MILLIMAN EV REPORT

2017 EV Results: Asia (excl. Japan)

Sustained growth across the region

August 2018

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Milliman

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Table of Contents

Opening remarks

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

Asia's economic growth remained strong in 2017, helping several of the region's emerging markets post double-digit percentage rises in life insurance gross written premiums for the year. However, the overall region's life insurance premium income fell slightly, mainly because of a reduction in the sale of short-medium term universal life business in China due to changes in regulations. Growth in EV was positive across almost all markets. New business margins continued to increase in most markets, especially from those insurers that have successfully reoriented their product strategies from savings to protection business. EV growth across the region ranged from 10% to 28%.

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 2018 EV results, as well as any 2017 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 2018.

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

Best regards,

Paul Sinnott
Michael Daly
Richard Holloway
Wing Wong
Chihong An

Executive summary

BACKGROUND

Asia's economic performance remains the strongest in the world, with 5.7%[1] gross domestic product (GDP[2]) growth recorded for 2017, compared with the overall global GDP growth of 3.8%. China, Vietnam and India posted the highest 2017 GDP growth rates of 6.9%, 6.8% and 6.7%, respectively.

Total estimated gross written premium[3] (GWP) for the markets covered in our report, decreased by 4% in 2017. Hong Kong reported the largest increase in GWP of around USD 11 billion, whereas China reported a significant decrease in GWP of USD 32 billion, mainly as a result of a clampdown on the sale of high guarantee short-to-medium term universal life business.

Capital regulations continue to evolve throughout Asia. After successfully introducing its China Risk Oriented Solvency System (C-ROSS) in 2016, China announced the C-ROSS Phase 2 project in September 2017, with the stated aims of enhancing supervision rules, completing the execution mechanism, and strengthening collaboration between domestic and foreign regulators. Phase 2 of C-ROSS is expected to take three years to complete. However, following the high profile collapse of one of the biggest insurers in China, the Anbang Insurance Group in February 2018, the China Banking Insurance Regulatory Commission (CBIRC) replaced the China Insurance Regulatory Commission (CIRC) and the China Banking Regulatory Commission (CBRC) in March 2018. This may cause a delay in the implementation of C-ROSS Phase 2.

India is also expected to move to a risk-based capital (RBC) regime over the next few years. Meanwhile in Hong Kong, the first Quantitative Impact Study (QIS), which was launched as part of the development of the detailed RBC rules by the independent Insurance Authority (IA), has been completed. The second QIS (QIS 2) was released in early August 2018 and submissions are required by the end of November. In Singapore, the Monetary Authority of Singapore (MAS) has announced that the planned implementation date for the new risk-based capital framework will be 1 January 2020.

The EV methodologies used in the region remain varied, including Traditional Embedded Value (TEV), European Embedded Value (EEV), Market-Consistent Embedded Value (MCEV[4]) and Indian Embedded Value (IEV). Interestingly, the number of multinational corporations (MNCs) reporting EV in Asia decreased over 2017. As mentioned in last year's report, the number of European MNCs reporting EV has reduced as their parent companies have switched to using Solvency II as their primary shareholder value reporting metric. Aviva and AXA have stopped publishing their EV results but continued to disclose their value of new business (VNB) results. DB Insurance[5] also publicly stated that it will not be reporting EV results until 2021 due to the introduction of IFRS 17. In India, almost all companies that report EV now do so on an IEV or MCEV basis. Reliance Life is the only company that still reports on a TEV basis. Birla Sun Life switched from using a TEV to IEV methodology during FY2017-18[6].

EV RESULTS

This report examines the EV results published by MNCs and domestic insurers within Asia,[7] excluding Japan. Our publication on shareholder value reporting in Europe will be released in September 2018.

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.

1 Inclusive of Japan.

2 Real GDP. Sourced from the International Monetary Fund (IMF).

3 Milliman has estimated market growth rates since not all Asian economies have reported their 2017 total GWP 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 (excl. Japan)'. The GWP figures are estimated in USD terms.

4 The MCEV principles are a copyright of the Stichting CFO Forum Foundation 2008.

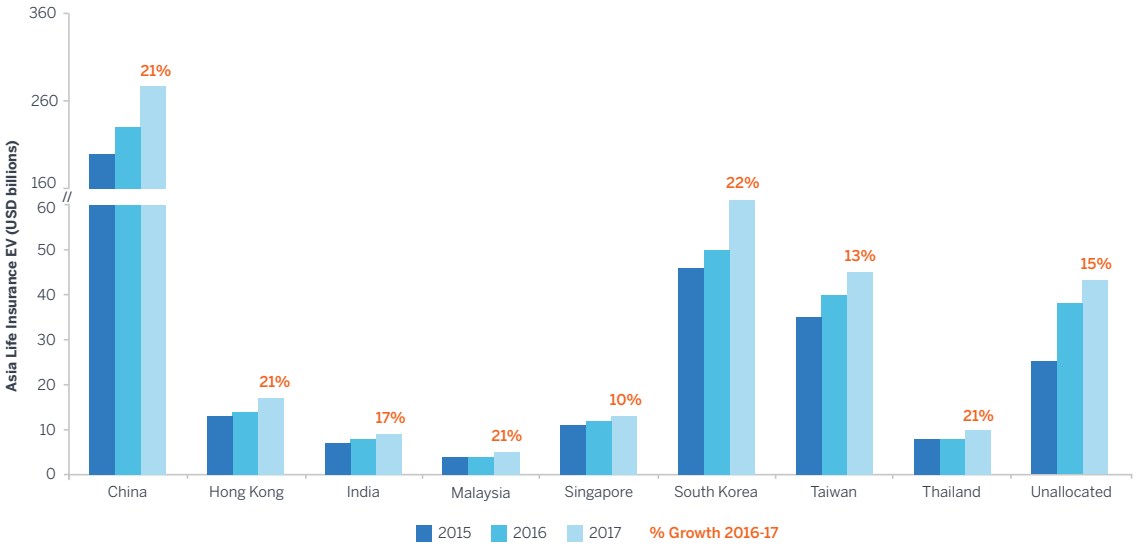
5 Dongbu Insurance changed its name to DB Insurance in 2017.

6 For the purposes of this report, FY2017-18 for Indian insurers represent the financial year ending 31 March 2018.

7 For the avoidance of doubt, Asia does not include Australia or New Zealand.

In 2017, total reported Asian EV grew by 19.2% on a comparable basis[8] to USD 480 billion, up from USD 403 billion in 2016. The companies reporting the largest Asian[9] EV at the 2017 year-end were China Life, Ping An Life and AIA, at USD 113 billion, USD 76 billion and USD 50 billion, respectively.

FIGURE 1: COMPARABLE ASIAN LIFE INSURANCE COVERED EV BY MARKET,[10,11] 2015 TO 2017



South Korea reported the highest comparable EV growth in 2017 of 22%. South Korean insurers have cited profitable new business, efficiency gains and an increase in investment return assumptions as the key reasons for this growth. Investment return assumptions for life insurers in South Korea reporting EV results have increased since 2016, with domestic life insurers typically raising investment return assumptions by approximately 20bps. Hong Kong's 21% EV growth is based purely on AIA Hong Kong, since no other company reported EV results separately for their SAR operation.

Our report last year highlighted the theme of EV bond yield or portfolio-level investment return assumptions diverging further from valuation date 'spot' bond yields across the region, as yield curves had been falling for several years in most Asian markets. In the early part of 2017, yield curves stabilised to some extent, but fell towards the year-end, except for China, India and South Korea where bond yields increased. As a result, the differences between life insurers' long-term investment return assumptions and actual 'spot' bond yields were similar to last year. In comparison, 10-year government bond yields in the US reduced by five basis points over the course of 2017.

In situations where the investment returns are assumed to rise in the future, the more technically robust companies have asset models in place that reflect consequent falls in bond market values as the yield curve is projected to rise, as opposed to others that assume investment returns steadily increase with no corresponding adverse effects on the market values of their bond assets.

8 Comparable basis = comparing only companies that have reported 2015, 2016 and 2017 EV results for Asia. For example, Ageas, which has discontinued its Asian EV reporting in 2016, is not included in this comparison.

9 Excluding Japan.

10 Results for all years have been converted to USD using the prevailing FX rate as at the 2017 reporting date to provide comparability and eliminate foreign exchange (FX) effects.

11 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[12] ASIAN LIFE INSURANCE COVERED ADJUSTED NET WORTH (ANW), 2015 TO 2017

