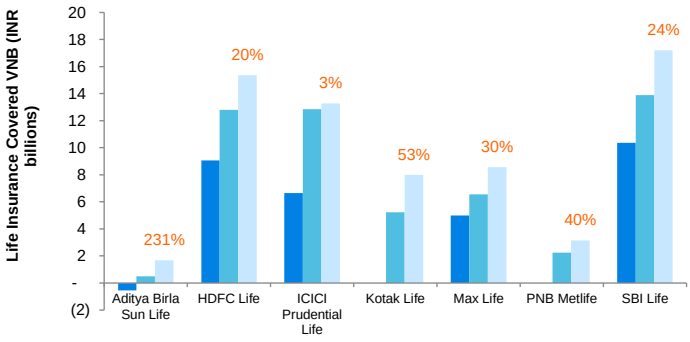


FIGURE 46: REPORTED APE[54] OF INDIAN INSURANCE OPERATIONS, 2016-2018

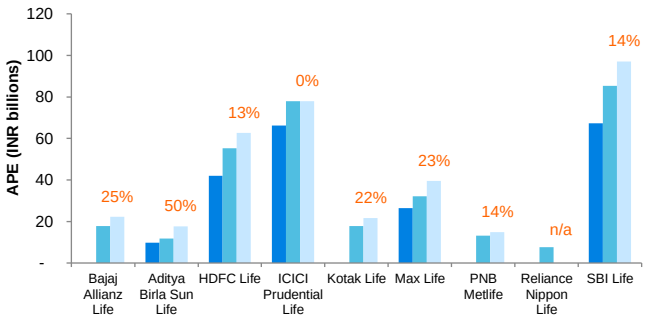
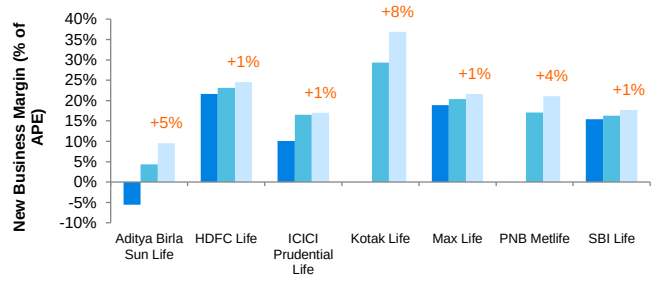


FIGURE 47: REPORTED NEW BUSINESS MARGIN OF INDIAN INSURANCE OPERATIONS, 2016-2018



51 For the purposes of this report, FY2018 for India insurers represents the financial year ending 31 March 2019.

52 In Figures 42, 43 and 44, Bajaj Allianz Life, Aditya Birla Sun Life, Kotak Life and Reliance Nippon Life have been excluded, as their split of EV for FY2018 has not been disclosed.

53 For comparability, the VNB and new business margin figures are after the impact of expense overruns. Bajaj Allianz Life did not disclose post-expense overrun results and hence its VNB disclosure has been excluded from the charts. Reliance Nippon Life did not provide VNB expense overrun information.

54 Exide Life has been excluded, as its APE results were not disclosed at the time of writing this report. For Aditya Birla Sun Life and Kotak Life, APE has been calculated using VNB and new business margins on an APE basis.

Embedded values continue to increase in India, with all disclosed companies posting double-digit growth.

EV/VNB methodology in India has also largely converged to a market-consistent approach. All insurers use either MCEV or IEV, except for Reliance Nippon Life, which continues to be the only insurer publicly disclosing results using TEV methodology.

Reported new business margins are in the range of 10% to 37%, after allowing for the impact of acquisition expense overruns. Bajaj Allianz Life and Reliance Nippon Life do not give any expense overrun information in their VNB disclosures. Given this inconsistency, we have excluded the VNB disclosures for these companies from our analysis. Reliance Nippon Life has not disclosed its new business margins for FY2018; however, the company reported a VNB figure of INR 3.3 billion, which we estimate may result in a new business margin of around 30% to 40%.

While new business margins have increased slightly across the board, there has been a significant increase in new business APE, leading to a growth in VNB for all companies. An increasing share of protection business in product mixes has contributed to improving the new business margins for most insurers. Aditya Birla Sun Life recorded the highest VNB growth of 231% in FY2018, attributing its growth to a balanced channel mix, increased sales productivity from its HDFC Bank partnership and increased focus on the sale of protection business.

On 8 July 2019, IRDAI released regulations on non-linked and linked insurance products, which supersede the 2013 regulations. The new regulations offer greater flexibility to insurers in respect of unit-linked plans, pension plans and annuity plans, while tightening minimum surrender value requirements on non-linked plans. The regulations also strengthen with-profits governance. Milliman has published an e-Alert highlighting the key changes in the regulations and discussing the potential business implications for life insurers. The e-Alert is available here.

With a strong macroeconomic outlook for the Indian economy, the young population, the large emerging middle class with high savings potential and the low penetration of life insurance business, the longer-term outlook for the Indian life insurance industry continues to be positive. Milliman has published an e-Alert on consolidation in the Indian life insurance industry, available here.

Indonesia

FIGURE 48: REPORTED VNB[55] OF INDONESIAN INSURANCE OPERATIONS, 2016-2018[56]

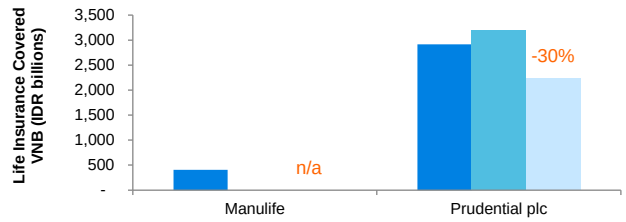


FIGURE 49: REPORTED APE[57] OF INDONESIAN INSURANCE OPERATIONS, 2016-2018

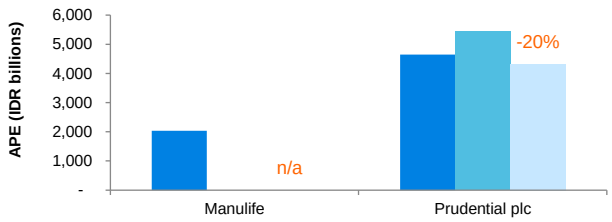
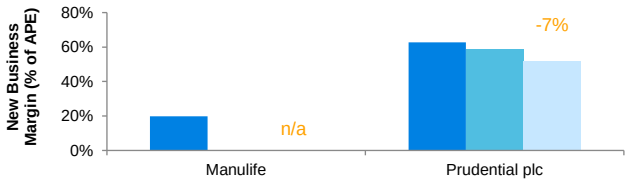


FIGURE 50: REPORTED NEW BUSINESS MARGINS OF INDONESIAN INSURANCE OPERATIONS, 2016-2018



None of the insurers publicly disclose EV figures for their Indonesian operations. Prudential remained the only insurer to disclose 2018 VNB and new business margins for Indonesia. Prudential reported a decline in APE in local currency terms,[58] from IDR 5.443 billion to IDR 4.333 billion, a decrease of 20%. In local currency terms, the VNB declined by 30%. Prudential cited challenging socioeconomic conditions, compounded by the adverse impact of higher yields as the reason for the decline in VNB.

According to the life insurance industry association (locally known as AAJI), the decrease in total premium income in 2018 was 5%, down from IDR 195.72 trillion in 2017 to IDR 185.80 trillion. The decline was influenced by the fall in bancassurance premium of 11.2%, which contributed 42.9% of the total premium income of the life insurance industry in 2018.

In 2018 the enactment of Government Regulation PP No. 14/2018 formalised the rules relating to foreign ownership in Indonesian life insurers. Foreign ownership is capped at 80% of paid-up capital, although the cap is not applicable to publicly listed insurers and privately held insurers, where the cap had been exceeded historically via foreign shareholder dilution of local partners' share during capital-raising exercises. In a recent revision to the rule, the Ministry Of Finance has proposed that 'grandfathered' companies would also be exempted from the 80% cap on foreign ownership.

The implementation of Syariah window spin-offs continues to be topical amongst the industry. In November 2018, the OJK noted that 48 insurance companies (comprising 22 life insurers, 24 general insurers and two reinsurers) had not yet spun off their Syariah windows into separate standalone Syariah insurers. The main obstacles faced by Syariah windows to such moves are the lack of skilled insurance professionals, higher capital requirements, operational costs, limits on foreign ownership and uncertainty regarding the single presence policy. Milliman prepared an e-Alert on the issues facing companies in relation to this requirement. The e-Alert is available here.

[55] VNB and APE throughout this section have been converted to local currency using the prevailing exchange rates applicable at each reporting date (2016, 2017 and 2018). These figures are different from the disclosed VNB/APE in local currency terms due to exchange rate differences, as VNB/APE presented in EV disclosures has been converted based on average exchange rates rather than the prevailing exchange rate applicable at the reporting date.

[56] The FX rates used for conversion to local currency (for all charts) are listed in Appendix B.

[57] Ibid.

[58] The disclosed 2018 VNB and APE growth for Prudential in GBP terms are different from the values shown in Figure 48 and 49. Please refer to footnotes 55 and 56 for further explanation.

Japan

FIGURE 51: REPORTED EV OF JAPANESE INSURANCE OPERATIONS, 2016-2018

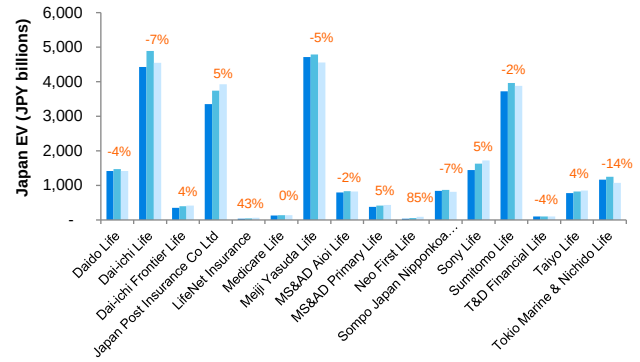


FIGURE 52: REPORTED ANW OF JAPANESE INSURANCE OPERATIONS, 2016-2018

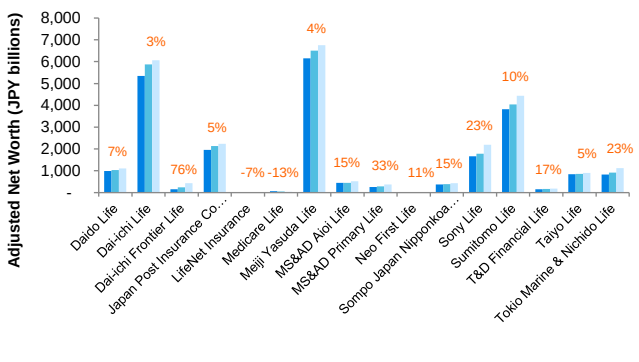


FIGURE 53: REPORTED VIF OF JAPANESE INSURANCE OPERATIONS, 2016-2018

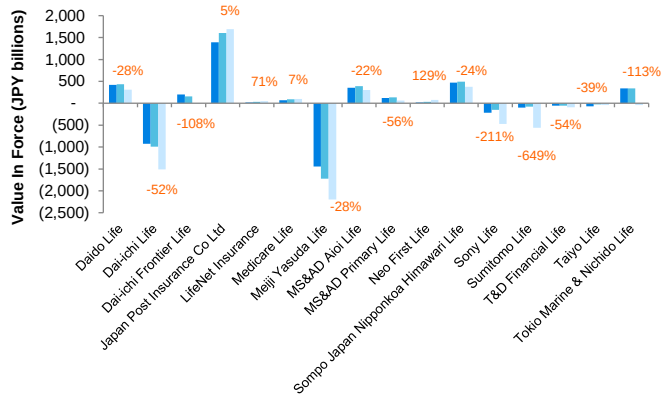


FIGURE 55: REPORTED VNB OF JAPANESE INSURANCE OPERATIONS, 2016-2018

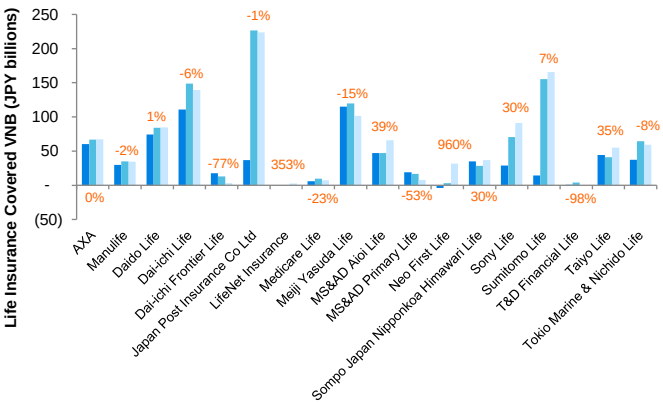


FIGURE 54: REPORTED VIF/ANW SPLIT OF JAPANESE INSURANCE OPERATIONS, 2017

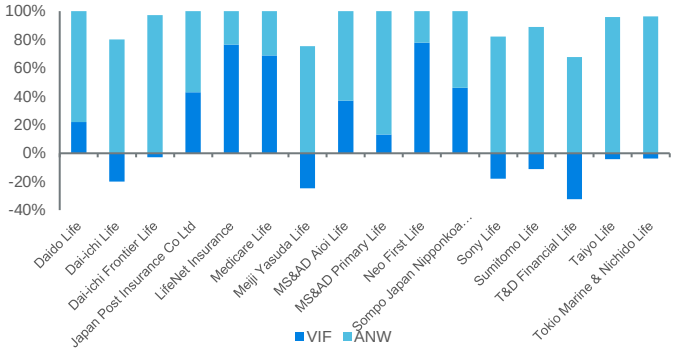


FIGURE 56: REPORTED PVNBP[59] SPLIT OF JAPANESE INSURANCE OPERATIONS, 2018

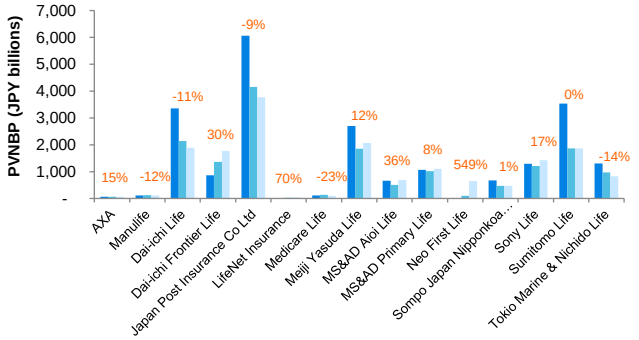
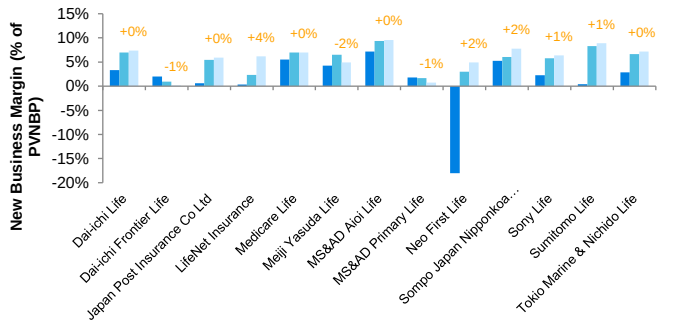


FIGURE 57: REPORTED NEW BUSINESS MARGINS[3] OF JAPANESE INSURANCE OPERATIONS, 2016-2018



[59] AXA and Manulife have been excluded from this graph as they do not disclose PVNBP numbers.