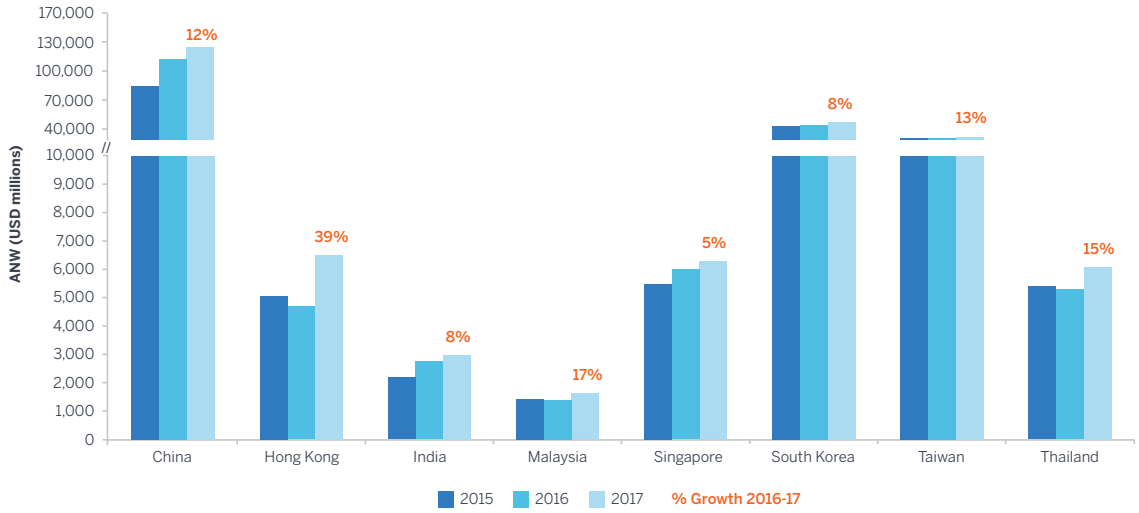
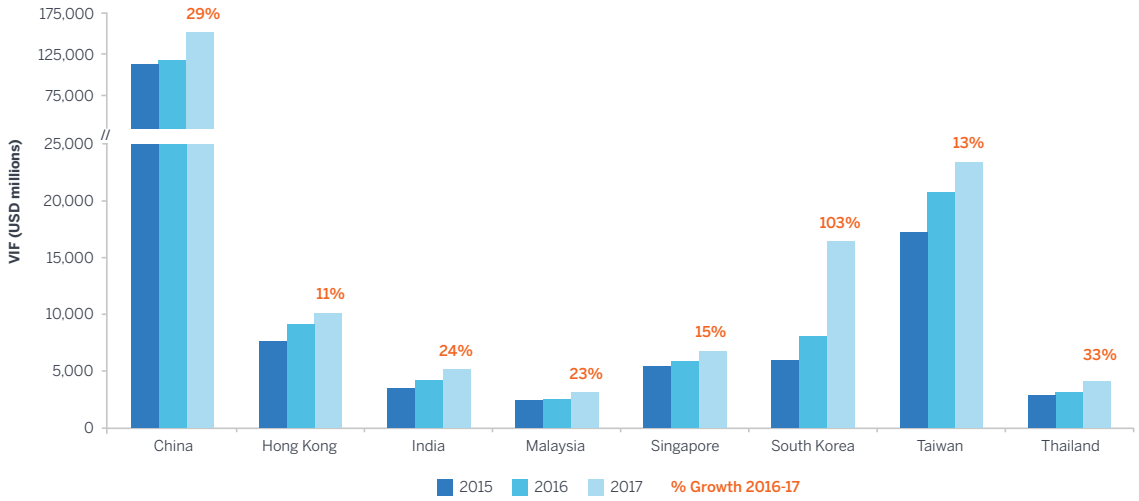


FIGURE 3: COMPARABLE[13] ASIAN LIFE INSURANCE COVERED VALUE OF IN-FORCE (VIF), 2015 TO 2017



Unlike last year, when the overall life insurance sector ANW for three markets reduced, during 2017, the ANW increased in every market. Hong Kong posted the largest percentage growth in ANW, followed by Malaysia and Thailand.

The VIF growth was positive for all markets, primarily due to strong VNB results and, in some cases, increasing the long-term investment return assumptions. South Korea saw the largest VIF growth of 103%, with an increased focus on protection business sales, increasing investment return assumptions and operating efficiencies being cited by insurers as the key reasons for this growth.

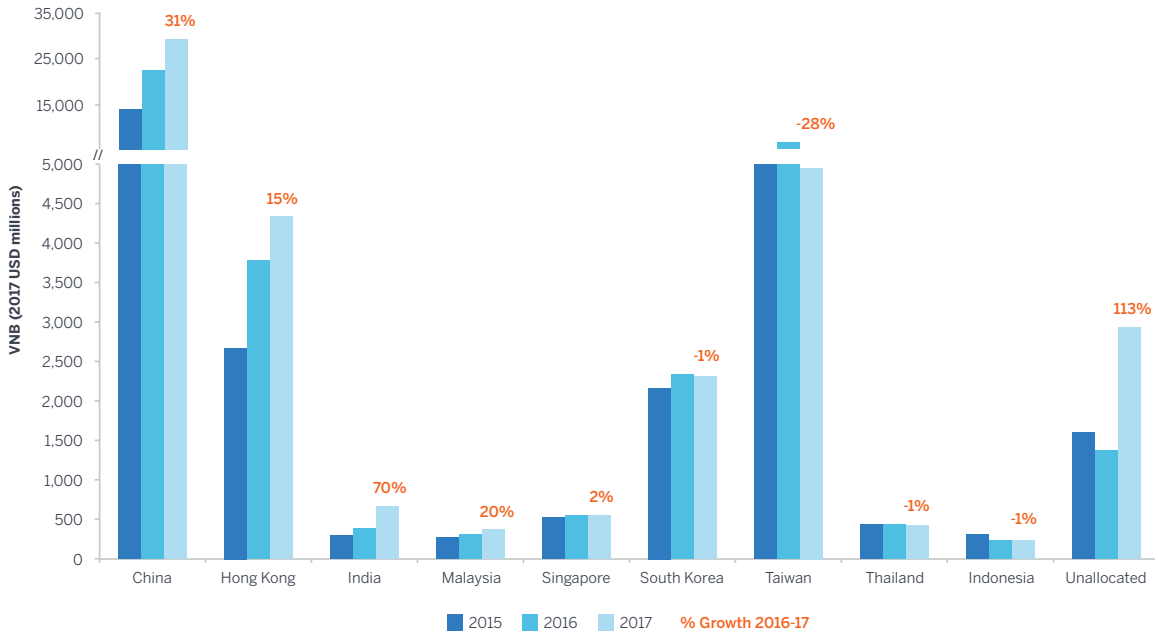
12 Comparable basis = comparing only companies that have reported 2015, 2016 and 2017 EV results for Asia. Insurers that have not yet published their 2017 results as at the data cut-off date (4 May 2018) include Bajaj Allianz, Tahoe Life, DB Insurance, Max Life, Exide Life, and SCB Life. Cathay life has released its VNB and APE figures publically, but has not released any other EV-related information as at the cut-off date.

13 Ibid.

NEW BUSINESS RESULTS

Total reported VNB for Asia stood at USD 46.0 billion in 2017, compared with USD 38.6 billion in 2016,[14] representing a growth of 19.1%.

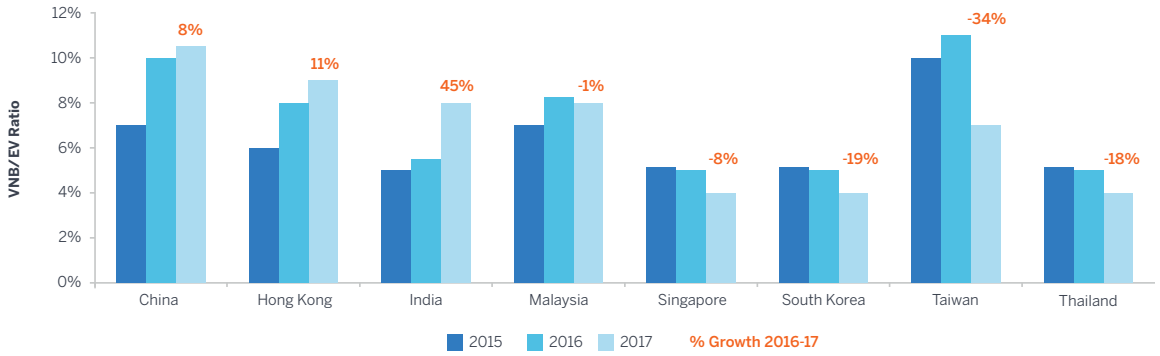
FIGURE 4: COMPARABLE ASIAN LIFE INSURANCE COVERED VNB BY MARKET, 2015 TO 2017



India and China lead the VNB growth on a constant currency basis across Asia. In both countries, the VNB growth was driven by a significant increase in new business volumes (on an annualized premium equivalent basis, i.e. APE basis), coupled with an increase in VNB margins, which was attributed to a shift towards writing larger volumes of protection business. In China, the regulatory restrictions imposed on the sales of low/negative margin high guarantee universal life products also helped in bolstering the VNB margins. Indonesia, Thailand and South Korea experienced a minor reduction in VNB in USD terms, whereas Taiwan saw the largest decline. Taiwan's VNB decrease was largely due to a reduction in new business volumes across most companies resulting from lower sales of traditional regular premium products. VNB margins in Thailand are expected to remain under pressure in the near future, as mortality margins are likely to reduce given that the maximum pricing premium rates for traditional products and the caps on unit-linked cost of insurance (COI) charges are based on a new table with lower mortality rates.

14 On a comparable basis.

FIGURE 5: VNB/EV RATIO,[15] 2015 TO 2017



While several markets have shown a relatively stable ratio over the past few years, VNB growth in others has been low or negative. The developing markets tend to show higher VNB/EV ratios compared with more developed markets.