The low or negative interest rate environment continues to pose challenges for Japan's economy and its life insurance industry. Interest rates continued to decline over the past year, which has further eroded profit margins, especially for long-term business.

Sixteen companies in Japan reported their 2018 EV results. They were mixed, with most companies reporting EV increases or decreases between zero and 5% of the opening figures. In some cases, the more favourable results can be attributed to asset-liability management (ALM) practices, less severe legacy liabilities or solid value of new sales. However, results are materially affected by methodology differences, such as the approach to interest rate extrapolation and calculation of the cost-of-non-hedgeable risks.

AXA and Manulife only disclose VNB and APE results for their Japan operations. In 2018, AXA and Manulife reported an APE of EUR 546 million and CAD 1,410 million, respectively, for its Japan operations. All other Japanese companies disclose present value of new business premiums (PVNBP) instead of APE.

Almost all domestic insurers reported a decline in VIF results for 2018, a reflection of the severe and declining risk-free yields. The situation is particularly severe for companies maintaining large, long-duration legacy liabilities. Asset gains typically substantially offset the declining VIF, demonstrating successful ALM by Japanese insurers. In addition, as shown in Figure 55, value accruals from new sales remain quite robust for many companies, in spite of the difficult financial environment.

A certain amount of caution must be exercised when evaluating Japanese company embedded values, especially when comparisons are made across Asia. In particular, it is important to keep in mind that 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 guarantees, in some cases in excess of 5%. As a result of these two factors, many companies have a very small (or even negative) VIF compared to the size of the in-force block.[60] On a percentage basis, this 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 often substantially offset by changes in adjusted net worth. As a result, overall EV, though sensitive to changing market yields, is far less sensitive than the VIF and ANW components.

The reduction and flattening of the yield curve between March 2018 and March 2019 had a severe impact on many companies. In order to understand and compare results, it is critical to look at differences in the underlying methodologies. As one would expect, embedded values at companies employing an ultimate forward rate (UFR) were less severely impacted than were those at companies which apply a constant forward rate.

Although most companies continue to generate significant value from new sales, in many cases this was not enough to offset the impact of the flattening yield curve and declining equity values. As a result, approximately half of Japanese companies reporting embedded values experienced an overall decline in EV during fiscal 2018.

With respect to new sales and new business value, looking forward, some caution may be in order. For many years, several Japanese companies have generated significant value through the sale of tax-favoured COLI products in the SME market. After mainstream players began to enter this market, sometimes with aggressively designed products, regulators took action that will significantly curtail sales of COLI products. While it is a relatively small niche in the context of the overall market, it is nonetheless a significant issue that analysts should be aware of.

Looking forward, although we are optimistic about the global economy and Japan's prospects, Japanese insurers face significant risks such as interest rates and the economic effects of trade wars. Japanese life insurers are increasingly exposed to the vagaries of global trade and finance, in part due to explicit expansion efforts in Asia, North America, and elsewhere, but also due to the significant sales of foreign-denominated products in the domestic market. Yen versus US or Australian dollar spreads have been quite volatile, making the design, sale, and hedging of these product challenging. Growing international exposure and diversification makes EV analysis more critical than ever, yet more complex to interpret. In this environment, reporting with greater detail and transparency, coupled with effective corporate communications, will be essential if Japanese companies are to achieve the market recognition they deserve.

[60] See, for example, Figure 53.

Malaysia

FIGURE 58: REPORTED EV OF MALAYSIAN INSURANCE OPERATIONS, 2016-2018[61,62]

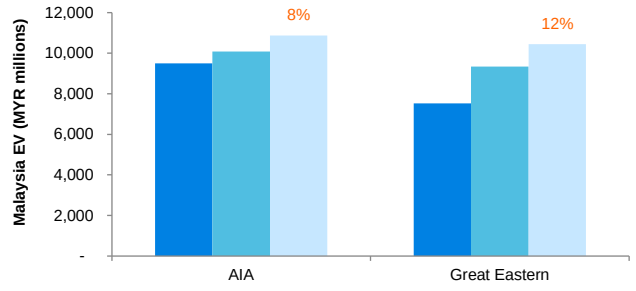


FIGURE 59: REPORTED ANW OF MALAYSIAN INSURANCE OPERATIONS, 2016-2018

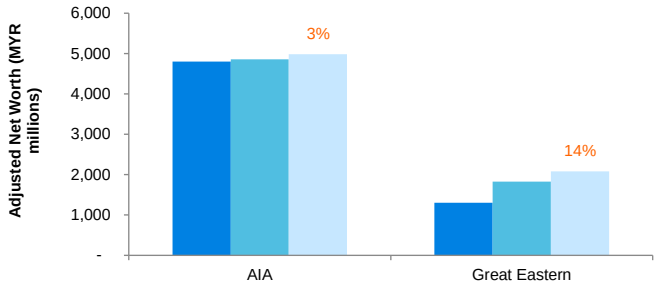


FIGURE 60: REPORTED VIF OF MALAYSIAN INSURANCE OPERATIONS, 2016-2018

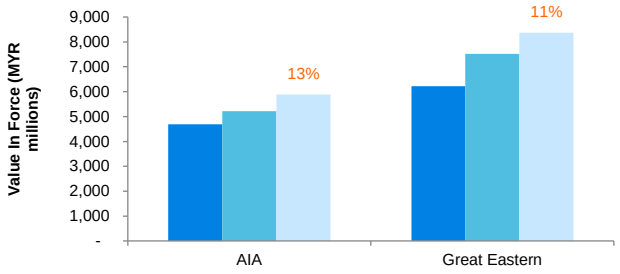


FIGURE 61: REPORTED VIF/ANW SPLIT OF MALAYSIAN INSURANCE OPERATIONS, 2018

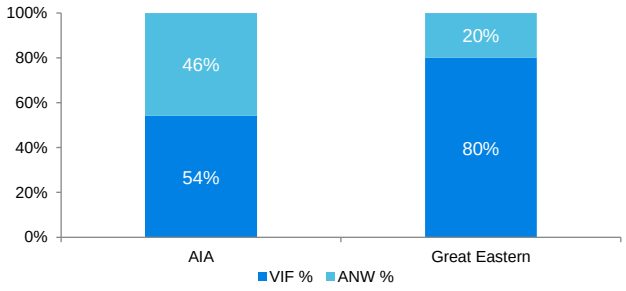


FIGURE 62: REPORTED VNB[63] OF MALAYSIAN INSURANCE OPERATIONS, 2016-2018[64]

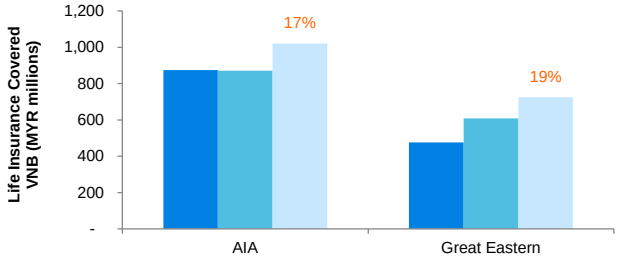


FIGURE 63: REPORTED APE[65] OF MALAYSIAN INSURANCE OPERATIONS, 2016-2018

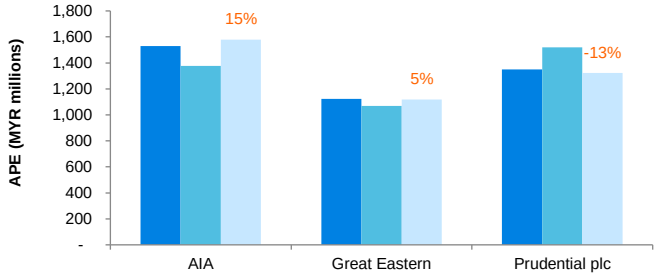
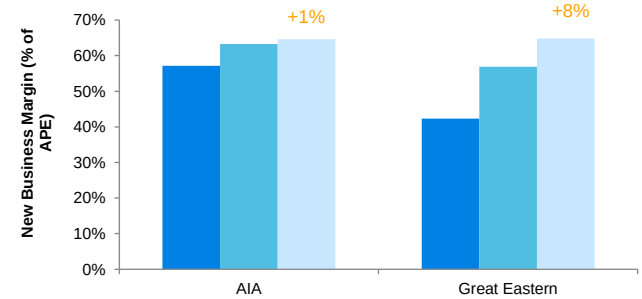


FIGURE 64: REPORTED NEW BUSINESS MARGIN OF MALAYSIAN INSURANCE OPERATIONS, 2016-2018



[61] Great Eastern Malaysia's EV (ANW plus VIF) figure includes Great Eastern Takaful Berhad (GETB).

[62] The FX rates used for conversion to local currency (for all charts) are listed in Appendix B.

[63] AIA's VNB and APE figures exclude pension business.

[64] Great Eastern Malaysia's VNB figure excludes GETB.

[65] The values have been determined based on APE reported in EV disclosures converted to local currency using the prevailing exchange rate applicable at each reporting date (2016, 2017 and 2018). These figures are different from the disclosed APEs for AIA and Great Eastern Malaysia in local currency terms due to exchange rate differences, as APE presented in EV disclosures has been converted based on average exchange rates rather than the prevailing exchange rate applicable at the reporting date.

Only Great Eastern and AIA disclosed 2018 EV and VNB results for Malaysia. Prudential's results are not disclosed (as it is part of an aggregated classification); although some of the underlying EV assumptions are provided.

The risk discount rate for Great Eastern and AIA remained unchanged from 2017 at 8.75%. Prudential increased its risk discount rate assumption marginally for new business and in-force business from 6.4% and 6.5%, respectively, to 6.6% (for both new business and in-force business). Its 10-year bond yield assumption also increased from 3.9% in 2017 to 4.1% in 2018. The 10-year government bond yield in Malaysia as at 31 December 2018 was 4.1%. Great Eastern did not disclose its investment return assumptions for 2018.

Despite a general reduction in insurance-related consumer activity, AIA recorded a 12% increase in its APE in 2018, while its VNB and new business margin grew by 15% and 1%, respectively, over the same period. Its new business margin remained strong at 63.8%, having launched several new flagship unit-linked and health products in 2018. This included a bespoke high sum assured regular unit-linked product for its bancassurance partner, Public Bank, which helped drive greater penetration of the bank's affluent customer base. AIA also launched a first-to-market health rider designed to encourage healthy living and provide recovery support following treatment. AIA's Takaful business continues to be an important strategic focus, delivering double-digit VNB growth in 2018. AIA continues to be the leader of Malaysia's group insurance market

Great Eastern Malaysia posted robust results in 2018, which it has attributed to the continued demand for regular premium unit-linked products, strong growth in group insurance business and continued success in its bancassurance partnership with OCBC. Great Eastern Malaysia's Takaful business recorded double-digit growth, driven mainly by growth in its agency channel.

In January 2019, the insurance regulator Bank Negara Malaysia (BNM)issued a policy document that sets out strengthened requirements on the conduct of unit-linked[66] business with the primary objective to protect the interests of consumers. The salient requirements are as follows:

- Implementation of standards on minimum allocation rates to protect the account values of unit-linked policy/certificate owners
- Introduction of minimum standards on sustainability tests and communication to policy/certificate owners to improve long-term persistency of unit-linked products and consumer awareness
- Strengthening of disclosure standards for product illustrations to facilitate more informed decision-making by consumers

In the second half of 2018, AIA Malaysia became the first insurer in Malaysia to offer unit-linked insurance products that are compliant with the new Minimum Allocation Rate regulation in advance of the formal regulatory deadline of 1 July 2019 (for a licensed insurer) and 1 July 2020 (for a licensed Takaful operator). The introduction of the minimum allocation rate is likely to decrease margins for unit-linked business in Malaysia, particularly for Takaful operators. In addition, effective 1 January 2020, the sales illustrations for unit-linked business will be based on two reduced specified rates, of 2% per annum (p.a.) and 5% p.a., to reflect the impact of different investment returns, with the rates being in line with those used for participating business. The lower sales illustration rates may reduce the attractiveness of unit-linked business to consumers. Thirdly, effective 1 July 2019, all licensed insurers and Takaful operators have had to redesign and reprice their unit-linked products to demonstrate that the policy is expected to sustain its coverage until the end of the contractual term. There is also a requirement for a regular sustainability assessment of existing unit-linked policies that has to be communicated to policyholders at least annually. Companies are likely to change the product design of unit-linked business to meet the new sustainability requirements. Overall, the new regulations are expected to increase the transparency of unit-linked products, which is beneficial for consumers, but they may have a negative impact on insurers' profit margins unless the products are redesigned and repriced.

BNM has initiated a review of the current RBC framework which is expected to be conducted in phases over the next few years. The review is intended to take account of the current insurance and Takaful landscape, as well as developments in global regulatory and accounting standards.

[66] In Malaysia, unit-linked business is also known as investment-linked business

Singapore

FIGURE 65: REPORTED EV OF SINGAPOREAN INSURANCE OPERATIONS, 2016-2018[67]

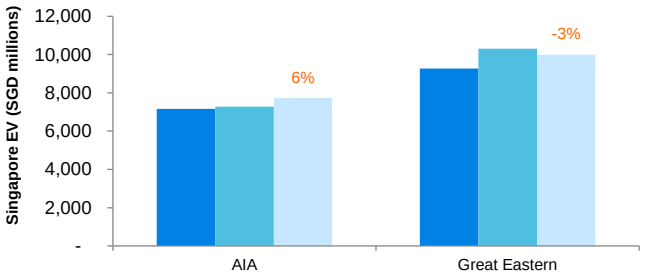


FIGURE 66: REPORTED ANW OF SINGAPOREAN INSURANCE OPERATIONS, 2016-2018[68]

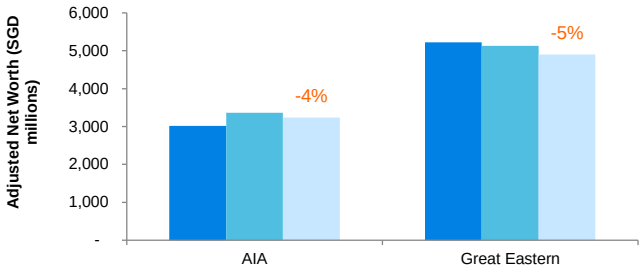


FIGURE 67: REPORTED VIF OF SINGAPOREAN INSURANCE OPERATIONS, 2016-2018

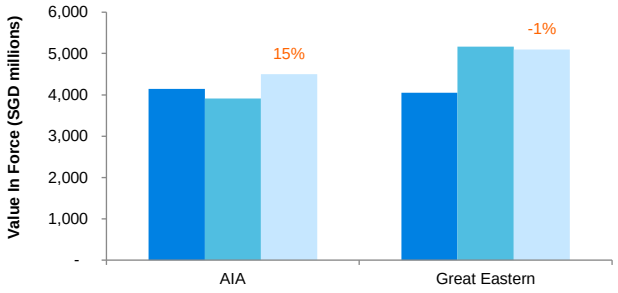


FIGURE 68: REPORTED VIF/ANW SPLIT OF SINGAPOREAN INSURANCE OPERATIONS, 2018

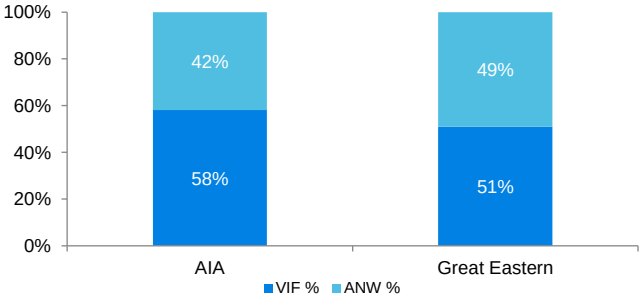


FIGURE 69: REPORTED VNB OF SINGAPOREAN INSURANCE OPERATIONS, 2016-2018

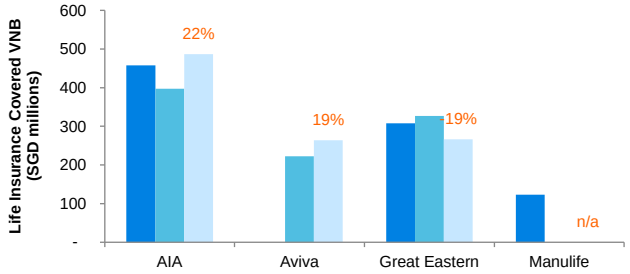


FIGURE 70: REPORTED APE[69] OF SINGAPOREAN INSURANCE OPERATIONS, 2016-2018

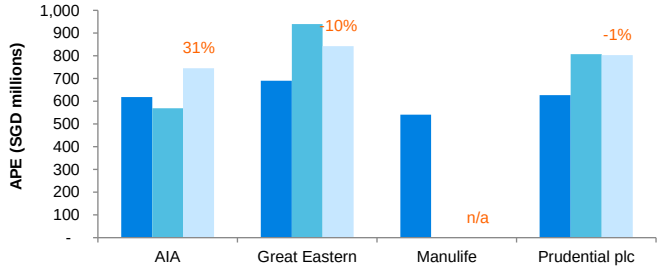
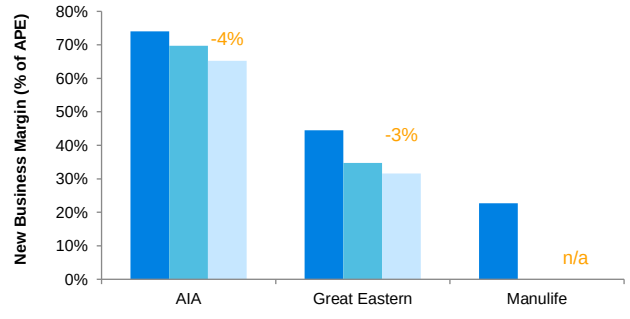


FIGURE 71: REPORTED NEW BUSINESS MARGIN OF SINGAPOREAN INSURANCE OPERATIONS, 2016-2018



[67] Great Eastern Singapore's EV include its businesses in Brunei, Hong Kong and Indonesia.

[68] Great Eastern Singapore's ANW include its businesses in Brunei, Hong Kong and Indonesia.

[69] The values shown in Figure 70 have been determined based on APEs reported in EV disclosures converted to local currency using the prevailing exchange rate applicable at each reporting date (2016, 2017 and 2018). These figures are different from the disclosed APEs for Prudential and AIA Singapore in local currency terms due to exchange rate differences, as APE presented in EV disclosures has been converted based on average exchange rates rather than the prevailing exchange rate applicable at the reporting date.

Only Great Eastern and AIA disclosed separate 2018 EV results for Singapore. Prudential's results are not disclosed (it is part of an aggregated classification), although some of the underlying EV assumptions are provided. The risk discount rate for Great Eastern remained unchanged at 7.0% for year-end 2018, while for AIA Singapore it has increased from 6.9% to 7.1%. There was a decrease in the in-force business risk discount rate used by Prudential for EEV reporting from 4.4% to 4.2%, further increasing the gap between the rates adopted by Great Eastern and AIA, which report on a TEV basis. Great Eastern did not disclose its investment return assumptions for 2018. AIA Singapore's 2018 investment return assumptions increased by 20 bps to 7.2% for equity and 2.7% for 10-year government bond yields. Prudential increased its equity and 10-year government bond yield assumptions by 10 bps to 8.6% and 2.1%, respectively. The 10-year government bond yield in Singapore as at 31 December 2018 was approximately 2.04%.

AIA disclosed a 29% increase in its Singapore APE in SGD terms,[70] driven by the agency channel and its strategic partnership with Citibank, although new business margin fell by 7% in 2018. This lower new business margin was attributed to lower profitability from Health Shield business and higher volumes of low-margin, single premium unit-linked business prior to a regulatory change in October 2018. Great Eastern reported a fall in APE due to lower sales from both agency and bancassurance channels. Consequently, overall VNB and new business margins fell too. Prudential reported a slight decline of 1% in Singapore APE in SGD terms.

The new risk-based capital regime RBC2 is expected to become effective from 1 January 2020, following the recent requirement for insurers to submit parallel runs (as part of the final QIS) for year-end 2018 by 2 July 2019. A key revision to RBC2 is a significant increase in asset risk charges for equities and credit securities, although the impact will be offset by the allowance of diversification and an allowance for negative reserves within the capital calculations. Preliminary results indicate that insurers would continue to remain healthy with CAR levels in excess of 100% under RBC2. However, it appears that insurers with large participating funds and universal life business could see a fall in CAR levels, given that these product lines are heavily invested in equities and credit securities. On the contrary, unit-linked players will likely see CAR levels increasing given the allowance for negative reserves.

[70] The values shown in Figure 70 for 2018 APE growth for Prudential and AIA Singapore, in SGD terms, are different from the reported disclosures. Please refer to footnote 69 for further explanation.

South Korea

FIGURE 72: REPORTED EV OF SOUTH KOREAN INSURANCE OPERATIONS, 2016-2018[71,72]

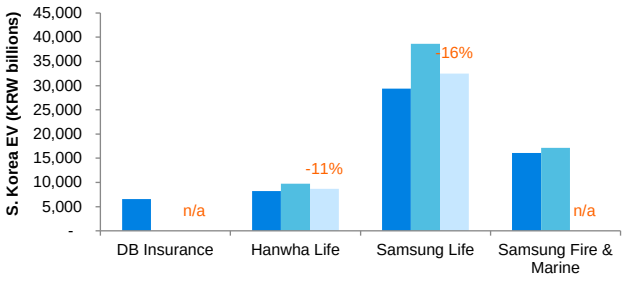


FIGURE 73: REPORTED ANW OF SOUTH KOREAN INSURANCE OPERATIONS, 2016-2018

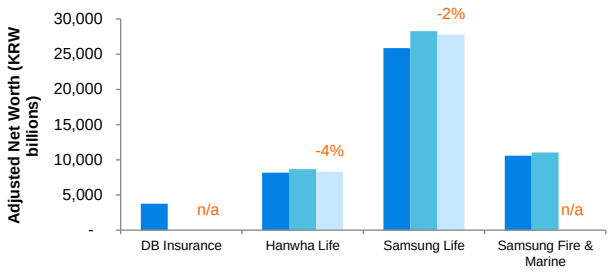


FIGURE 74: REPORTED VIF OF SOUTH KOREAN INSURANCE OPERATIONS, 2016-2018

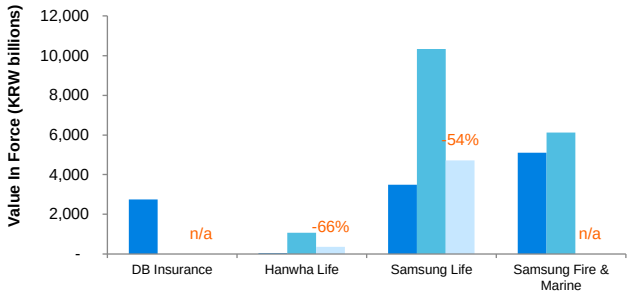


FIGURE 75: REPORTED VIF/ANW SPLIT OF SOUTH KOREAN INSURANCE OPERATIONS, 2018

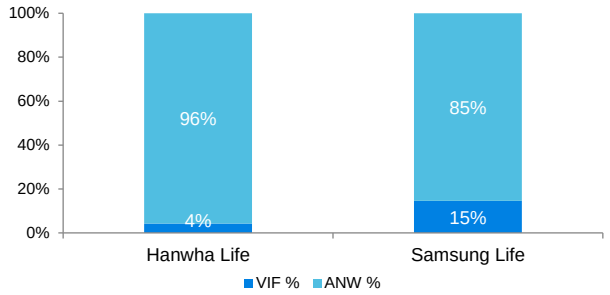


FIGURE 76: REPORTED VNB OF SOUTH KOREAN INSURANCE OPERATIONS, 2016-2018

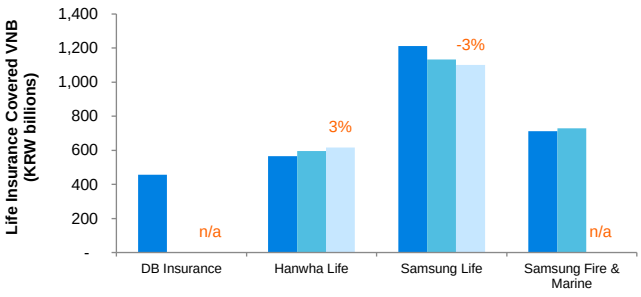


FIGURE 77: REPORTED APE OF SOUTH KOREAN INSURANCE OPERATIONS, 2016-2018

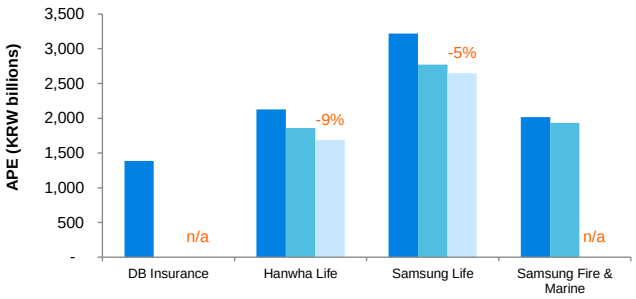
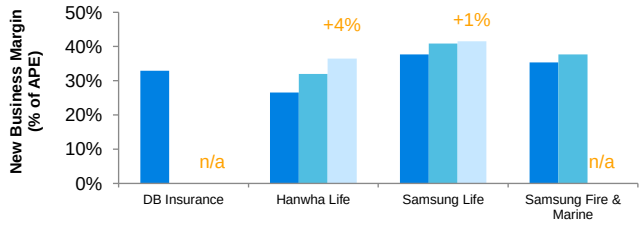


FIGURE 78: REPORTED NEW BUSINESS MARGIN OF SOUTH KOREAN INSURANCE OPERATIONS, 2016-2018



[71] It is important to note that Hanwha Life's EV figure for 2018 is before dividend payout, while past figures were after dividend payout.

[72] Samsung Fire & Marine did not disclose its 2018 results as of our cutoff date. Hence, the results have not been included in the analysis.

Our South Korea analysis includes the EV and VNB results of Hanwha Life and Samsung Life.[73] AIA has not reported its EV and VNB results for South Korea separately since 2015. All of the EV reporting companies have kept their risk discount rates unchanged for 2018. Hanwha Life and Samsung have decreased their investment return assumptions from 3.65% to 3.35% and from 4.00% to 3.40%, respectively. The 10-year government bond yield in South Korea, as at 31 December 2018 was 1.96%, down from 2.47% as at 31 December 2017.

Both the Korean insurers reported a decrease in their ANW and VIF. The decreases in ANW were caused partially by additional stochastic guarantee reserve requirements due to the declining interest rates. Hanwha Life attributed its decrease in VIF to a fall in investment return assumptions. Samsung Life recorded a 54% fall in VIF, citing a fall in investment rate assumptions and worsening actuarial assumptions as the main reasons. Although VNB dropped by around 3% for Samsung Life, new business margins improved by 1% due to higher sales of protection products.

Given that Korean companies will adopt IFRS17 and K-ICS from year 2022, they are going through different stages of impact studies and implementation projects. With IFRS17 reporting on the horizon, some companies have stopped reporting EV results to the market, with others likely to follow this trend.

The Korean regulator, Financial Services Commission (FSC), has come up with a plan to revise insurance policies in order to lower insurance premiums and increase policy surrender payouts. As part of this plan, starting from January 2021, agents will not be paid commissions greater than12 times the monthly premiums, with a maximum of KRW 1.2 million for an insurance contract with a KRW 100,000 monthly premium.

South Korea's insurance companies are focusing on improving their processes and developing various products by working with startup fintech and insurtech companies. The FSC plans to develop comprehensive reform measures in order to stimulate technological innovation in the financial sector and create an ecosystem where fintech startups are unrestricted to experiment with new ideas.

[73] It is important to note that DB Insurance and Samsung Fire & Marine also transact property and casualty insurance, hence care will need to be taken when comparing their EV against other companies, as the results cover their ‘pseudo-life’ type long-term business and other non-life business.