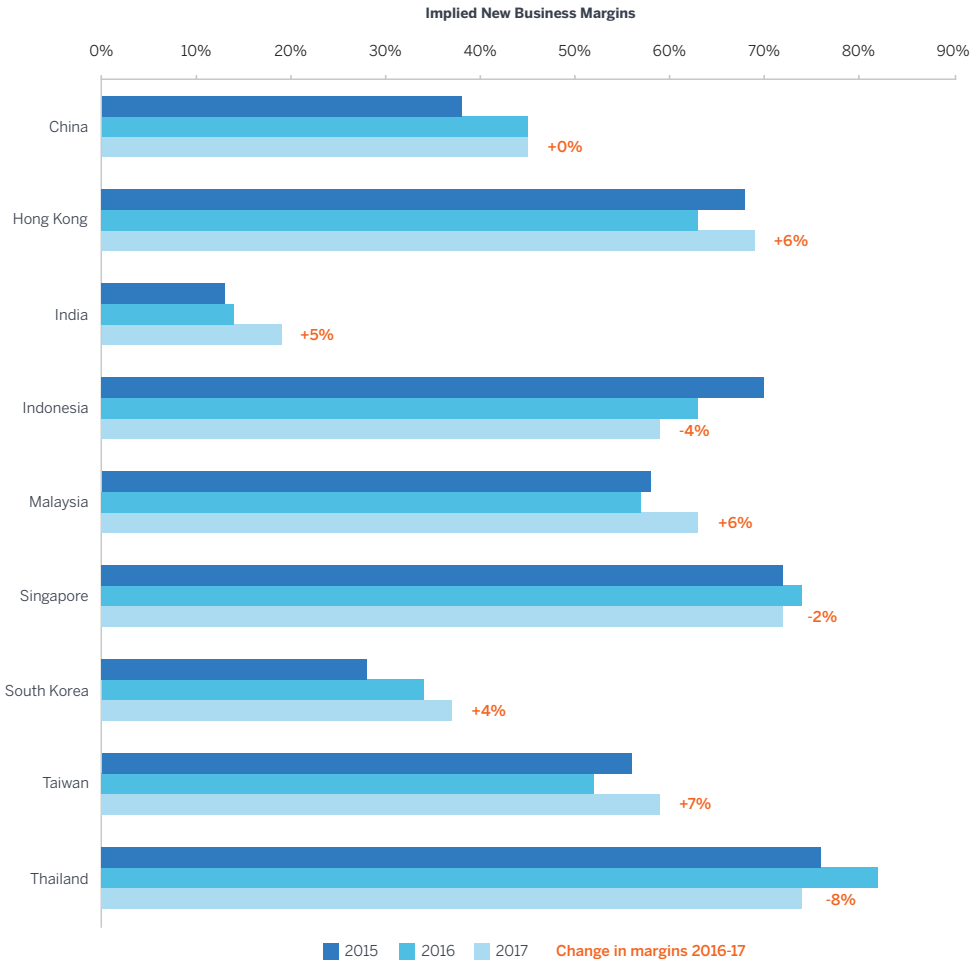
China, Hong Kong and India witnessed a significant increase in their VNB / EV ratios in 2017, primarily as a result of strong new business sales (on an APE basis). Hong Kong's strong VNB performance is partly due to a significant increase in profitable sales through agency and bancassurance channels.

Prudential China and ICICI Prudential reported the largest percentage growth in VNB, at 111% and 93%, respectively. Prudential China's growth was driven largely by new business volumes, especially from protection-oriented business, which the company attributed to its use of technology to speed up the customer on-boarding process. ICICI Prudential credited its growth to an increase in new business volumes, increased profitability due to a greater focus on selling protection products and a reduction in expense levels.

15 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[16] BY MARKET, 2015 TO 2017



Based solely on companies' EV disclosures, Taiwan, Malaysia and Hong Kong exhibited the highest growth in new business margins in the region, with Thailand, Indonesia and Singapore posting lower new business margins in 2017. The new business margin for all three of the latter countries was only based on one data point. AIA Thailand attributed the reduction in VNB margins to costs associated with a large-scale transformation of its agency force that the company is currently undertaking. Prudential Indonesia cited changes in product mix as the reason for a decline in its VNB margin.

In Taiwan, insurers have reported an increase in new business margins; however this hides the fact that both VNB and APE have reduced and underlying economic assumptions remain highly optimistic.

16 This chart is 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 (Birla Sun Life, ICICI Prudential, HDFC Life, SBI Life and Reliance Life); Korea (Hanwha Life, Samsung Life and Samsung Fire & Marine); Malaysia (AIA and Prudential plc); Singapore (AIA and Prudential plc); Taiwan (Prudential plc, Cathy Life, China Life TW, Mercuries Life, Shin Kong, Taiwan Life and Fubon); Thailand (AIA and Prudential plc); Indonesia (Prudential plc).

EV METHODOLOGY HOT TOPICS

Most aspects of EV calculations 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' interpretations have diverged significantly in Asia. It is important to be aware of these key differences when comparing the EV results of insurers across the region or within markets.

FIGURE 7: SUMMARY OF EV METHODOLOGY HOT TOPICS

HOT TOPIC	COMMENT
Risk discount rate	Aside from IEV, MCEV and the market-consistent 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 choice of risk discount rate.
Expense overruns	The disclosure of expense overruns is critical to communicate the current and expected future situation for 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 what this level is, 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 a different minimum level 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 CAA EV standard (November 2016).[17]

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	Reporting standards	In 2016, the CIRC had implemented Integrated Risk Rating and Solvency Aligned Risk Management Requirements and Assessment. By the end of 2018 two major revisions in accounting standards in the form of International Financial Reporting Standards (IFRS 9 and IFRS 17) are expected.
	Asset-Liability management	On 26 July 2017, the CIRC released a circular on asset liability management (ALM) seeking industry input, as well as conducting industry field testing. According to the circular, life insurers' ALM capabilities were being assessed from both qualitative and quantitative perspectives. For the former, the regulator will assess the completeness, soundness and effectiveness of insurers' ALM frameworks. For the latter, the regulator will focus on measuring the mismatch of assets and liabilities from the aspect of duration, cost/return and cash flows on both base and stressed scenarios.
	New composite regulator	The China Banking Insurance Regulatory Commission (CBIRC) has replaced the China Banking Regulatory Commission (CBRC) and the CIRC starting March 2018. The merger of the two organisations is aimed at resolving existing problems such as unclear responsibilities and cross-regulation. Industry commentators also blame the move on a backlash against the CIRC following the high profile collapse of Anbang.

17 On 22 November 2016, the China Association of Actuaries (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.

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

JURISDICTION	REGULATION	DESCRIPTION
Hong Kong	Risk-based capital solvency regime	On 28 July 2017, the Insurance Authority (IA) of Hong Kong released the technical specifications for the First Quantitative Impact Study (QIS 1) for the development of the local Risk-based Capital Regime (HKRBC). Following the release of these technical specifications, life insurance companies in Hong Kong submitted their results to the IA on 1 December 2017. The second QIS (QIS 2) was released in early August 2018 and submissions are required by the end of November. An additional (3rd) QIS is expected to start in 2019.
India	Outsourcing activities	A new regulation regarding outsourcing activities by insurers was issued in May 2017. It clearly defines the areas of work that can be performed in-house and those which can be handed out to third parties.
	Expense management	IRDAI has issued regulations on expense of management. As per these regulations, the IRDAI now requires insurers to keep their expenses within the limits prescribed in the regulations, on a segmental level. Any expenses incurred in excess of these limits are required to be borne fully by the shareholders.
	Service tax	The erstwhile 'service tax' regime has been replaced with a Goods and Services Tax (GST) from 1 July 2017. As a result, the service tax (now GST) on life insurance premiums, charges as well as expenses and commission has increased from 15% to 18%.
	Risk-based capital regime	An expert panel appointed by the IRDAI has recommended moving to the risk-based capital (RBC) regime. The panel has suggested a 'Twin Peak' approach, whereby the current reporting structure would continue with the new system operating in parallel. The regulator has set up a project steering committee that has already invited expression of interest from independent consultants to carry out the necessary analysis and India-specific studies that are required to support the development and implementation of a RBC framework.
	Statutory valuation of liabilities by Appointed Actuary	The insurance regulator is contemplating the introduction of an independent assessment of the statutory valuation of liabilities performed by the AA, instead of the current system of 'peer review' adopted by the actuarial profession.
Indonesia	Regulatory reporting	The Indonesian regulator (OJK) issued a regulation which sets out the requirements for periodic regulatory reporting for insurers, reinsurers and brokers.
	Investments	Another regulation amends and expands on the types of assets allowed by the regulator to satisfy the requirement of meeting a minimum percentage of investments in government securities.
	Reserving and capital requirements	In July 2017 the OJK announced a new regulation for reserving and capital calculations (effective July 2017). • The revised RBC framework introduced new asset risk charges schedules (now changed into 5 different risk categories – credit, liquidity, market, insurance and operational risk), a new requirement for catastrophic risk reserve in insurance risk charge, changes in risk charges for certain credit and market risks and the inclusion of a risk charge on deferred acquisition assets in the operational risk category. Capital requirements for Conventional and Shariah business are now more closely aligned. • The new regulation on reserving provides clarifications on the requirements of the existing regulation and introduced a new reserve for catastrophic events (for companies which do not have any or adequate reinsurance arrangements to cover catastrophic risks) etc.
	InsureTech	The OJK is reportedly working on introducing guidelines to regulate Insurtech developments. Aimed at ensuring customer protection, the new regulation is expected to cover various aspects such as operational models and requirements around claim payment and complaints.
Malaysia	Compliance with Shariah laws	A policy document was issued in February 2017 in relation to the application of wa'd (i.e. unilateral promise), to promote end-to-end compliance with Shariah laws. It is applicable to Islamic financial institutions in Malaysia, including Takaful operators and Retakaful operators.
	Review of RBC framework	Bank Negara Malaysia has initiated a review of its current RBC Framework, which is expected to be conducted in phases over the next few years. The first phase will focus on reviewing the prudential limits on assets and counterparty exposures, followed by a review of the standards for the valuation of liabilities and capital adequacy components.
Philippines	Disclosure requirements	New guidelines on group business were released by the IC in December 2017 to improve transparency and disclosures for this line of business, and to spell out the obligations of insurance companies and policyholders. Group business has grown significantly in recent years, especially in the microinsurance sector.
	Capital requirements	Smaller companies are expected to have difficulties in meeting the increased minimum capital requirements, (in fact the Insurance Commission announced plans in January 2018 to revisit the net worth requirements) leading to potential market consolidation; although this may be more prevalent in the non-life sector.
	Introduction of Appointed Actuary system	The Actuarial Society of Philippines (ASP), through its Professional Standards and Review Council (PSRC), has recently proposed to the Insurance Commission the adoption of the Appointed Actuary System as a means to strengthen corporate governance and to protect policyholder interests. Once adopted, the Appointed Actuary's key responsibilities will be to ensure compliance with all statutes covering reserving requirements.
Singapore	Financial advisory	Changes continue to be introduced as a result of Financial Advisory Industry Review (FAIR), which are aimed at enhancing standards and professionalism within the provision of financial advice. Changes to the commission structure, namely a 55% cap on first year commissions, came into force in January 2017.