Taiwan

FIGURE 79: REPORTED EV OF TAIWANESE INSURANCE OPERATIONS, 2016-2018[74]

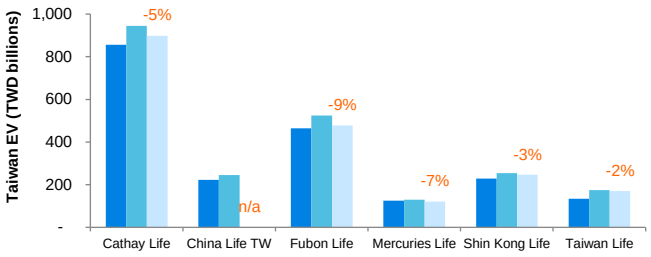


FIGURE 80: REPORTED ANW OF TAIWANESE INSURANCE OPERATIONS, 2016-2018

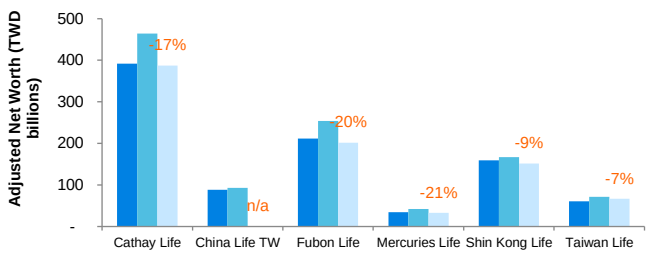


FIGURE 81: REPORTED VIF OF TAIWANESE INSURANCE OPERATIONS, 2016-2018

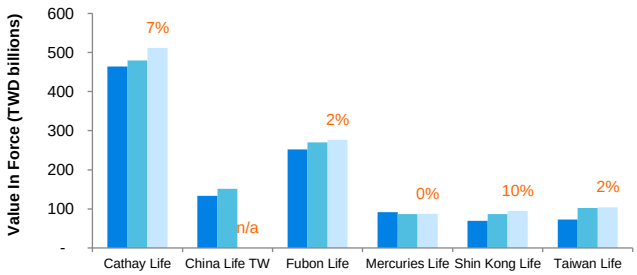


FIGURE 82: REPORTED VIF/ANW SPLIT OF TAIWANESE INSURANCE OPERATIONS, 2018

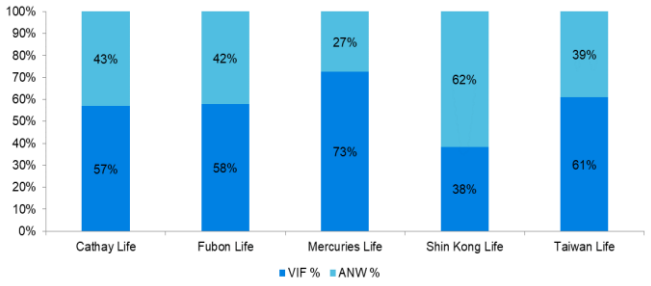


FIGURE 83: REPORTED VNB OF TAIWANESE INSURANCE OPERATIONS, 2016-2018

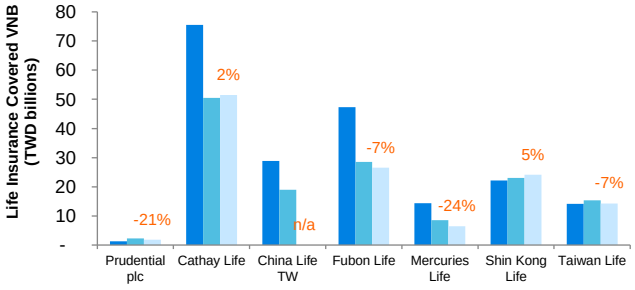


FIGURE 84: REPORTED APE[75] OF TAIWANESE INSURANCE OPERATIONS, 2016-2018

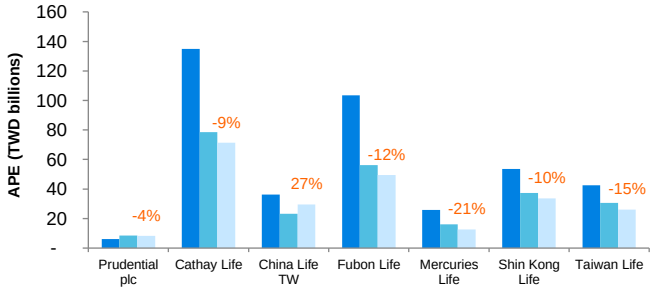
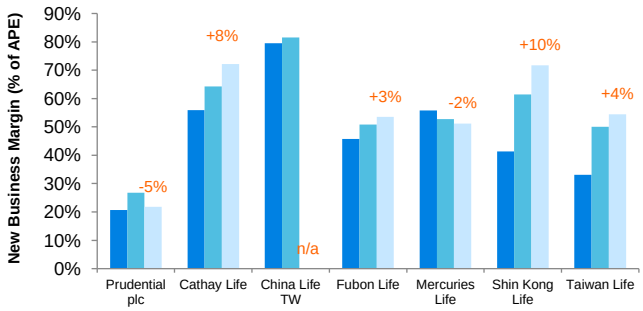


FIGURE 85: REPORTED NEW BUSINESS MARGIN OF TAIWANESE INSURANCE OPERATIONS, 2016-2018



[74] China Life TW has not disclosed its EV results for 2018 as of the cutoff date for this report.

[75] 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 and flexible premium + 20% x two-year premium payment term + … + 50% five-year premium payment term + 100% six-year or more premium payment term.

All insurers in Taiwan posted declining EV results in 2018, with Fubon Life reporting the greatest fall of 9%, followed by Mercuries Life, which reported a reduction of 7%. Fubon Life and Mercuries Life recorded significant drops in ANW, of approximately 20% and 21%, respectively, while the 2018 VIF results only changed marginally from those reported in 2017.

Cathay Life and Shin Kong Life reported rises in VNB results, whereas Prudential plc, Fubon Life, Mercuries Life and Taiwan Life recorded falls in VNB. Fubon Life's VNB decreased by 7% for the year ending 2018 due to a shift in market demand towards unit-linked and short-term health and accident plans.

Prudential plc increased its risk discount rate assumption for in-force and new business from 3.9% to 4.4% and from 4.3% to 4.5%, respectively, while keeping its 10-year government bond yield assumption unchanged from 2017. The domestic life insurers in 2018 typically assumed investment returns that start from around 3.1% to 4.8%, and increase to long-term rates of around 4.8% to 6.0%, with risk discount rates of around 10.5%. The 10-year government bond yield stood at approximately 0.87% at the end of 2018, down from 0.95% at the end of 2017. The full set of economic assumptions disclosed in the market is set out in Figure 100 below.

In other developments, to prepare for the implementation of IFRS17 and to improve low equity-to-asset ratios of insurers, Taiwan's Financial Supervisory Commission (FSC) has decided to toughen the regulations for Taiwanese life insurers later this year. Insurers in Taiwan lack the adequate reserves to fulfil IFRS17 requirements; hence, the expected implementation date agreed by Taiwan regulator is January 2025, which is three years behind the international adoption date. Press reports suggest the regulations will also promote traditional products and discourage use of insurance as a wealth management options for individuals.

Thailand

FIGURE 86: REPORTED EV[76] OF THAILAND INSURANCE OPERATIONS, 2016-2018[77]

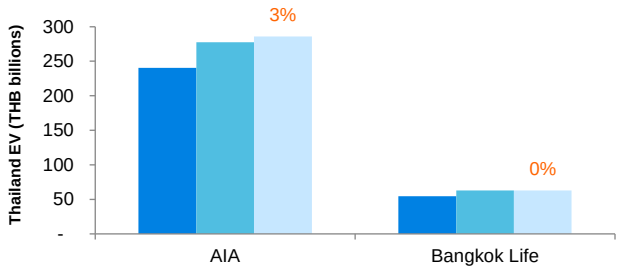


FIGURE 87: REPORTED ANW OF THAILAND INSURANCE OPERATIONS, 2016-2018[78]

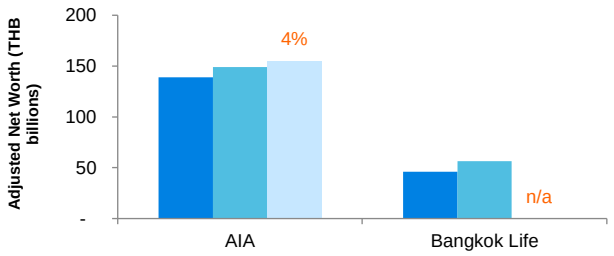


FIGURE 88: REPORTED VIF OF THAILAND INSURANCE OPERATIONS, 2016-2018[3]

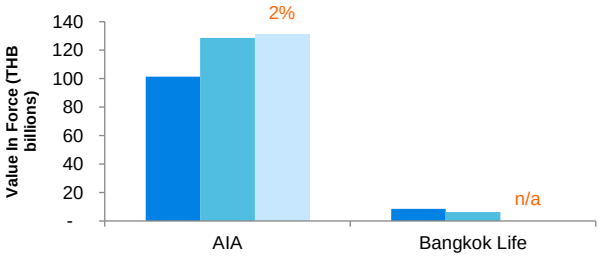


FIGURE 89: REPORTED VIF/ANW SPLIT OF THAILAND INSURANCE OPERATIONS, 2018

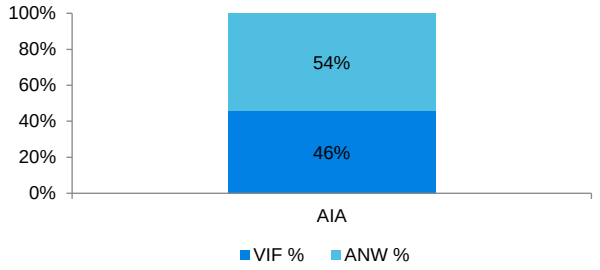


FIGURE 90: REPORTED VNB OF THAILAND INSURANCE OPERATIONS, 2016-2018

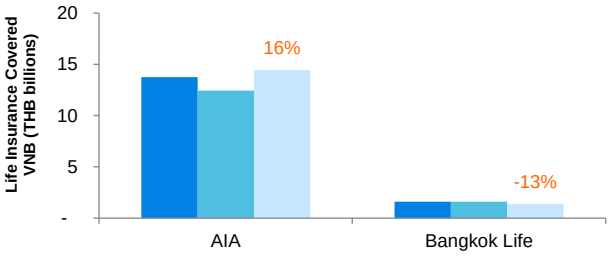


FIGURE 91: REPORTED APE OF THAILAND INSURANCE OPERATIONS, 2016-2018[79]

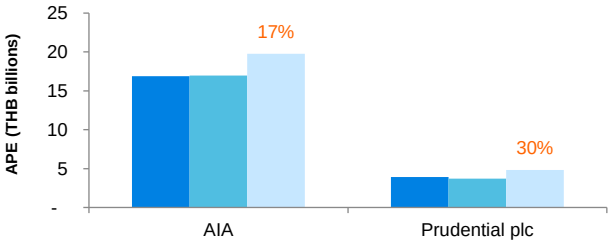
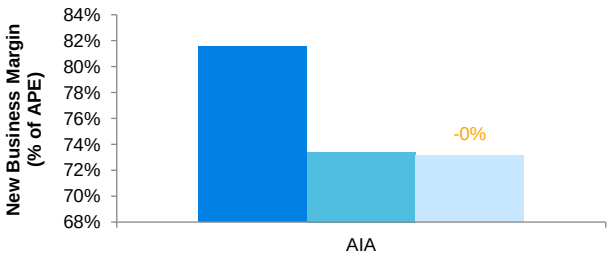


FIGURE 92: REPORTED NEW BUSINESS MARGIN OF THAILAND INSURANCE OPERATIONS, 2016-2018[3]



[76] EV, VNB and APE throughout this section have been converted to local currency using the prevailing exchange rates applicable at each reporting date (2016, 2017 and 2018).

[77] The FX rates used for conversion to local currency (for all charts) are listed in Appendix B.

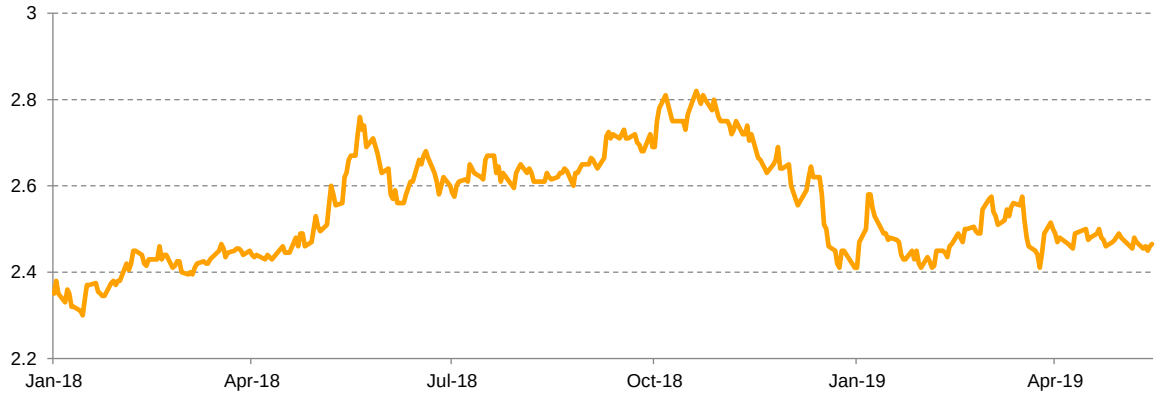
[78] Bangkok Life 2018 ANW and VIF have not been disclosed.

[79] Bangkok Life stopped disclosing APE in 2016 and therefore is excluded from the list. Prudential plc only discloses APE for its Thailand operations.

Two life insurance companies have disclosed their EV and VNB results in recent years in Thailand, namely AIA and Bangkok Life. The 2018 EV results for Prudential are not separately disclosed (they are part of an aggregated classification), but there is some information provided on the underlying EV assumptions. Prudential increased its risk discount rate and long-term 10-year government bond yield assumptions by 20 bps to 10.0% and 2.5%, respectively. Bangkok Life has not disclosed its new business APE or new business margin since 2015.

Medium and longer-dated Thai government bond yields remain depressed. The 10-year Thai government bond yield declined in Q4 2018, reversing the increases seen earlier in the year, and ending 2018 at a similar level to the start of the year, at around 2.5%. In H1 2019, government bond yields have reduced further. Lower local government bond yields will result in increased gross premium valuation reserves and higher interest rate risk charges for many insurers.

FIGURE 93: HISTORICAL 10-YEAR THAILAND GOVERNMENT BOND YIELDS



Source: the Thai Bond Market Association

AIA's 2018 year-end assumptions for long-term equity return, 10-year government bond yield and risk discount rate were unchanged compared with those at 2017 year-end, at 9.0%, 3.2% and 8.6%, respectively. After converting AIA's EV disclosure to local currency terms using exchange rates as at the valuation date, its ANW, VIF and EV grew marginally. AIA recorded strong APE growth in 2018, especially in the context of a challenging market, which the company attributed to increased productivity of its agency channel under its agency transformation program and the launch of additional critical illness products. Its VNB increased by 16% in local currency terms (12% in USD terms), mainly driven by growth in APE, as cited by the company.

In 2018, industry life insurance total unweighted premium grew by 4.3% to THB 627 billion. The Thai Life Assurance Association (TLAA) forecasts 3% to 5% growth in life insurance premiums in 2019, similar to the growth rate in 2018. Although total unweighted new business sales rose by 7.5% in 2018, the growth was mainly due to a 31% rise in single premium sales. Growth in weighted new business premium (new business APE, i.e., 10% of single premium + 100% of first year premium from TLAA's statistics) dropped by 5% in 2018 after falls of 5% in 2017 and 8% in 2016.

New business market growth in Thailand continues to be negatively impacted by factors such as continuing political uncertainty and consequential economic slowdown leading up to, and after, the general election in March 2019, challenges in selling profitable savings products in a depressed yield curve environment and increased scrutiny and stricter enforcement of market conduct rules, especially within banks.

A revised risk-based capital framework, known as 'RBC2,' will replace the existing RBC framework. Two quantitative impact studies of the new framework at 95%, 97.5%, and 99.5% confidence levels have been carried out by insurers for the OIC. The implementation of the framework at the 95% confidence level is expected in 2H 2019, but the exact implementation details and date of implementation are not known at the time of producing this report. The revised framework is intended to be a refinement of the existing RBC rules. Changes to the valuation of assets and liabilities include the valuation of policy loans and refined provision for adverse deviation (PAD) parameters for the fair value of liabilities. Several risk charge parameters have been recalibrated, and a new risk class, operational risk, has been introduced.