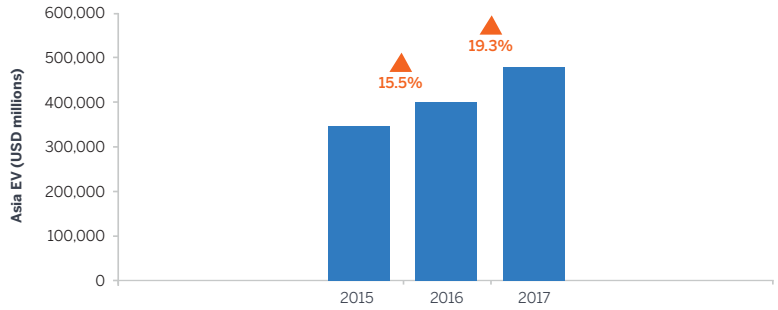
FIGURE 8: SUMMARY OF RECENT AND UPCOMING MAJOR REGULATIONS BY JURISDICTION (CONTINUED)

JURISDICTION	REGULATION	DESCRIPTION
	Online distribution	In March 2017, the Monetary Authority of Singapore (MAS) issued its guidelines for the distribution of life policies online with no advice, to take immediate effect. The regulator hopes this will encourage more product innovation in the market. Following the issue of the new guidelines, FWD and Etiqa have expanded their suites of online life insurance products.
	Risk-based capital regime	The final RBC 2 QIS is expected to be circulated by MAS in Q3 2018, with rules to be finalised by the end of 2018, so that parallel runs can be performed in 2019. The MAS plans to formally introduce RBC 2 from 1 January 2020.
South Korea	Hedging activities	The insurance regulator of South Korea, Financial Supervisory Service (FSS), has decided to adopt a new regulation that allows companies to obtain credits from their hedging activities of variable products.
	Solvency requirements	The regulator released the first draft of its new solvency requirement (K-ICS) at the end of 2017 and has asked companies to perform 'gap analyses' during 2018. K-ICS is expected to be finalised by 2019.
	Reserve requirements	The regulator has announced that the discount rates used to calculate reserves under the liability adequacy test (LAT) will gradually be lowered by 2019. Additional reserves due to lower discount rates will be admitted as available capital, with the allowance being lowered from 90% of the reserve in 2017 to 60% in 2020. Companies in financial stress will be given a one-year grace period to adopt the revised LAT, which will be in effect as of fiscal year 2017. The revised LAT is expected to be more stringent than the current requirement.
	Tax rates	Tax rates will be increased from 24.2% to 27.5% on profits exceeding 300 billion won.
Taiwan	Risk-based Capital 2 (RBC 2) and Accounting Framework	The Taiwan regulator is developing a new RBC framework. There is a QIS being undertaken which requires all insurance companies to complete the work by end of June 2017. There will be subsequent studies in the next couple of years before the new RBC 2 framework is finalised. IFRS 9 became effective 1 January 2018. As the IASB published its new IFRS 17 standard on 18 May 2017, Taiwan insurance companies also started preparing for the implementation of IFRS 17 before the adoption date in Taiwan, which expected to be 1 January 2021, if there is no further alteration on the adoption date from Taiwan regulator. However, market perception is that Taiwan may delay implementation by 3 years.
Thailand	Relaxation of foreign shareholding cap	On 18 January 2017, the Ministry of Finance (MOF) published a notification in the government gazette, easing, with immediate effect, the restrictions concerning the participation and ownership of foreign entities in insurance companies in Thailand. The new measures allow a licensed insurance company to seek permission from the Finance Minister to allow foreigners or foreign companies to control more than 49% (up to 100%) of the shareholding of the insurance company and comprise more than half of the board of directors of the company, subject to satisfying certain conditions.
	RBC 2	At the end of 2017, the OIC released the findings of the second quantitative impact study (QIS 2) for the revised risk-based capital framework, RBC 2. The QIS 2 findings showed that the proposed RBC 2 regime would not result in significantly more onerous capital requirements for the industry, as the increase in market risk charges has been offset by the reduction in credit and insurance risk charges. The newly introduced operational risk charge has a small impact on the overall industry capital adequacy ratio.
Vietnam	Changes to the legal framework of insurance	Effective from 1 July 2017, Circular No. 50 aims to contribute to the reform of the legal framework of insurance and cover a comprehensive scope of legal aspects for local insurers, insurance brokers, agents and insurance-related entities in Vietnam. Specific amendments under Circular No. 50 are: • In cases where an insurer sells its life or health insurance products directly to customers, insurers are now allowed to reduce their premiums, in order to pass on commission savings to their customers. However, the amount of reduction must not exceed the maximum insurance commissions rates set by the Ministry of Finance (MOF). • Every insurer must submit a monthly report to the MOF within the first 15 days of each month. The monthly report should contain the list of new products sold during the previous month along with the terms and conditions and premiums for these products. • Additional explanation to address the uncertainty of the term 'cedes insurance in accordance with a designation of the insured'. • Requirement for appointed actuaries of life and health insurers to assess and report on investment activities on a quarterly and annual basis, specifying the risks arising and providing suggestions for assets to be invested to ensure a correlation between the duration of the invested assets and liabilities. • Changes in the maximum technical interest rate used for determining mathematical reserves from 80% of the 10-year government bond yield as at valuation date to 70% of the average of the 10-year government bond yield for the last six months prior to valuation date.
	Corporate governance	Decree 71/2017/ND-CP took effect on 1 August 2017. It sets the corporate governance guidance for public interest companies. Compared with previous guidance on this matter, the new decree enhances the information disclosure requirement on such companies, and aims to improve the efficiency and effectiveness of the Board of Directors and the Supervisory Board.

Introduction and background

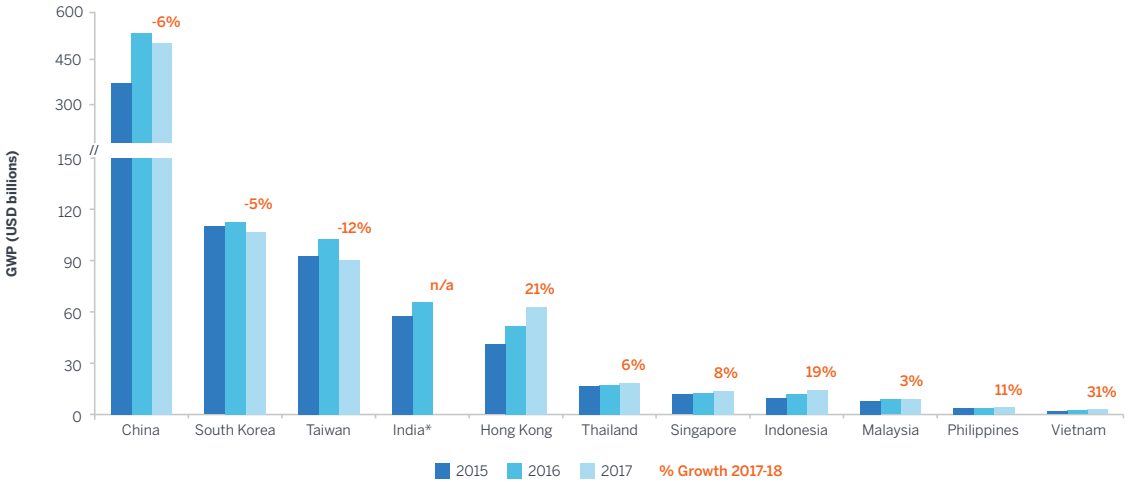
The Asian EV story in 2017 shows continued strong growth across different markets. Comparing only insurers that have reported 2015 to 2017 EV figures,[18] Asian Life Insurance EV[19] grew by 19.3% in 2017.

FIGURE 9: REPORTED COMPARABLE ASIA LIFE INSURANCE COVERED EV, 2015 TO 2017



Overall GWP reduced on a USD basis (see Figure 10), but the APE and VNB margins (see individual country sections) continued to grow for most markets, leading to the growth in EV. While insurance penetration (see Figure 11) increased for certain major markets (e.g. China, Taiwan and India), it declined in others (e.g. South Korea, Hong Kong). Household income growth continued to increase in local currency terms for most markets, despite decreasing in USD terms in some markets (see Figure 12), while many equity markets experienced volatility in 2017 (see Figure 13).

FIGURE 10: LIFE INSURANCE GROSS WRITTEN PREMIUMS IN ASIA[20]



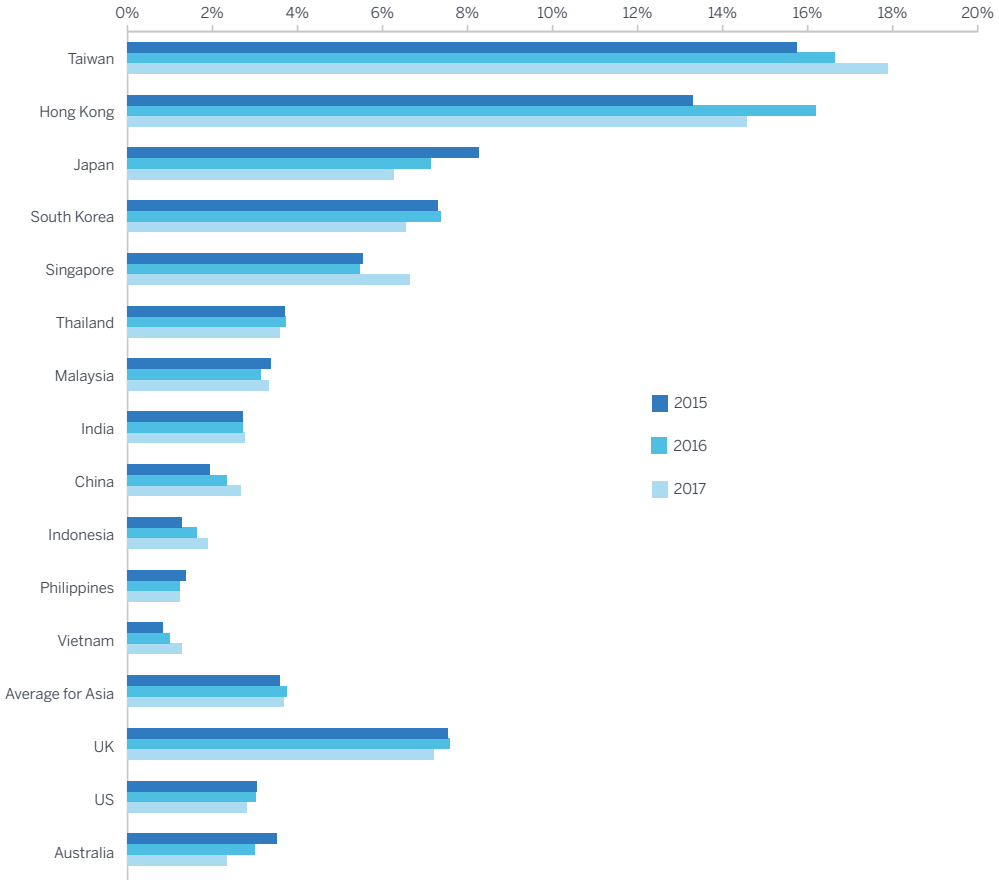
* FY2017-18 GWP for India was unavailable during the production of this report.

18 Companies that have not yet disclosed their 2017 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 2017 reporting date.

19 Asian Life Insurance EV is defined as the EV of covered businesses (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), attributed to Asia excluding Japan. 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.

20 Sources: Various life insurance associations and insurance regulators.

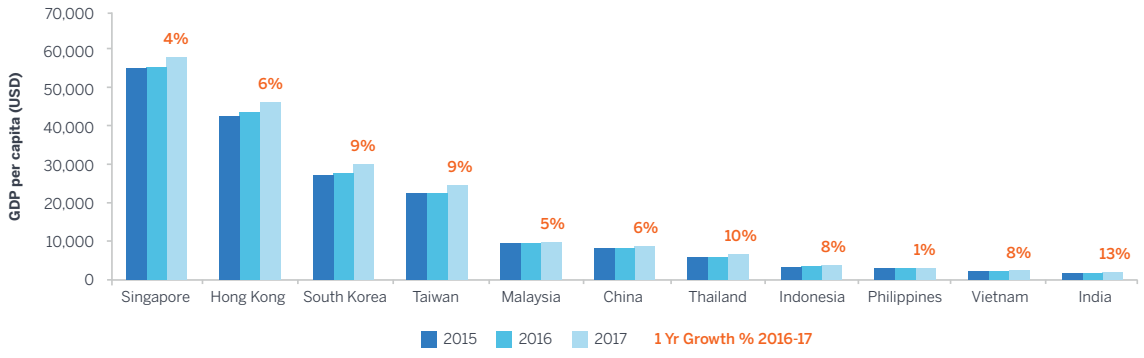
FIGURE 11: ASIAN LIFE INSURANCE PENETRATION,[21] 2015 TO 2017, % OF GDP PER CAPITA[22]



There was a decline in insurance penetration of about 5 basis points over the past year. While insurance penetration increased in some markets, most others posted very small increases or declines. Hong Kong experienced the biggest decline in insurance penetration, whereas Taiwan saw the largest increase.

Overall GWP for the markets covered under this report, has reduced on a US dollar basis, with reductions seen in the three largest markets of China, Taiwan and South Korea. In the near to medium term China, South Korea and Taiwan are likely to remain the largest life insurance markets in Asia (excluding Japan) 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, 2015 TO 2017

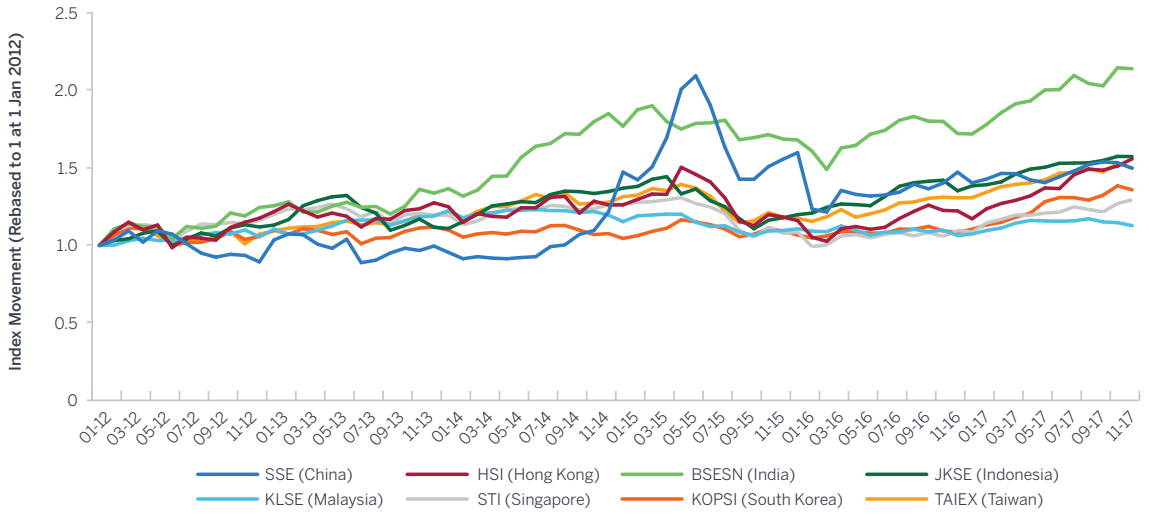


21 It should be noted that Hong Kong life insurance penetration figures are likely to be distorted by large volumes of business being sold to mainland Chinese visitors.

22 Source: Swiss Re Sigma.

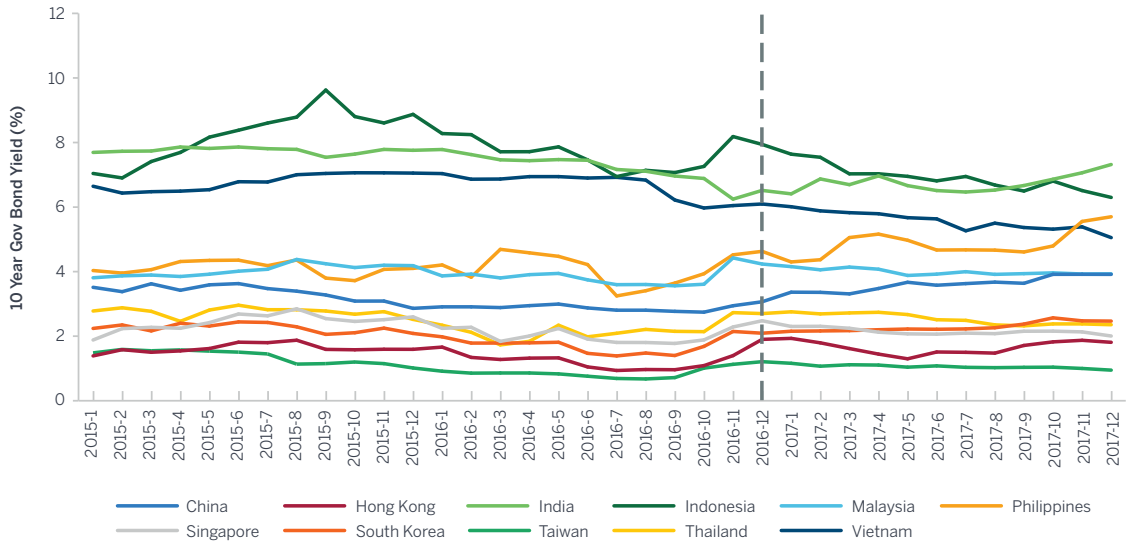
23 Source: International Monetary Fund, World Economic Outlook Database, April 2018.

FIGURE 13: RECENT EQUITY MARKET PERFORMANCE: GROWTH OF MAJOR EQUITY INDICES[24, 25] FROM 1 JANUARY 2012 TO 31 DECEMBER 2017



The best-performing major equity index in the region over the past five years was India's Bombay Stock Exchange (BSE) Sensex. In 2017, the index crossed the 33,000 mark for the first time since its inception and as at 30 June 2018, the index has surpassed the 35,000 mark. Equity markets throughout the rest of Asia witnessed steady growth, particularly in China, Hong Kong, Indonesia and Taiwan. Positive performances by Asian equity markets and improving yields have contributed to an increase in the EV of life insurers in the region.

FIGURE 14: 10-YEAR SOVEREIGN BOND YIELDS,[26] 2015 TO 2017



Movements in Asian sovereign bond market yields, which are usually closely related to the EV risk discount rates and investment return assumptions adopted by insurers, were not uniform across the region. Yield curves in 2017 declined slightly in most markets, although three markets (China, India and South Korea) saw a rise in their 10-year government bond yields.

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 30; Indonesia: Jakarta Composite; 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 Ibid.

Bond yields in many markets in Asia appear to be highly correlated with the US bond yields. They typically decreased in the first half of the year but picked up in the latter part of the year, and ended the year at a lower level than the start of the year, mirroring the movements in US bond yields to some extent. The major bond markets of Singapore, Hong Kong and Taiwan closed lower at the end of 2017. China's 10-year government bond yield rose as a result of the government's ongoing deleveraging efforts and robust economic growth. In India, 10-year bond yields rose as the government increased borrowing to meet its fiscal deficit.

Overall, emerging markets in Asia are projected to experience favourable growth over the near to medium term. However, maintaining a robust growth momentum requires careful attention to several downside risks. Some commonly cited risks include the following:

- There has been a shift towards protectionism in major economies. The ongoing trade wars between US and China threaten to disrupt international trade and financial markets, adversely affecting export-dependent Asian economies in particular.
- A key domestic challenge for many markets, including China and India, is dealing with the impact of sizable bad loans (i.e. non-performing assets) in the banking industry. China has tightened regulations related to risk disclosure requirements, permissible investments and risk provisions by the banks.[27]
- In the medium term, overall government fiscal deficits of the large emerging Asian economies are projected to widen marginally, due to the pledges of the governments to increase disbursements in the coming years on various initiatives, particularly infrastructure developments. Fiscal risks will remain a key concern for certain markets, especially India and Vietnam.[28]
- For insurers, continued GDP growth and an associated rapid growth in the middle class are fuelling widespread expansion of the insurance markets. Insurance penetration remains low for emerging Asian economies, compared with the more developed markets of Taiwan, Hong Kong, Japan and South Korea, which points to significant growth potential in the region.