In addition, from 2019 onwards insurance companies will be required to implement ERM and ORSA practices. The requirements are more stringent for Tier 1 companies, i.e., insurers with total asset value of THB 90 billion or more, and for reinsurance companies. On top of the regulatory capital requirements, insurance companies are required to calculate economic capital in the event that the regulatory capital alone fails to capture the risk profile of the company adequately.

The OIC has circulated two draft regulations that will increase disclosure requirements for all insurers, namely 'Rules, Procedures and Conditions for Disclosure of Financial Standing and Operating Results of Life Insurance Companies' and 'Rules, Procedures and Conditions for Disclosure of Financial Standing and Operating Results of Non-Life Insurance Companies.' The draft notifications outline the different types of information that life and non-life insurance companies must disclose, including quantitative and qualitative data on the company's ERM and asset liability management. The objective is to improve comparability of companies within the insurance industry and protect the interests of consumers.

In other developments, the OIC established the CIT for research, technological exchange and insurance product development in 2018. It aims to bring together insurance firms and tech startups to encourage technological innovation in the insurance industry. There is also a regulatory sandbox for insurtech, along with a number of benefits for new entrants that reduce the regulatory hurdles they need to face.

Vietnam

FIGURE 94: REPORTED EV OF VIETNAM INSURANCE OPERATIONS, 2016-2018

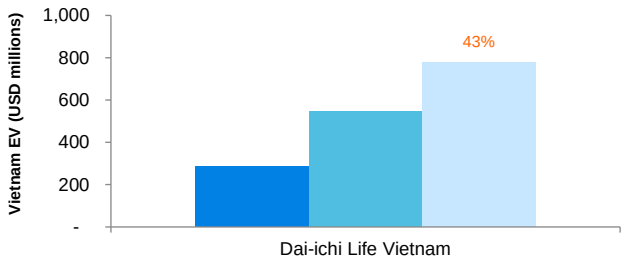


FIGURE 95: REPORTED ANW OF VIETNAM INSURANCE OPERATIONS, 2016-2018

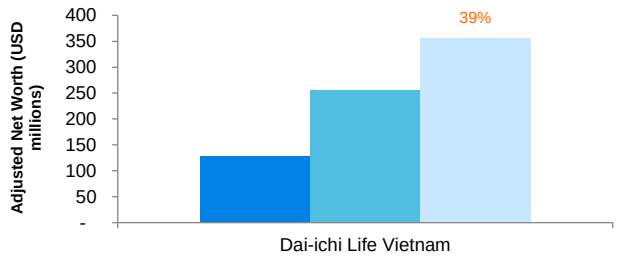


FIGURE 96: REPORTED VIF OF VIETNAM INSURANCE OPERATIONS, 2016-2018

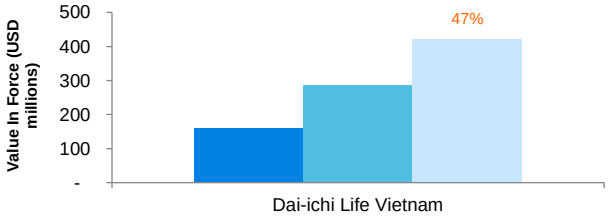


FIGURE 97: REPORTED APE OF VIETNAM INSURANCE OPERATIONS, 2016-2018[80]

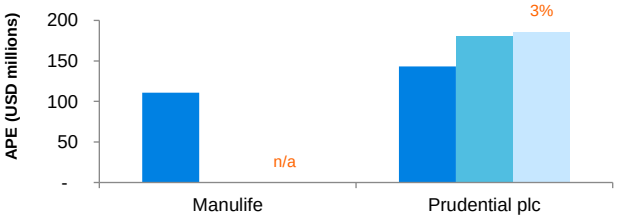
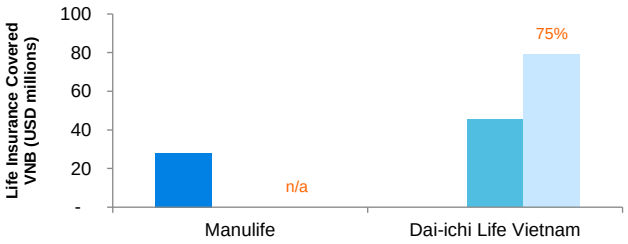


FIGURE 98: REPORTED VNB OF VIETNAM INSURANCE OPERATIONS, 2016-2018



Dai-ichi Life is the only company that disclosed separate 2018 EV results for Vietnam, although it uses a TEV methodology for Vietnam as opposed to the EEV methodology adopted at group level in Japan. Dai-ichi Life's EV increased by 42% in 2018 on a constant currency basis.[81]

Dai-ichi Life Vietnam used a risk discount rate of 11.0% but did not disclose its investment return assumptions. The 2018 EV results for AIA and Prudential were not disclosed (they are part of an aggregated classification), but there is some information provided on the underlying EV assumptions for both companies. AIA reduced its risk discount rate and long-term 10-year government bond yield assumption by 50 bps for 2018, to 11.8% and 6.0%, respectively. Prudential kept its risk discount rate and long-term 10-year government bond yield assumption unchanged from its 2017 EV assumptions, at 12.6% and 5.1%, respectively.

Recent falls in local government bond yields, coupled with the nature of reserving and solvency capital regulations in Vietnam, including differences in the treatment of assets and liabilities, has led to challenges for many life insurers, especially those managing more material portfolios of non-participating and participating traditional savings business, with long-term guarantees. This has put pressure recently on balance sheets and has resulted in shareholders of several life insurers making capital injections to boost their solvency positions.

[80] Dai-ichi Life is excluded as its APE is not reported.

[81] To provide comparability and eliminate FX effects, results for all years for all MNCs and markets have been converted to USD using the prevailing FX rate as at the 2018 reporting date.

Against the backdrop of the low yield environment, there has been extensive industry lobbying for changes to the statutory reserving rules, and recent changes to the basis. With effect from 16 February 2019, the MOF amended its Circular 50 regulation (Point 3.1, Clause 3, Article 18) in respect of the calculation of VIR under the NLP method. The change from the existing VIR basis to the new VIR basis is summarised below:

- Existing VIR basis: 70% of the average yield of government bonds with durations of 10 years or longer issued over the past six months.
- New VIR basis: 80% of the average yield of government bonds with durations of 10 years or longer issued over the past 24 months.

The maximum VIR allowed by the MOF differs by the issue date of policies and is set to be the lowest of (a), (b) and (c) as described below:

a) For policies issued before 16 February 2019: A blended rate according to calendar year in the table below, gradually phased in to the new VIR basis.

CALENDAR YEAR	VIR ASSUMPTION
2019	60% of existing VIR basis + 40% of new VIR basis
2020	40% of existing VIR basis + 60% of new VIR basis
2021	20% of existing VIR basis + 80% of new VIR basis
2022+	100% of new VIR basis

For policies issued on or after 16 February 2019: The new VIR basis.

b) The average investment interest returns achieved over the last four quarters.
c) Valuation interest rate adopted in pricing.

The new reserving rules have resulted in higher VIR and lower statutory reserves, and led to some improvement in solvency ratios for many insurers.

In other developments, the use of cash or deposits to fund deficits in the policyholder fund under Circular 50 (Clause 1, Article 27) will also be amended. The original Circular 50 states that the insurers have the responsibility to address deficits in the policyholder fund (if any) from the shareholder fund. In the proposed amendment to Circular 50, the MOF provided clarification that the assets used to fund these deficits are to be either in cash or deposits at the financial institutions coming from the shareholder fund.

Vietnam has seen more macroeconomic stability in recent years, helping to support growth in the insurance sector. The MOF Insurance Supervisory Authority is targeting a premium growth rate of 20% in 2019, to reach around 3% of GDP by 2020 and 3.5% by 2025. Life insurance market growth has been strong in the past few years. In 2018, total gross written premium increased by 29% to VND 85 trillion (approximately USD 3.69 billion) and new business premium grew by 29% to VND 29 trillion (approximately USD 1.25 billion).

Methodology hot topics

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 subsidiaries or joint ventures of European and Japanese insurers.

For all types of EV reporting, common hot topics in Asia include:

- The selection and construction of the appropriate risk discount rate
- The selection of appropriate investment rate assumptions
- Allowance for the impact of cost/expense overruns
- How to explicitly or implicitly allow for the cost of capital
- Calculation of TVOG

CONSTRUCTION OF RISK DISCOUNT RATE

The selection of risk discount rate 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 adjusting 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 applying this discount rate or curve to every 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 liquidity premium.

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

In addition to the derivation methodology, there are three further major considerations:

1. The underlying basis for the risk discount rate.
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 MCEV companies).

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

Figure 99 summarises the risk discount rate and investment return assumptions by the MNCs (both foreign and Asian MNCs). Figure 100 summarises the assumptions by market.

FIGURE 99: RISK DISCOUNT RATE AND INVESTMENT RETURN ASSUMPTIONS OF MNCS

COMPANY	EV PRINCIPLE	RDR	INVESTMENT RETURNS
AIA	TEV	China: 9.75% Hong Kong: 7.50% Indonesia: 13.00% Korea: 8.60% Malaysia: 8.75% Philippines (Philam Life): 11.80% Singapore: 7.10% Taiwan: 7.85% Thailand: 8.60 % Vietnam: 11.80%	China: Equities 9.30%, 10Y Gov't Bonds 3.70% Hong Kong: Equities 7.80%, 10Y Gov't Bonds 3.00% Indonesia: Equities 12.00%, 10Y Gov't Bonds 7.50% Malaysia: Equities 8.80%, 10Y Gov't Bonds 4.20% Philippines (Philam Life): Equities 10.50%, 10Y Gov't Bonds 5.30% Singapore: Equities 7.20%, 10Y Gov't Bonds 2.70% South Korea: Equities 7.20%, 10Y Gov't Bonds 2.70% Taiwan: Equities 6.60%, 10Y Gov't Bonds Current 0.86%, Long term 1.60% Thailand: Equities 9.00%, 10Y Gov't Bonds 3.20% Vietnam: Equities 11.30%, 10Y Gov't Bonds 6.00%
Allianz	MCEV/SII	Risk-free interest rate curves, allowing for volatility adjustment	Risk-free interest rate curves, allowing for volatility adjustment
Aviva	SII	Risk-free interest rate curves, allowing for credit risk adjustment, volatility adjustment and matching adjustment.	Risk-free interest rate curves, allowing for credit risk adjustment, volatility adjustment and matching adjustment.
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.
Great Eastern	TEV	Singapore: 7.00% Malaysia: 8.75% Indonesia: 13.5%	Not disclosed
Manulife	TEV	Hong Kong: 9.20% Japan: 5.75%	Hong Kong: Equity 9.50%, 10Y Gov't Bonds (immediate to 30 years in future): 2.02% to 3.33% Japan: Equity 6.00%, 10Y Gov't Bonds (immediate to 30 years in future): -0.01% to 2.64%
Prudential plc	EEV	China: 8.10% Hong Kong: 4.40% Indonesia: 12.40% Malaysia: 6.60% Philippines: 14.50% Singapore: 3.40% (NB), 4.20% (IF) Taiwan: 4.50% (NB), 4.40% (IF) Thailand: 10.00% Vietnam: 12.60%	China: 10Y Gov't Bonds 3.30% Hong Kong: Equities 6.70%, 10Y Gov't Bonds 2.70% Indonesia: 10Y Gov't Bonds 8.20% Malaysia: Equities 10.60%, 10Y Gov't Bonds 4.10% Philippines: 10Y Gov't Bonds 7.00% Singapore: Equities 8.60%, 10Y Gov't Bonds 2.10% Taiwan: 10Y Gov't Bonds 0.90% Thailand: 10Y Gov't Bonds 2.50% Vietnam: 10Y Gov't Bonds 5.10%
Zurich	MCEV	Swap rates, allowing for volatility adjustment	Swap rates, 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 mostly on a portfolio basis, without much information on the assumed asset mix (although this can often be inferred from their regulatory returns).

Another interesting comparison can be made between AIA and Prudential. Despite their contrasting methodologies (TEV versus EEV), their government bond yield assumptions are quite similar for some markets (e.g., Malaysia and Taiwan) but diverge sharply for other markets (e.g., Hong Kong, Philippines and Singapore).

FIGURE 100: RISK DISCOUNT RATE AND INVESTMENT ASSUMPTIONS OF INSURERS BY MARKET[82,88]

MARKET	COMPANY	EV PRINCIPLE	RISK DISCOUNT RATE	INVESTMENT RETURNS
China	**Chinese 10-year government bond yield at 31 December 2018: 3.27%**			
	AIA	TEV	9.75%	China: Equities 9.30%, 10Y Gov't Bonds 3.70%
	China Life	TEV	10.00%	Assumed to be 5%
	China Pacific	TEV	11.00%	Long-term business: 5.00% Short-term business: based on the latest 1-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	11.50%	Year 1: 4.50% (non-linked), 7.60% (linked) Year 2: 4.60% (non-linked), 4.7% (universal life), 7.60% (linked) Year 3: 4.80% (non-linked), 5.00% (universal life), 7.80% (linked) Year 4+: 5.00% (non-linked), 5.10% (universal life), 7.90% (linked)
	PICC Life	TEV	10.00%	5.25%
	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	EEV	8.10%	10Y Gov't Bonds 3.3%
Hong Kong	**Hong Kong 10-year government bond yield at 31 December 2018: 1.98%** **USD 10-year government bond yield at 31 December 2018: 2.686%**			
	AIA	TEV	7.50%	Equities 7.80%, 10Y Gov't Bonds 3.00%
	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.
	Tahoe Life	TEV	Not disclosed	Not disclosed
	Manulife	TEV	9.20%	Equity 9.50%, 10Y Gov't Bonds (immediate to 30 years in future): 2.02% to 3.33%
	Prudential	EEV	4.40%	Mean equity return 6.70%, 10Y Gov't Bonds 2.70%
India	**Indian 10-year government bond yield at 31 March 2019 : 7.35%**			
	Bajaj Allianz Life	MCEV	Risk-free yield curve	Risk-free yield curve
	Aditya Birla Sun Life	MCEV	Not disclosed	Not disclosed
	Exide Life	MCEV	Not disclosed	Not disclosed
	HDFC Life	IEV	Risk-free yield curve	Risk-free yield curve
	ICICI Prudential Life	IEV	Risk-free yield curve	Risk-free yield curve
	Kotak Life	IEV	Not disclosed	Not disclosed
	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

[82] Shaded entries indicate that the 2018 risk discount rate and investment assumptions have not yet been disclosed, and that the assessment has been based on 2017 disclosures instead.
[88] Source for the 10-year government bond yields for all markets is at https://www.investing.com.

MARKET	COMPANY	EV PRINCIPLE	RISK DISCOUNT RATE	INVESTMENT RETURNS
	SBI Life	IEV	Risk-free yield curve	Risk-free yield curve
Japan	**Japan 10-year government bond yield at 31 March 2019: -0.08%**			
	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.
	Manulife	TEV	Japan: 5.75%	Japan: Equity 6.00%, 10Y Gov't Bonds (immediate to 30 years in future): -0.01% to 2.64%
	Daido Life	MCEV	Risk-free rate (JPY: Based on Japanese extrapolated by assuming forward rates in the 41st year and beyond were equal to those in the 40th year. Other currencies of risk-free rate (RFR) are applied for the same extrapolation method for the longest available duration.	Risk-free interest rate curves
	Dai-ichi Life	MC-EEV	Risk-free rate (JPY): Based on Japanese Government Bond and ultimate forward rates Foreign currencies : Based on swap rates extrapolated by assuming 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	Risk-free rate (JPY): Based on Japanese Government Bond and ultimate forward rates Foreign currencies : Based on swap rates extrapolated by assuming forward rates in the 31st year and beyond were equal to those in the 30th year	Risk-free interest rate curves
	Japan Post Insurance Co Ltd	MC-EEV	Risk-free rate (based on Japanese Government Bond and ultimate forward rates: UFR: 3.5% LLP: 30th year CP: 30 years)	Risk-free interest rate curves
	LifeNet Insurance	MC-EEV	Risk-free rate (based on swap rates and ultimate forward rates: UFR: 3.5% LLP: 40th years CP: 20 years)	Risk-free interest rate curves
	Medicare Life	MC-EEV	Risk-free rate with zero floor (based on Japanese, US and Australian Government Bond and ultimate forward rates): JPY UFR: 3.5% LLP: 30th years CP: 30 years	Risk-free interest rate curves

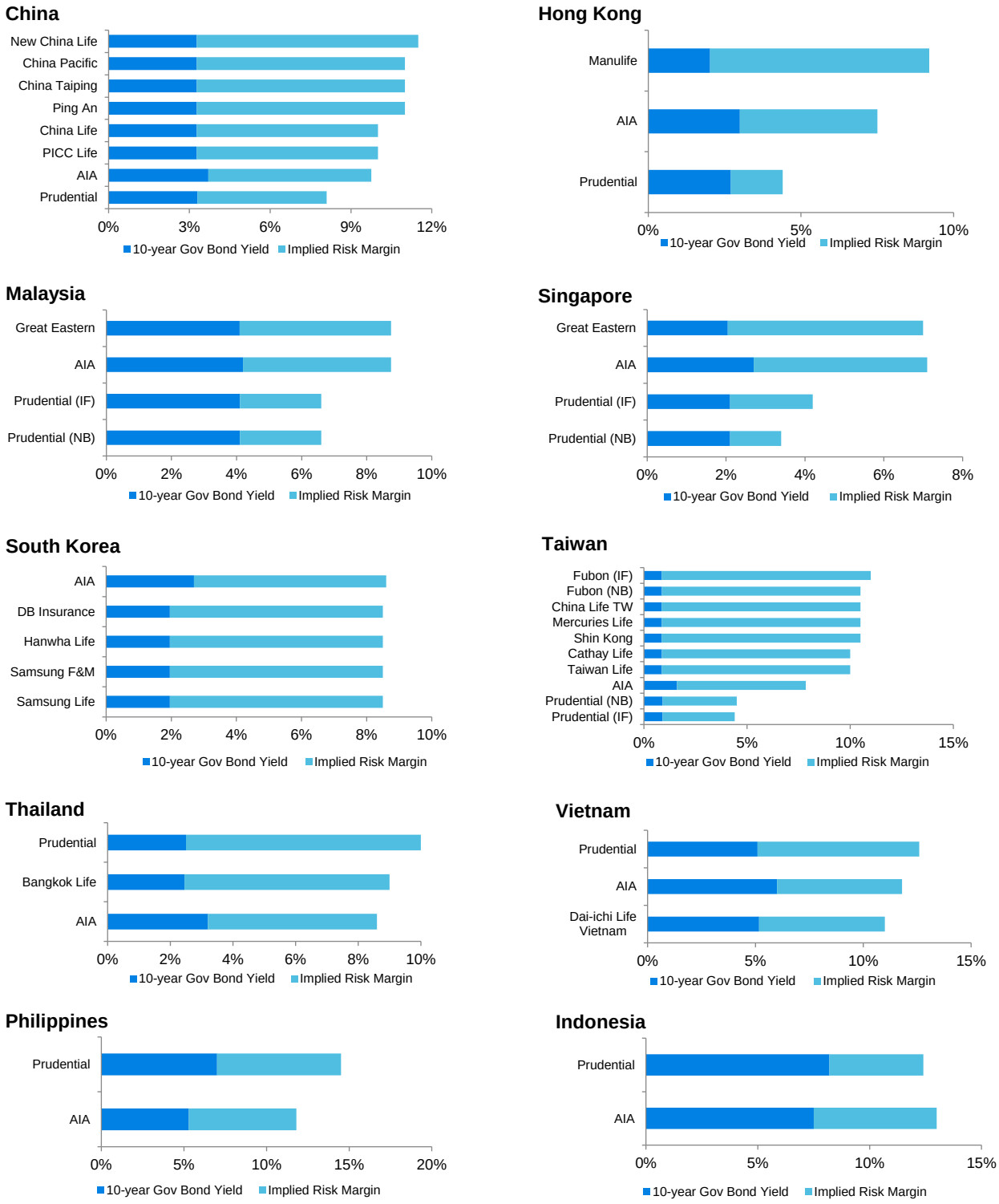
MARKET	COMPANY	EV PRINCIPLE	RISK DISCOUNT RATE	INVESTMENT RETURNS
	Meiji Yasuda Life	MC-EEV	Risk-free rate (based on Japanese Government Bond) .Forward rates in the 31st year and beyond were extrapolated based on taking into consideration the shape of swap yield curve.	Risk-free interest rate curves
	MS&AD Aioi Life	MC-EEV	Risk-free rate: Based on Japanese Government Bond 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 forward rates in the 41st year and beyond were equal to those in the 40th year. USD and AUD swap rates allow for illiquidity premium	Risk-free interest rate curves
	Neo First Life	MC-EEV	Risk-free rate (JPY): Based on Japanese Government Bond and ultimate forward rates Foreign currencies: Based on swap rates and constant forward rate: UFR: 3.5% LLP: 30th year CP: 30 years	Risk-free interest rate curves
	Sompo Japan Nipponkoa Himawari Life	MCEV	Risk-free rate: Based on Japanese Government Bond and ultimate forward rates: UFR: 3.5% LLP: 30th year CP: 40 years	Risk-free interest rate curves
	Sony Life	MCEV	Risk-free rate: Based on Japanese Government Bond and US Treasury yields: JPY: UFR: 3.5% LLP: 40th year CP: 20 years	Risk-free interest rate curves
	Sumitomo Life	MC-EEV	Risk-free rate with zero floor (based on Japanese, US and Australian Government Bond and ultimate forward rates): JPY UFR: 3.5% LLP: 30th years CP: 30 years	Risk-free interest rate curves
	T&D Financial Life	MCEV	Risk-free rate (JPY): Based on Japanese extrapolated by assuming forward rates in the 41st year and beyond were equal to those in the 40th year. Other currencies of RFR are applied for the same extrapolation method for the longest available duration.	Risk-free interest rate curves

MARKET	COMPANY	EV PRINCIPLE	RISK DISCOUNT RATE	INVESTMENT RETURNS
	Taiyo Life	MCEV	Risk-free rate (JPY): Based on Japanese extrapolated by assuming forward rates in the 41st year and beyond were equal to those in the 40th year. Other currencies of RFR are applied for the same extrapolation method for the longest available duration.	Risk-free interest rate curves
	Tokio Marine & Nichido Life	MCEV	Risk-free rate (based on Government Bond yields) extrapolated by assuming forward rates in the 41st year and beyond were equal to those in the 40th year.	Risk-free interest rate curves
Indonesia	**Indonesian 10-year government bond yield at 31 December 2018: 7.99%**			
	AIA	TEV	13.00%	Equities 12.00%, 10Y Gov't Bonds 7.50%
	Prudential	EEV	12.40%	10Y Gov't Bonds 8.20%
Malaysia	**Malaysian 10-year government bond yield at 31 December 2018: 4.10%**			
	AIA	TEV	8.75%	Equities 8.80%, 10Y Gov't Bonds 4.20%
	Great Eastern	TEV	8.75%	Not disclosed
	Prudential	EEV	6.60%	Equities 10.6%, 10Y Gov't Bonds 4.10%
Philippines	**Philippines 10-year government bond yield at 31 December 2018: 7.05 %**			
	AIA	TEV	11.80%	Equities 10.50%, 10Y Gov't Bonds 5.30%
	Prudential	EEV	14.50%	10Y Gov't Bonds 7.00%
Singapore	**Singaporean 10-year government bond yield at 31 December 2018: 2.04%**			
	AIA	TEV	7.10%	Equities 7.20%, 10Y Gov't Bonds 2.70%
	Aviva	SII	Risk-free interest rate curves, allowing for credit risk adjustment, volatility adjustment and matching adjustment.	Risk-free interest rate curves, allowing for credit risk adjustment, volatility adjustment and matching adjustment.
	Great Eastern	TEV	7.00%	Not disclosed
	Prudential	EEV	3.40% (new business), 4.20% (in-force)	Equities: 8.60%, 10Y Gov't Bonds 2.10%
South Korea	**Korean 10-year government bond yield at 31 December 2018: 1.96%**			
	AIA	TEV	8.60%	Equities 7.20%, 10Y Gov't Bonds 2.70%
	DB Insurance	TEV	8.50%	3.20%
	Hanwha Life	TEV	8.50%	3.35%
	Samsung Life	TEV	8.50%	3.40%
	Samsung Fire & Marine	TEV	8.50%	3.30%
Taiwan	**Taiwan 10-year government bond yield at 31 December 2018: 0.87%**			
	AIA	TEV	7.85%	Equities 6.60%, 10Y Gov't Bonds Current 0.86%, Long term 1.60%
	Allianz	MCEV / SII	Risk-free interest rate curves, allowing for volatility adjustment	Risk-free interest rate curves, allowing for volatility adjustment

MARKET	COMPANY	EV PRINCIPLE	RISK DISCOUNT RATE	INVESTMENT RETURNS
	Cathay Life	TEV	10.00%	VNB TWD Products: 3.13% ~ 4.86% (2038+) USD Products : 4.66% ~ 5.79% (2038+) VIF TWD Products: 3.95% ~ 5.00% (2038+) USD Products : 4.64% ~ 5.78% (2038+)
	China Life TW	TEV	10.50%	Years 1-10: 3.75%-5.31% (traditional), 2.75%-4.45% (interest-sensitive) Years 11+: 5.35% (traditional), 4.55% (interest-sensitive)
	Fubon	TEV	VNB: 10.5% VIF: 11.0%	VNB NTD Traditional Policies: Year 2018 to Year 2050 at 2.96% ~ 5.52% (2051+) USD Policies: Year 2018 to Year 2047 at 4.06% ~ 5.96% (2048+) VIF NTD Traditional Policies: Year 2019 to Year 2050 at 3.47% ~ 5.56% (2051+) USD Policies: Year 2019 to Year 2044 at 4.47% ~ 5.96% (2045+)
	Mercuries Life	TEV	10.50%	VNB TWD Products: 3.40% ~ 5.00% (2039+) USD Products : 4.20% ~ 6.00% (2032+) VIF TWD Products: 3.50% ~ 5.00% (2045+) USD Products : 4.30% ~ 6.00% (2043+)
	Prudential	EEV	4.50% (NB), 4.40% (IF)	10Y Gov't Bonds 0.9%
	Shin Kong	TEV	10.50%	VNB TWD Products: 3.34% ~ 5.00% USD Products : 4.43% ~ 5.60% VIF TWD Products: 3.47% ~ 5.00% USD Products: 4.70% ~ 5.60%
	Taiwan Life	TEV	10.00%	TWD Policies: Year 2019 to Year 2038 at 3.62% ~ 4.30% (2039+) USD Policies: Year 2019 to Year 2038 at 4.80% ~ 5.50% (2039+)
Thailand	**Thailand 10-year government bond yield at 31 December 2018: 2.45%**			
	AIA	TEV	8.60%	Equities 9.00%, 10Y Gov't Bonds 3.20%
	Bangkok Life	TEV	9.00%	4.25%
	Prudential	EEV	10.00%	10Y Gov't Bonds 2.50%
Vietnam	**Vietnamese 10-year government bond yield at 31 December 2018: 5.17%**			
	AIA	TEV	11.80%	Equities 11.30%, 10Y Gov't Bonds 6.00%
	Dai-ichi Life Vietnam	TEV	11.00%	Not disclosed
	Prudential	EEV	12.60%	10Y Gov't Bonds 5.10%

The charts in Figure 101 compare 10-year government bond yields and the risk discount rates assumed by different companies for each market. The implied risk margin is also illustrated for each company.

FIGURE 101: 2018 PROXY RISK-FREE RATES AND IMPLIED RISK MARGINS[83,84] BY COMPANY[85] FOR EACH MARKET



[83] In this case, the risk margin has been defined as the difference between the assumed risk discount rate and the yield on a 10-year government bond as at each insurer's 2018 reporting date.

[84] The 10-year government bond yields have been extracted from http://www.investing.com.

[85] Note that only TEV- and EEV-reporting companies using risk discount rates 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.

INVESTMENT RETURN ASSUMPTIONS

Unlike insurers reporting under MCEV, companies reporting TEV and EEV results need to make assumptions about future investment returns earned on reserves and required capital. In 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[86] level instead.

In general, the investment return assumptions used by insurers tend to be in a tight band in most markets. This is illustrated in Figures 99 and Figure 100 above. There can often be greater variation in equity return assumptions than government bond yield assumptions.

Chinese and Taiwanese insurers, in particular, have assumed increasing investment returns for future years. There is limited disclosure as to how these increasing yield scenarios are reflected in the VIF calculations, in particular whether corresponding capital losses are incorporated as interest rates are projected to rise. This is in contrast to AIA, where disclosures indicate that, when fixed interest yields are assumed to rise from the current level to the long-term assumptions, appropriate allowances are made for the resulting bond portfolio capital losses.

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 also normally a useful exercise, as is understanding the asset modelling supporting any upward trending interest rate approach.

EXPENSE OVERRUNS

Expense overruns are reported by some insurers, particularly for new operations or those in an expansion phase. The EV expense assumptions are usually based on 'fully allocated' historical experience, but this can cause insurers with fledgling operations that have yet to scale to show seemingly unprofitable business. As a result, some EV results are presented as 'pre-overrun,' where the EV figures will be calculated based on long-term target expense levels, and as 'post-overrun,' which reflects current actual expense experience. The difference between actual current expense level and the targeted long-term level is commonly referred to as an expense overrun. Overruns can come from acquisition expenses (including distribution-related costs), maintenance expenses, or one-off costs.

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 the fact that investors do not have direct control over their capital (known as agency costs). Cost of capital 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 on 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 having to hold the required capital, which will earn the after-tax investment rate of return instead of the risk discount rate. CRNHR is generally implicit in the choice of the risk discount rate 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 risk discount rate, similar to the approach for TEV.

[86] For example, Hanwha Life (South Korea) cites an investment assumption of 3.35% for its entire business instead of specifying the exact asset class assumptions.