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 2, Hong Kong's upcoming RBC framework and Singapore and Thailand's RBC 2 enhancements, are in various stages of development. 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 not 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 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 India, there has been a convergence towards market-consistent methodologies with more companies adopting the IEV approach.

IFRS 17 has started to gain more momentum as the target effective date of January 2021 approaches. Insurers in Malaysia and South Korea, along with some of the multinationals, appear to have been the first movers on IFRS 17 implementation. South Korean insurers have been radically transforming their operations to achieve compliance with both IFRS 17 and K-ICS.

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

28 Ibid.

In this publication, we focus on EV results as at year-end 2017. 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 an EV calculation and the differences between the various types of EV methodologies.

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, this 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 these results 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

EEV 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 a deterministic approach 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 form the basis for what is now referred to as EEV methodology. EEV provides more standardisation of definitions, required calculations and disclosures, providing greater comparability among insurers.

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 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.

The prevalence of EV reporting continues to grow among insurers outside of Europe, including those in the US, 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 that the new Solvency Il regime is a market-consistent framework that incorporates best estimate cash flows for assets and liabilities. Some companies have started using new shareholder value metrics, based on Solvency Il 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 and Japanese MNCs favour EEV[30] or MCEV[31] reporting. 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	IEV	MCEV	TOTAL
ASIAN MNC	2	–	–	–	2
EUROPEAN MNC	–	1	–	2	3
NORTH AMERICAN MNC	1	–	–	–	1
CHINA	6	–	–	–	6
HONG KONG	1	–	–	–	1
INDIA	1	–	5	3	9
SOUTH KOREA	4	–	–	–	4
TAIWAN	6	–	–	–	6
THAILAND	1	–	–	–	1
VIETNAM	1	–	–	–	1
TOTAL	23	1	5	5	34

Apart from certain European MNCs, the only companies operating in Asia that are reporting IEV[32] or MCEV are the Indian insurers. Several insurers in India, including ICICI Prudential, SBI Life and HDFC Life first adopted IEV during their respective Initial Public Offering (IPOs). These insurers continue to publish annual EV market disclosures based on the IEV methodology. Other insurers have also followed suit and have started to publish their EV either on an MCEV basis or on an IEV basis. The latest company to make this move was Birla Sun Life.

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 between the three main EV methodologies.

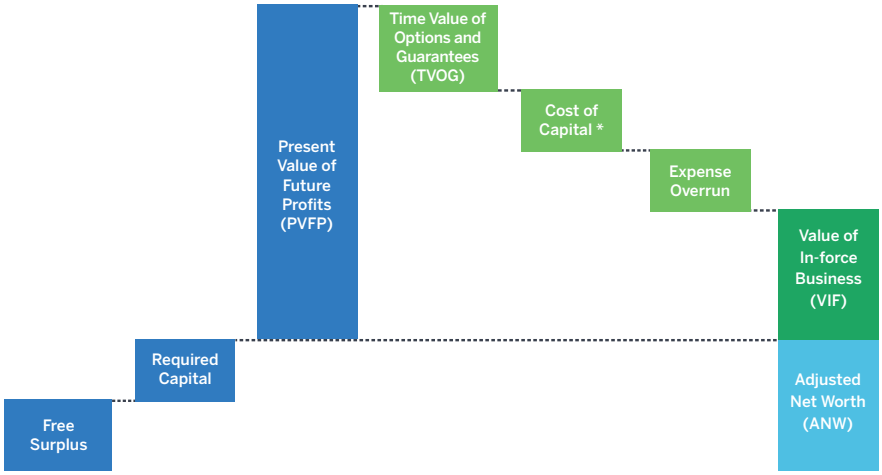
30 Including AXA and Prudential.

31 Including Allianz, Aviva and Zurich.

32 IEV refers to Indian Embedded Value. Please refer to the 'Indian EV' section for a more detailed explanation.

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 taxes 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: 1. 'Top-down', with one discount curve used for all cash flows based on risks faced by the entire organisation. 2. '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 start-up operations, allowing for improvements in unit costs in a defined period may be allowed for, 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 an EEV or MCEV basis 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 the Indian Embedded Value (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 methodology, 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 country-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.

The values presented in this section relate to EV results for life insurance and other long-term insurance operations in Asia, excluding Japan. Because of the way, some companies group their businesses, Asian operations are sometimes grouped under their '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), in cases where we believe that most of the value has been generated in Asia, the total value of the business units has been included in this report.

RECENT UPDATES ON REPORTED DISCLOSURES

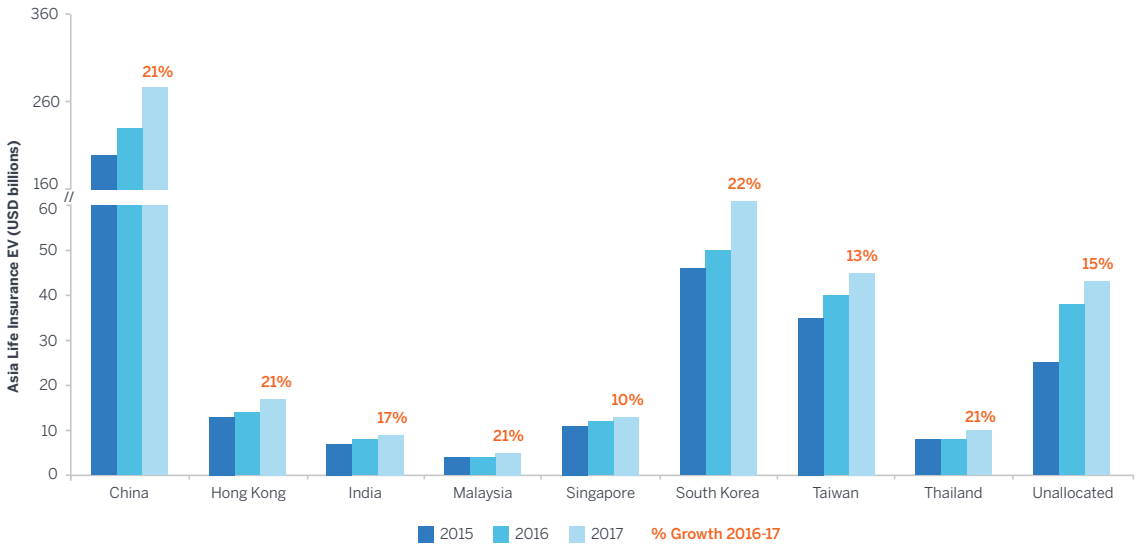
A summary of the changes in company-level disclosures in each market over the past year is provided below:

MARKET	DESCRIPTION
CHINA	Manulife has not reported the EV / VNB results for China this year.
HONG KONG	Dah Sing's business was acquired by Tahoe Investment Group during 2017 and renamed Tahoe Life later that year. The new shareholder does not publicly disclose EV results.
INDIA	PNB MetLife has released a draft red herring prospectus (DRHP) in connection with its proposed IPO later this year. This is the first public disclosure of the company's EV and VNB results. During FY2017-18 Birla Sun Life switched from reporting EV on a TEV basis to an IEV basis. Kotak Life disclosed its IEV results as at 31 March 2018.
INDONESIA	Manulife has not reported the EV / VNB results for Indonesia this year.
MALAYSIA	Great Eastern has not disclosed its APE and VNB margins for Malaysia this year.
SINGAPORE	Manulife has not reported the EV / VNB results for Singapore this year. Great Eastern has not disclosed its APE and VNB margins for Singapore this year.
SOUTH KOREA	DB Insurance will not be publish its EV report on the website from 2018, until it fully adopts IFRS 17, which is planned for 2021.
THAILAND	Bangkok Life did not disclose its new business margin this year.
VIETNAM	Manulife has not reported the EV / VNB results for Vietnam this year.

EV IN ASIA

In 2017, reported Asian life insurance EV grew by 19.2% on a comparable basis[33] to USD 480 billion, up from USD 403 billion in 2016. The companies reporting the largest Asian[34] EV at the 2017 year-end were China Life, Ping An Life and AIA, at USD 113 billion, USD 76 billion and USD 50 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,[35, 36] 2015 TO 2017



All Asian markets posted increased in EV in USD terms in 2017. South Korea reported the highest comparable EV growth in 2017 of 22%. South Korean insurers have credited profitable new business, efficiency gains and an increase in their investment return assumptions as the key reasons for this growth. Investment return assumptions for all life insurers in South Korea reporting EV results have increased from those used in 2016, with domestic life insurers typically assuming investment returns rising from around 3.0% to 3.5%. The risk discount rates used by South Korean companies typically range between 8.50% and 8.60%. The majority of life insurers have kept their discount rate unchanged from 2016. This is discussed further in the South Korea section below.

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 2017 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.

33 As at the data cut-off date (4 May 2018), some insurers have not yet disclosed their 2017 EV figures. Hence, this chart and subsequent commentary only include insurers that have a complete set of 2015, 2016 and 2017 EV figures. The results of the remaining companies will be included in our '2018 Mid-year Embedded Value Results – Asia (excl. Japan)' report. The missing companies include Bajaj Allianz, Tahoe, DB Insurance, Max Life, Exide Life and SCB Life. The report will also include the results for Cathay life, which has released its VNB and APE figures publically, but has not released any other EV-related information as at the cut-off date.

34 Excluding Japan.

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 2017 reporting date.