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 year-end 2018, almost all companies disclosed that they set their required capital by reference to domestic regulatory requirements, with a few MNCs such as Aviva and Prudential also taking into consideration the results from their internal models.

An important assumption behind EV calculations is the level of solvency margin 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.

Figure 102 summarises the required solvency margin assumed by insurers for their Asian operations.

FIGURE 102: SUMMARY OF SOLVENCY MARGIN REQUIREMENTS BY COMPANY[87]

CATEGORY	COMPANY	EV METHODOLOGY	REQUIRED CAPITAL
MNC	AIA	TEV	China: 100% of required capital as specified under the CAA EV assessment guidance Hong Kong: 150% minimum SM Indonesia: 120% RBC Malaysia: 170% RBC Philippines: 100% RBC Singapore: 180% RBC South Korea: 150% RBC Sri Lanka: 120% RBC Taiwan: 250% RBC Thailand: 140% RBC Vietnam: 100% minimum SM
MNC	Allianz	MCEV/SII	Solvency Capital Requirement (SCR as per SII)
MNC	Aviva	SII	Solvency Capital Requirement (SCR as per SII)
MNC	AXA	EEV	150% for other entities outside European Economic Area (EEA) with limitations on soft capital to half of the target solvency capital.
MNC	Great Eastern	TEV	Requirements are based on the Risk-Based Capital framework as set out in local regulations for Singapore and Malaysia.
MNC	Manulife	TEV	China: 100% of required capital as specified under the CAA EV assessment guidance Hong Kong: 150% of solvency requirements Indonesia: 120% RBC Malaysia: 160% capital adequacy ratio Philippines: 125% RBC Singapore: 200% capital adequacy ratio Vietnam: 100% minimum SM
MNC	Prudential plc	EEV	Higher of local regulatory requirements and internal target.
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	Not disclosed
CHINA	China Pacific	TEV	Not disclosed
CHINA	China Taiping	TEV	100% minimum SM
CHINA	New China Life	TEV	100% minimum SM
CHINA	PICC Life	TEV	Not disclosed
CHINA	Ping An	TEV	Not disclosed
HONG KONG	Tahoe Life	TEV	Not disclosed
INDIA	Bajaj Allianz Life	MCEV	Not disclosed

[87] Shaded entries indicate that the 2018 required solvency capital information has not yet been disclosed, and that the assessment has been based on 2017 disclosures instead.

CATEGORY	COMPANY	EV METHODOLOGY	REQUIRED CAPITAL
INDIA	Aditya Birla Sun Life	MCEV	Not disclosed
INDIA	Exide Life	MCEV	Not disclosed
INDIA	HDFC Life	IEV	170% of factor-based solvency requirements less the funds for future appropriations (FFA) in the participating funds
INDIA	ICICI Prudential Life	IEV	150% of factor-based solvency requirements
INDIA	Kotak Life	IEV	Not disclosed
INDIA	Max Life	MCEV	Not disclosed
INDIA	PNB Metlife	IEV	170% of RSM
INDIA	Reliance Nippon Life	TEV	Not disclosed
INDIA	SBI Life	IEV	180% of factor-based solvency requirements
JAPAN	Daido Life	MCEV	Sum of Japanese regulatory minimum capital requirement and 133% of economic capital.
JAPAN	Dai-ichi Life	MC-EEV	Capital required to maintain 400% Solvency Margin Ratio
JAPAN	Dai-ichi Frontier Life	MC-EEV	Capital required to maintain 400% Solvency Margin Ratio
JAPAN	Japan Post Insurance Co Ltd	MC-EEV	Capital required to maintain 600% Solvency Margin Ratio
JAPAN	LifeNet Insurance	MC-EEV	Capital required to maintain 500% Solvency Margin Ratio
JAPAN	Medicare Life	MC-EEV	Capital required to maintain 400% Solvency Margin Ratio
JAPAN	Meiji Yasuda Life	MC-EEV	Capital required to maintain 350% regulatory solvency margin ratio
JAPAN	MS&AD Aioi Life	MC-EEV	Capital required to maintain 600% Target Solvency Margin Ratio
JAPAN	MS&AD Primary Life	MC-EEV	Capital required to maintain 600% Target Solvency Margin Ratio
JAPAN	Neo First Life	MC-EEV	Capital required to maintain 400% Solvency Margin Ratio
JAPAN	Sompo Japan Nipponkoa Himawari Life	MCEV	Capital required to maintain 600% statutory solvency margin ratio
JAPAN	Sony Life	MCEV	Higher of Japanese regulatory minimum capital requirement or internal target
JAPAN	Sumitomo Life	MC-EEV	Capital required to maintain 400% Solvency Margin Ratio
JAPAN	T&D Financial Life	MCEV	Sum of Japanese regulatory minimum capital requirement and 133% of economic capital
JAPAN	Taiyo Life	MCEV	Sum of Japanese regulatory minimum capital requirement and 133% of economic capital
JAPAN	Tokio Marine & Nichido Life	MCEV	Higher of statutory minimum requirement level and internal target
SOUTH KOREA	DB Insurance	TEV	150% RBC
SOUTH KOREA	Hanwha Life	TEV	150% RBC
SOUTH KOREA	Samsung Life	TEV	Not disclosed
SOUTH KOREA	Samsung Fire & Marine	TEV	150% RBC
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
VIETNAM	Dai-ichi Life Vietnam	TEV	Not disclosed

EV-reporting insurers generally use similar assumptions, opting to use the level of solvency margin at which they believe regulatory intervention will occur. The exceptions to this are as follows:

- In Singapore, where AIA uses 180% while Manulife uses 200% (Great Eastern did not disclose the minimum regulatory level for 2018)
- In Malaysia, where AIA uses 170% and Manulife uses 160% (Great Eastern did not disclose the minimum regulatory level for 2018)
- In Taiwan, where AIA uses 250% compared with the 200% used by all domestic insurers

A few companies notably do not disclose their required solvency margin 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[88] of such financial options and guarantees. The second is the time value of options and guarantees (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 and guaranteed annuity options. Other features such as ‘return of premiums’ are also 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 can be reflected, if such actions are consistent with the insurer's normal governance and approval processes, are consistent with the operating environment and take into account the market reaction to discretion.

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.

Figure 103 shows that, of those companies that disclosed the number of scenarios used, the majority applied 1,000 economic scenarios on a market-consistent basis.

[88] 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.

FIGURE 103: SUMMARY OF TVOG APPROACHES

COMPANY TYPE	COMPANY	OPTIONS AND GUARANTEES	SCENARIOS	USE OF DYNAMIC POLICYHOLDER BEHAVIOUR	CALCULATED FOR ASIAN OPERATIONS? (ASIA VALUE)
MNC	Allianz	Market-consistent, stochastic	1,000 (5,000 in Germany)	Yes	Not disclosed
MNC	Aviva	Market-consistent, stochastic	Not disclosed	Not disclosed	Not disclosed
MNC	AXA	Market-consistent, stochastic	At least 1,000	Yes	Yes (EUR 225 million for VNB)
MNC	Prudential	Stochastic	Not disclosed	Not disclosed	Yes (GBP 981 million)
MNC	Zurich	Market-consistent, stochastic	1,000	Yes	Yes (USD 9 million)
India	Aditya Birla Sun Life	Not disclosed	Not disclosed	Not disclosed	Not disclosed
India	ICICI Prudential Life	Stochastic	Not disclosed	Not disclosed	Yes (INR 0.97 billion)
India	HDFC Life	Not disclosed	Not disclosed	Not disclosed	Not disclosed
India	SBI Life	Not disclosed	Not disclosed	Not disclosed	Yes (INR 0.9 billion)
India	Kotak Life	Not disclosed	Not disclosed	Not disclosed	Not disclosed
India	Max Life	Stochastic	1,000	Not disclosed	Yes (INR 43 Crore)
Japan	Dai-ichi Life	Market-consistent, stochastic	5,000	Yes	Yes (JPY 103.3 billion)
Japan	Dai-ichi Frontier Life	Market-consistent, stochastic	5,000	Yes	Yes (JPY 2.1 billion)
Japan	Japan Post Insurance Co Ltd	Market-consistent, stochastic	5,000	Yes	Yes (JPY 297.9 billion)
Japan	Neo First Life	Market-consistent, stochastic	5,000	Yes	Yes
Japan	LifeNet Insurance	TVOG is zero.	Not used	No.	Set as NIL
Japan	Medicare Life	Market-consistent, stochastic	5,000	Yes	Yes (JPY 0.2 billion)
Japan	Meiji Yasuda Life	Market-consistent, stochastic	5,000	Yes	Yes (JPY 111.6 billion)
Japan	MS&AD Aioi Life	Market-consistent, stochastic	5,000	Yes	Yes (JPY 63.2 billion)
Japan	MS&AD Primary Life	Market-consistent, stochastic	5,000	Yes	Yes (JPY 33.8 billion)
Japan	Sompo Japan Nipponkoa Himawari Life	Market-consistent, stochastic	1,000	Yes	Yes (JPY 7.4 billion)
Japan	Sony Life	Market-consistent, stochastic	1,000	Yes	Yes (JPY 140.8 billion)
Japan	Sumitomo Life	Market-consistent, stochastic	5,000	Yes	Yes (JPY 103.6 billion)
Japan	Tokio Marine & Nichido Life	Market-consistent, stochastic	1,000 or 2,000	Yes	Yes (JPY 37.4 billion)

Figure 103 discloses the TVOG approaches at a group level. For example, Prudential explicitly identifies its participating portfolios in Hong Kong, Singapore, Malaysia and Taiwan in its TVOG calculations. Other key markets, such as Indonesia, are unlikely to be a material source of TVOG for Prudential, given the predominance of linked and pure protection business.

Aviva and Allianz continue to disclose limited EV information and no longer report their Asia EV and TVOG figures, although AXA still provided the TVOG on its 2017 Asia VNB. Meanwhile, more Indian insurers have started to publish EV results, with many of them disclosing TVOG figures that are of a similar magnitude as the MNCs.

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 in 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 and 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, 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 risk discount rate and investment return.

The table in Figure 104 summarises the available disclosures of insurers operating in Asia. While the level of disclosures in Asia lags behind Europe now, the key components are typically provided, i.e., analysis of movement, sensitivities and key assumptions.

Another key differentiator between Europe and Asia is that it is normal practice for European insurers to include a detailed EV report in their annual reports, almost to the same level of detail as their statutory IFRS statements. At this time, only AIA amongst the Asian insurers has a comparable level of disclosure.

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 104 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 104: SUMMARY OF DISCLOSURES IN 2018[89]

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	RISK DISCOUNT RATE ASSUMPTIONS	INVESTMENT RETURN ASSUMPTIONS	EXPENSE INFLATION ASSUMPTIONS	NEW BUSINESS MARGIN INFORMATION	EV AND VNB SENSITIVITIES
MNC	AIA	TEV	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Allianz	MCEV / SII	✓	✓		✓	✓	✓		✓	✓
	Aviva	SII	✓		✓		✓	✓			
	AXA	EEV	✓		✓	✓	✓	✓	✓	✓	✓
	Great Eastern	TEV	✓	✓		✓	✓				
	Manulife	TEV	✓	✓	✓	✓	✓	✓		✓	✓
	Prudential plc	EEV	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Zurich	MCEV	✓	✓	✓	✓	✓	✓	✓	✓	✓
CHINA	China Life	TEV	✓	✓			✓	✓		✓	✓
	China Pacific	TEV	✓	✓			✓	✓	✓	✓	✓
	China Taiping	TEV	✓	✓		✓	✓	✓		✓	✓
	New China Life	TEV	✓	✓		✓	✓	✓	✓	✓	✓
	PICC Life	TEV	✓	✓		✓	✓	✓	✓		✓
	Ping An	TEV	✓	✓		✓	✓	✓	✓	✓	✓
INDIA	Bajaj Allianz Life	MCEV		✓						✓	
	Aditya Birla Sun Life	IEV		✓						✓	✓
	HDFC Life	IEV	✓	✓		✓	✓	✓		✓	✓
	ICICI Prudential Life	IEV	✓	✓		✓	✓	✓		✓	✓
	Kotak Life	IEV	✓							✓	
	Max Life	MCEV	✓	✓			✓	✓		✓	✓
	Reliance Nippon Life	TEV									
	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	✓	✓		✓	✓	✓	✓	✓	✓
	Meiji Yasuda 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	✓	✓		✓	✓	✓	✓	✓	✓

[89] Shaded entries indicate that the 2018 EV results have not yet been disclosed, and that the assessment has been based on 2017 disclosures instead.

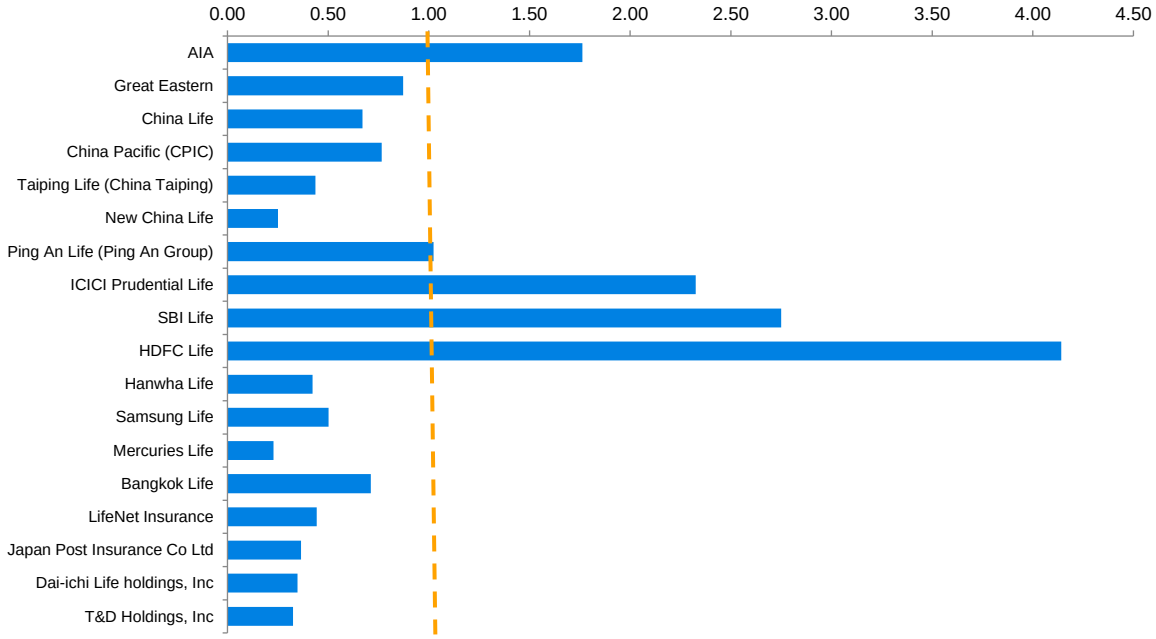
TYPE	COMPANY	EV PRINCIPLE	EVIDENCE OF INDEPENDENT REVIEW OF EV RESULTS	ANALYSIS OF EV MOVEMENT	RECONCILIATION OF ANW TO IFRS NET ASSETS	COST OF CAPITAL/ REQUIRED CAPITAL	RISK DISCOUNT RATE ASSUMPTIONS	INVESTMENT RETURN ASSUMPTIONS	EXPENSE INFLATION ASSUMPTIONS	NEW BUSINESS MARGIN INFORMATION	EV AND VNB SENSITIVITIES
	Taiyo Life	MCEV	✓	✓		✓	✓	✓	✓	✓	✓
	Tokio Marine & Nichido Life	MCEV	✓	✓		✓	✓	✓	✓	✓	✓
KOREA	Hanwha Life	TEV		✓		✓	✓	✓	✓	✓	✓
	Samsung Life	TEV		✓			✓	✓	✓	✓	✓
TAIWAN	Cathay Life	TEV				✓	✓	✓		✓	✓
	China Life TW	TEV	✓	✓		✓	✓	✓		✓	✓
	Fubon	TEV		✓		✓	✓	✓		✓	✓
	Mercuries Life	TEV	✓								
	Shin Kong	TEV	✓	✓		✓	✓	✓	✓		✓
	Taiwan Life	TEV	✓			✓	✓	✓		✓	✓
THAILAND	Bangkok Life	TEV	✓				✓	✓			
VIETNAM	Dai-ichi Life Vietnam	TEV	✓				✓			✓	

Other measures of value

MARKET CAPITALISATION

Figure 105 gives the price/EV (P/EV) ratios for listed insurers.