36 '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, 2015 TO 2017

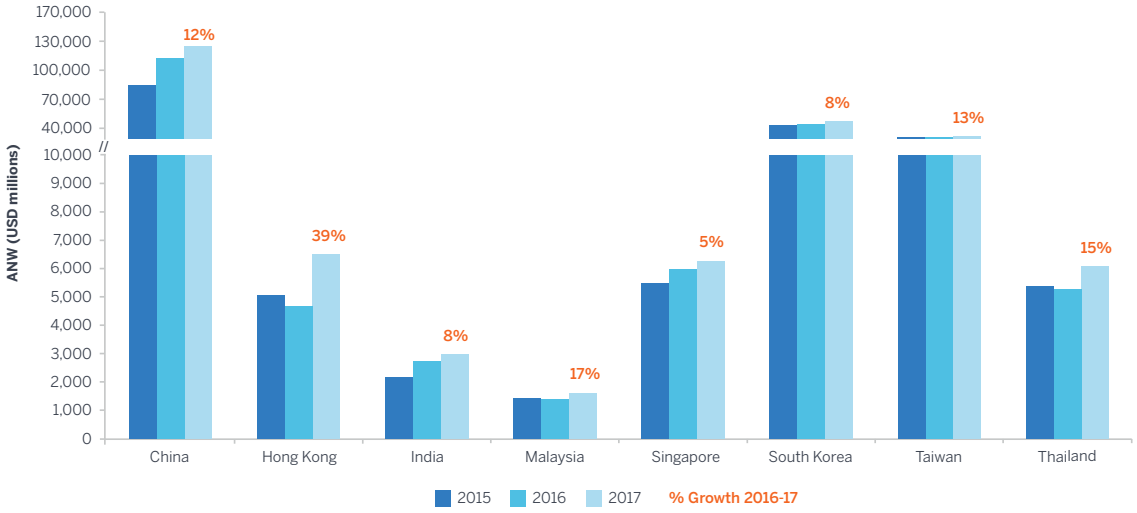
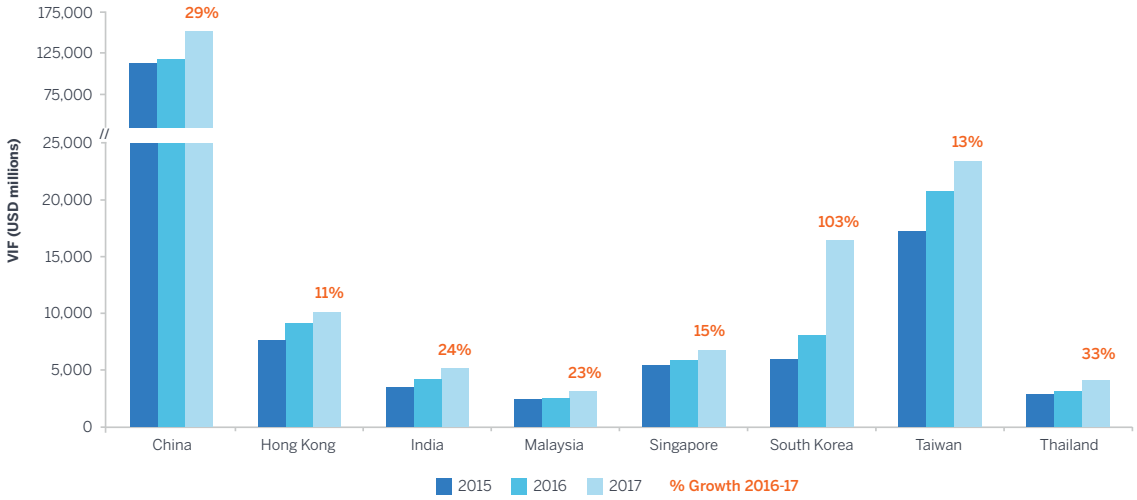


FIGURE 20: COMPARABLE ASIAN LIFE INSURANCE COVERED VIF, 2015 TO 2017

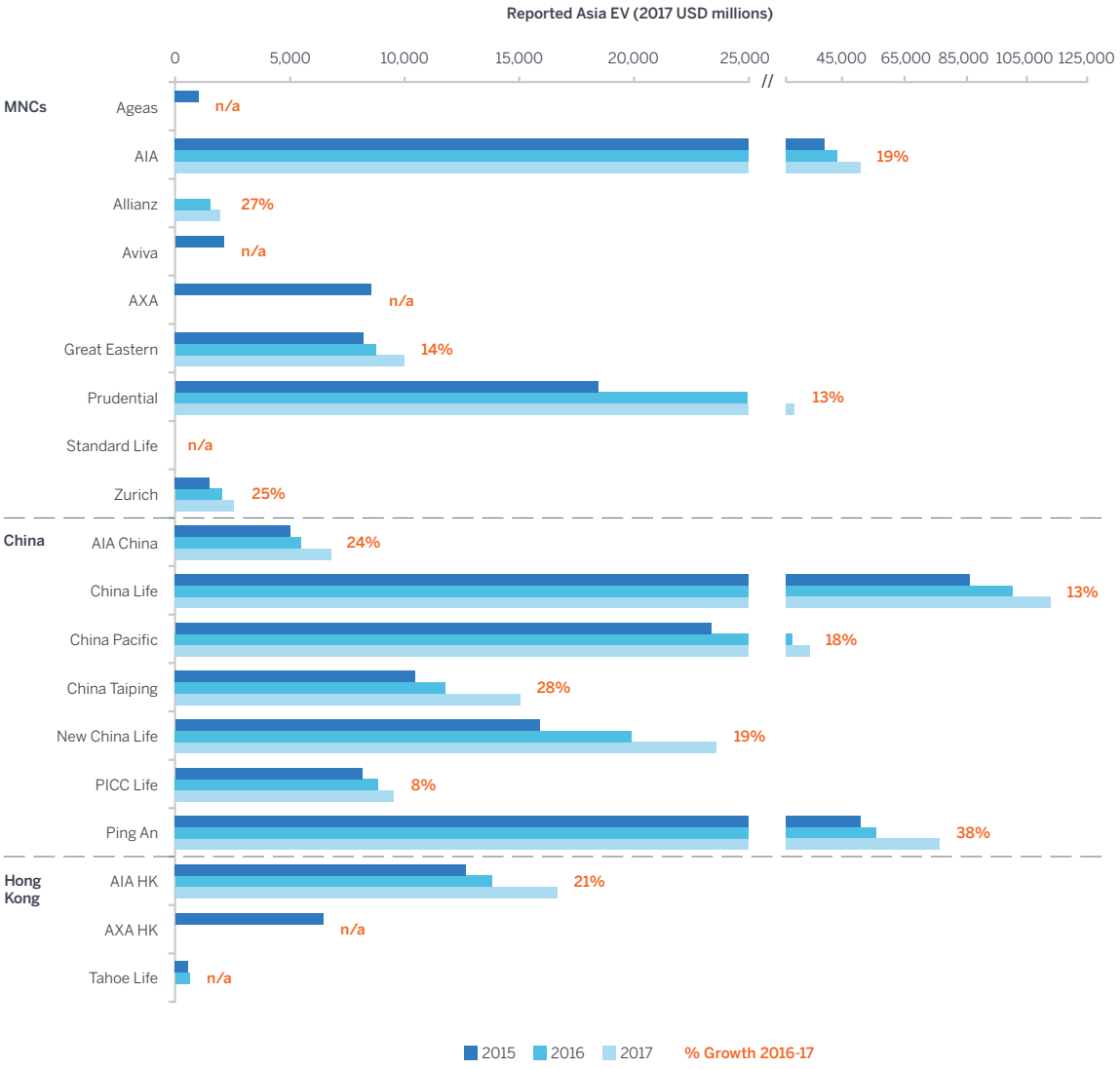


Total life insurance sector ANW increased for all markets in 2017, despite three markets reporting a fall last year. Hong Kong reported the highest increase of 39% while Singapore recorded the lowest increase of 5%.

VIF growth was positive for all markets, underpinned primarily by strong VNB results and, in some cases, increasing long-term investment return assumptions. Insurers are generally refocusing on higher-value protection business; this product mix shift will consistently lead to better VNB growth, which will in turn serve as a major driver for insurers' future EV growth. South Korea saw the largest VIF growth of 103%. Thailand also saw strong VIF growth of 33%, driven mainly from significant VNB growth.

EV BY COMPANY

FIGURE 21: ASIAN LIFE INSURANCE COVERED BUSINESS EV BY COMPANY,[37, 38] 2015 TO 2017



37 The EV figures for each company have been converted to USD at the mid exchange rate prevailing as at their 2017 reporting dates, to remove the effect of currency fluctuations.

38 Please note that some companies have not yet disclosed their 2017 EV results as at the data cut-off date of this report. The 2017 results for these companies have been left blank as a consequence. The insurers that have not yet published their 2017 results as at the data cut-off date (4 May 2018) include Bajaj Allianz, Tahoe Life, DB Insurance, Max Life, Exide Life and SCB Life. Cathay life has released its VNB and APE figures publically, but has not released any other EV-related information as at the cut-off date.

FIGURE 21: ASIAN LIFE INSURANCE COVERED BUSINESS EV BY COMPANY, 2015 TO 2017 (CONTINUED)