FIGURE 105: MARKET CAPITALISATION TO EMBEDDED VALUE RATIOS AS AT 2018 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 our EV world), thereby excluding what would have been 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.

IFRS17

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. This is fundamentally due to current IFRS4 standards (called 'Phase I,' implemented in 2004) focusing on a current view of assets and liabilities together with current profit generation compared with embedded value, which makes allowances for future earnings and the shareholder value created. 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: IFRS17. The standard will apply for accounting periods starting on or after 1 January 2021, but prior year comparative figures will be required. 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 and reported information based on current estimates.

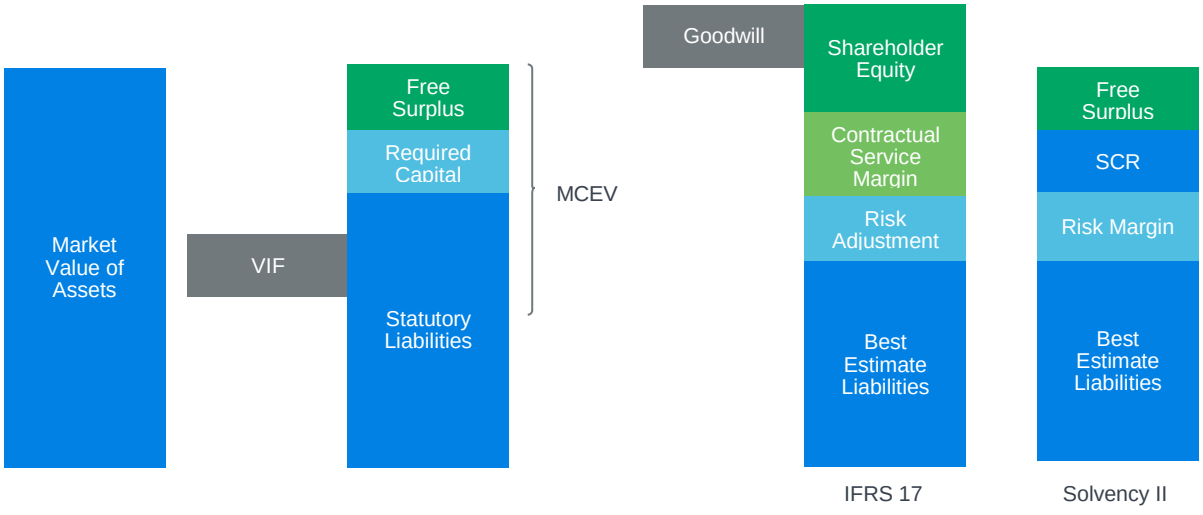
In summary, the principle-based standard requires an assessment of the profitability of insurance contracts when they are first issued and, if positive, recognition of that value over the lifetime of the contracts in a manner that reflects the timing of the insurance services provided by the insurer. 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 so that it is consistent with observable market prices of financial instruments comparable with the cash flow of the insurance liabilities.
- A contractual service margin (CSM) represents the profitability of the insurance contract to be recognised in profit or loss over the coverage period. 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 remaining 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.
- Grouping of contracts is permitted but companies will need to identify contracts which are onerous (loss-making) at inception and group them separately from non-onerous contracts. The group of non-onerous contracts will need to be further split into at least two groups—one group with no significant risk of becoming onerous and one group with other profitable contracts. Companies are also permitted to group contracts written in the same year.
- The presentation of results in the income statement and balance sheet will change significantly. The 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.

In August 2018, the Financial Accounting Standards Board (FASB) issued ASU 2018-12, Targeted Improvements to the Accounting for Long-Duration Contracts, with the objective of making targeted improvements to the existing recognition, measurement, presentation and disclosure requirements for long-duration contracts issued by an insurance entity. The major updates include improving timeliness of recognising changes in the liability for future policy benefits, modifying the rate used to discount future cash flows, simplifying and improving the accounting for certain market-based options (MRBs), simplifying the amortisation of deferred acquisition costs and improving the effectiveness of the required disclosures.

The proposed IFRS17 is compared with MCEV and Solvency II in Figure 106.

FIGURE 106: MCEV VS. SOLVENCY II VS. IFRS 17



Despite recent developments in financial reporting, the implementation of Solvency II and the publication of the IASB's finalised standard, IFRS17, EV remains an important metric to showcase insurers' financial performances and their business strategies to investors, analysts and customers.

An improvement in overall embedded value results over 2017, reflecting for many firms strong growth of new business and largely favourable economic effects, continued to indicate a relatively stable and optimistic market. However, with a largely unsettled global political landscape, the market environment continues to present challenges for insurers.

With an implementation date for IFRS17 of 1 January 2021, and with a prior year comparative result also required, insurers will increasingly be focused on ensuring their readiness under this new standard. As a result, it remains uncertain whether embedded value will continue evolving in order to remain a useful metric alongside the new solvency and accounting regimes.

In June 2019, the IASB proposed amendments to IFRS17 to alleviate concerns and challenges raised about implementing it. The IASB has also proposed to delay the implementation of IFRS17 by one year. Previously, the target effective date for implementation was set as January 2021.

Appendix A: Total Asian EV by company by territory

FIGURE 107: TOTAL ASIAN EV BY COMPANY (USD MILLIONS[90,91])

TYPE	COMPANY	EV PRINCIPLE	CHINA	HONG KONG	INDIA	JAPAN	KOREA	MALAYSIA	SINGAPORE	TAIWAN	THAILAND	INDONESIA	PHILIPPINES	VIETNAM	UNALLOCATED	TOTAL
MNC	AIA	TEV	8,186	18,358	-	-	-	2,630	5,679	-	8,840	-	-	-	10,824	54,517
	Allianz	MCEV / SII	-	-	-	-	-	-	-	-	-	-	-	-	2,920	2,920
	Aviva	SII	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	AXA	EEV	-	-	-	-	-	-	-	-	-	-	-	-	15,694	15,694
	Great Eastern	TEV	-	-	-	-	-	2,529	7,337	-	-	-	-	-	-	9,866
	Manulife	TEV	-	-	-	-	-	-	-	-	-	-	-	-	17,560	17,560
	Prudential plc	EEV	-	-	-	-	-	-	-	-	-	-	-	-	31,044	31,044
	Zurich	MCEV	-	-	-	-	-	-	-	-	-	-	-	-	3,040	3,040
CHINA	China Life	TEV	115,588	-	-	-	-	-	-	-	-	-	-	-	-	115,588
	China Pacific	TEV	37,571	-	-	-	-	-	-	-	-	-	-	-	-	37,571
	China Taiping	TEV	17,423	-	-	-	-	-	-	-	-	-	-	-	-	17,423
	New China Life	TEV	25,173	-	-	-	-	-	-	-	-	-	-	-	-	25,173
	PICC Life	TEV	10,269	-	-	-	-	-	-	-	-	-	-	-	-	10,269
	Ping An	TEV	89,153	-	-	-	-	-	-	-	-	-	-	-	-	89,153
HONG KONG	Tahoe Life	TEV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
INDIA	Bajaj Allianz Life	MCEV	-	-	1,875	-	-	-	-	-	-	-	-	-	-	1,875
	Aditya Birla Sun Life	IEV	-	-	707	-	-	-	-	-	-	-	-	-	-	707
	Exide Life	MCEV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	HDFC Life	IEV	-	-	2,641	-	-	-	-	-	-	-	-	-	-	2,641
	ICICI Prudential Life	IEV	-	-	3,121	-	-	-	-	-	-	-	-	-	-	3,121
	Kotak Life	IEV	-	-	1,055	-	-	-	-	-	-	-	-	-	-	1,055
	Max Life	MCEV	-	-	1,290	-	-	-	-	-	-	-	-	-	-	1,290
	PNB MetLife	IEV	-	-	563	-	-	-	-	-	-	-	-	-	-	563
	Reliance Nippon Life	TEV	-	-	517	-	-	-	-	-	-	-	-	-	-	517
	SBI Life	IEV	-	-	3,233	-	-	-	-	-	-	-	-	-	-	3,233
JAPAN	Daido Life	MCEV	-	-	-	12,788	-	-	-	-	-	-	-	-	-	12,788
	Dai-ichi Life	MC-EEV	-	-	-	41,047	-	-	-	-	-	-	-	-	-	41,047
	Dai-ichi Frontier Life	MC-EEV	-	-	-	3,760	-	-	-	-	-	-	-	-	-	3,760
	Japan Post Insurance Co Ltd	MC-EEV	-	-	-	35,411	-	-	-	-	-	-	-	-	-	35,411

[90] EV results have been converted at the prevailing USD exchange rate as at the reporting date.

[91] Shaded entries indicate that the 2018 EV results have not yet been disclosed as at the data cutoff date of this report.

TYPE	COMPANY	EV PRINCIPLE	CHINA	HONG KONG	INDIA	JAPAN	KOREA	MALAYSIA	SINGAPORE	TAIWAN	THAILAND	INDONESIA	PHILIPPINES	VIETNAM	UNALLOCATED	TOTAL
	LifeNet Insurance	MC-EEV	-	-	-	572	-	-	-	-	-	-	-	-	-	572
	Medicare Life	MC-EEV	-	-	-	1,235	-	-	-	-	-	-	-	-	-	1,235
	Meiji Yasuda Life	MC-EEV	-	-	-	41,074	-	-	-	-	-	-	-	-	-	41,074
	MS&AD Aioi Life	MC-EEV	-	-	-	7,391	-	-	-	-	-	-	-	-	-	7,391
	MS&AD Primary Life	MC-EEV	-	-	-	3,934	-	-	-	-	-	-	-	-	-	3,934
	Neo First Life	MC-EEV	-	-	-	845	-	-	-	-	-	-	-	-	-	845
	Sompo Japan Nipponkoa Himawari Life	MCEV	-	-	-	7,346	-	-	-	-	-	-	-	-	-	7,346
	Sony Life	MCEV	-	-	-	15,517	-	-	-	-	-	-	-	-	-	15,517
	Sumitomo Life	MC-EEV	-	-	-	35,017	-	-	-	-	-	-	-	-	-	35,017
	T&D Financial Life	MCEV	-	-	-	888	-	-	-	-	-	-	-	-	-	888
	Taiyo Life	MCEV	-	-	-	7,723	-	-	-	-	-	-	-	-	-	7,723
	Tokio Marine & Nichido Life	MCEV	-	-	-	9,706	-	-	-	-	-	-	-	-	-	9,706
	DB Insurance	TEV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hanwha Life	TEV	-	-	-	-	7,791	-	-	-	-	-	-	-	-	7,791
KOREA	Samsung Life	TEV	-	-	-	-	29,177	-	-	-	-	-	-	-	-	29,177
	Samsung Fire & Marine	TEV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Cathay Life	TEV	-	-	-	-	-	-	-	29,332	-	-	-	-	-	29,332
	China Life TW	TEV	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fubon	TEV	-	-	-	-	-	-	-	15,629	-	-	-	-	-	15,629
TAIWAN	Mercuries Life	TEV	-	-	-	-	-	-	-	3,929	-	-	-	-	-	3,929
	Shin Kong	TEV	-	-	-	-	-	-	-	8,045	-	-	-	-	-	8,045
	Taiwan Life	TEV	-	-	-	-	-	-	-	5,576	-	-	-	-	-	5,576
THAILAND	Bangkok Life	TEV	-	-	-	-	-	-	-	-	1,948	-	-	-	-	1,948
VIETNAM	Dai-ichi Life Vietnam	TEV	-	-	-	-	-	-	-	-	-	-	-	777	-	777

Appendix B: Exchange rates

FIGURE 108: EXCHANGE RATES USED IN THE REPORT

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

CURRENCY	3/31/2019	12/31/2018	11/30/2018	3/31/2018	12/31/2017	11/30/2017	3/31/2017	12/31/2017	11/30/2017
CAD	0.7495	0.7329	0.7527	0.7754	0.7953	0.7761	0.7507	0.7439	0.7447
CHF	1.0049	1.0169	1.0012	1.0485	1.0259	1.0167	1.0000	0.9810	0.9816
CNY	0.1490	0.1454	0.1437	0.1594	0.1537	0.1512	0.1452	0.1440	0.1451
EUR	1.1221	1.1455	1.1322	1.2325	1.1999	1.1904	1.0698	1.0523	1.0581
GBP	1.3043	1.2760	1.2769	1.4011	1.3503	1.3506	1.2534	1.2332	1.2485
HKD	0.1274	0.1277	0.1278	0.1274	0.1280	0.1280	0.1287	0.1290	0.1289
INR	0.0144	0.0144	0.0144	0.0154	0.0157	0.0155	0.0154	0.0147	0.0146
IDR	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
JPY	0.0090	0.0091	0.0088	0.0094	0.0089	0.0089	0.0090	0.0085	0.0087
KRW	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0008	0.0008
MYR	0.2449	0.2419	0.2392	0.2588	0.2471	0.2444	0.2259	0.2229	0.2238
SGD	0.7320	0.7340	0.7289	0.7627	0.7478	0.7417	0.7159	0.6909	0.6975
THB	0.0315	0.0309	0.0304	0.0320	0.0306	0.0307	0.0291	0.0279	0.0280
TWD	0.0324	0.0327	0.0324	0.0344	0.0337	0.0333	0.0329	0.0308	0.0313
VND*	0.4309	0.4319	0.4289	0.4385	0.4403	0.4399	0.4396	0.4392	0.4401
USD	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

* The exchange rate for the Vietnamese dong is per 10,000 USD. The exchange rate of VND per USD as at 31 March 2019 is 0.0000430900.

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

Milliman is among the world's largest providers of actuarial and related products and services. The firm has consulting practices in life insurance and financial services, property & casualty insurance, healthcare, and employee benefits. Founded in 1947, Milliman is an independent firm with offices in major cities around the globe.

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