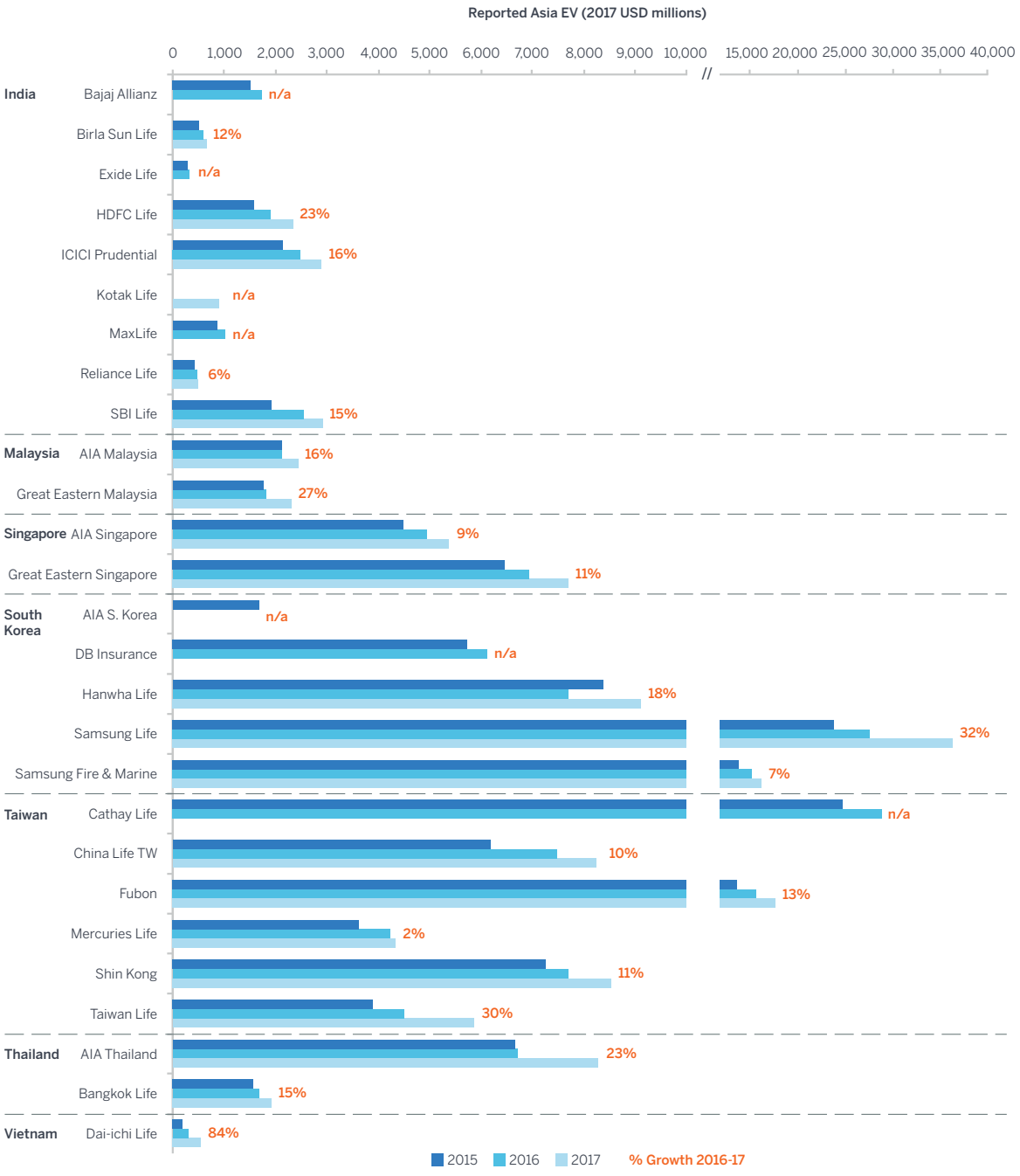


FIGURE 22: SPLIT OF 2017 ASIAN LIFE INSURANCE EV BETWEEN VIF AND ANW BY COMPANY

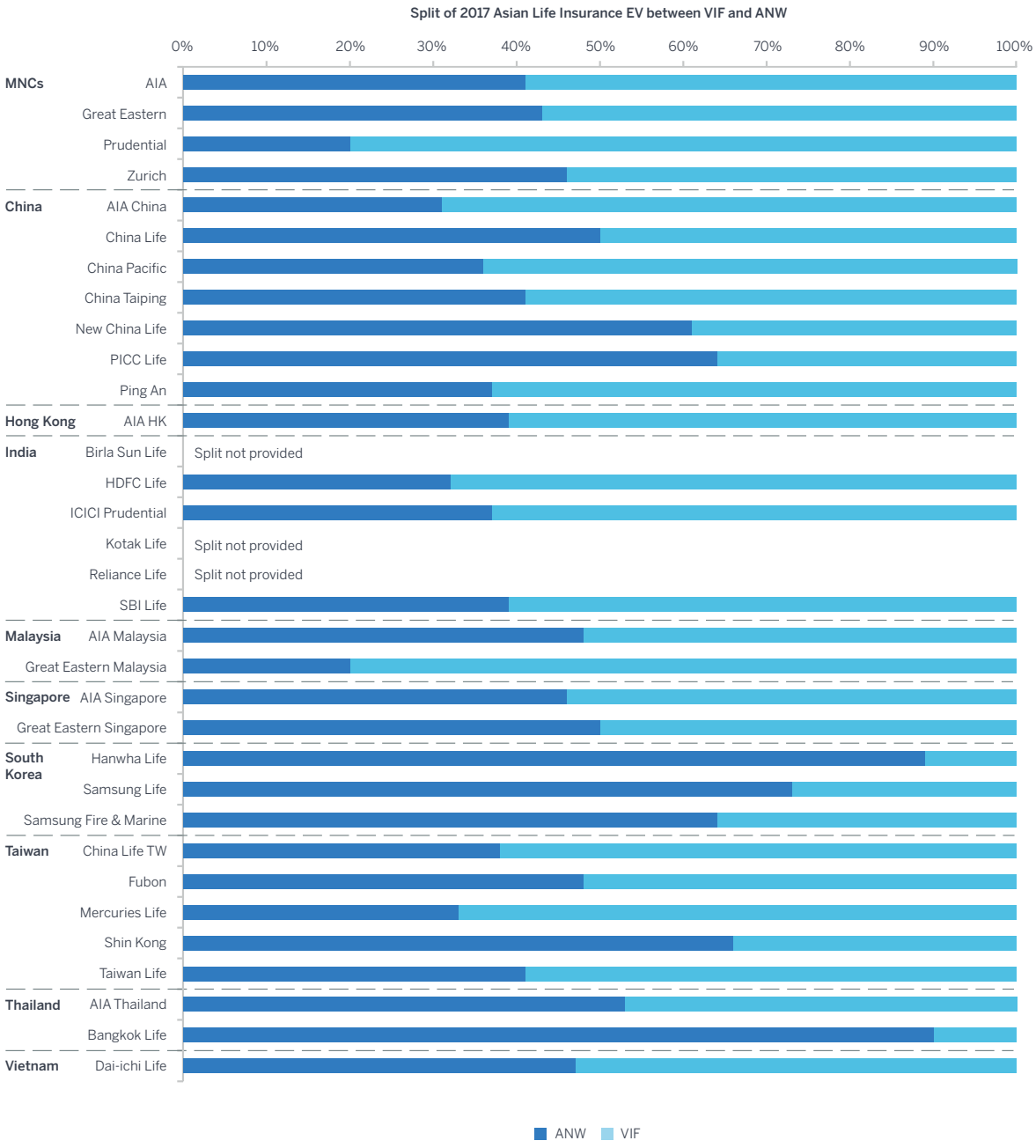


Figure 21 above shows the growth in EV by individual company. Amongst the companies included in this report, Dai-ichi Life Vietnam reported the largest annual increase in EV (84%), followed by Ping An (38%) and Samsung Life (32%). Dai-ichi Life has credited an increase in shareholder capital and management operating efficiencies for the growth in its EV. Ping An reported that the company has successfully leveraged new technologies, especially big data, to grow its customer base, increase sales of protection-oriented business and increase its VNB, thereby growing its EV.

The Chinese life insurers once again reported high growth in EV in 2017, which was mainly due to significant new business sales (on an APE basis), improved VNB margins because of improved focus on products with more protection components and away from low/negative margin short- to medium-term universal life products.

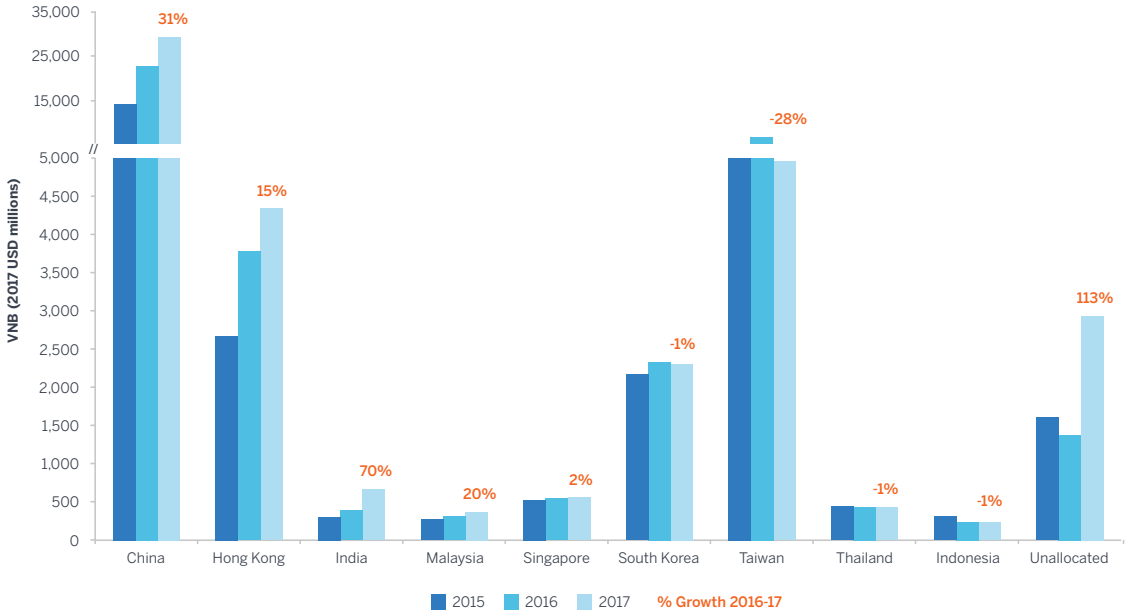
Allianz further improved its EV numbers in 2017 after divesting its South Korea business, which had a large in-force portfolio of negative spread traditional policies. The sale of the business to China's Anbang Group Holdings was completed at the end of 2016.

Figure 22 breaks down reported EV for 2017 into its VIF and ANW components for each market. In general, South Korean and Thai insurers show a higher proportion of their EV coming from ANW, compared with insurers from other markets. The key factor for those markets with value more weighted to ANW is the persistent low interest rate environment and the predominantly nonparticipating in-force portfolios in the cases of South Korea and Thailand.

VNB IN ASIA

Total reported VNB for Asia stood at USD 46.0 billion in 2017, compared with USD 37.1 billion in 2016, representing growth of 24.0%[39] on a comparable basis. 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,[40] 2015 TO 2017



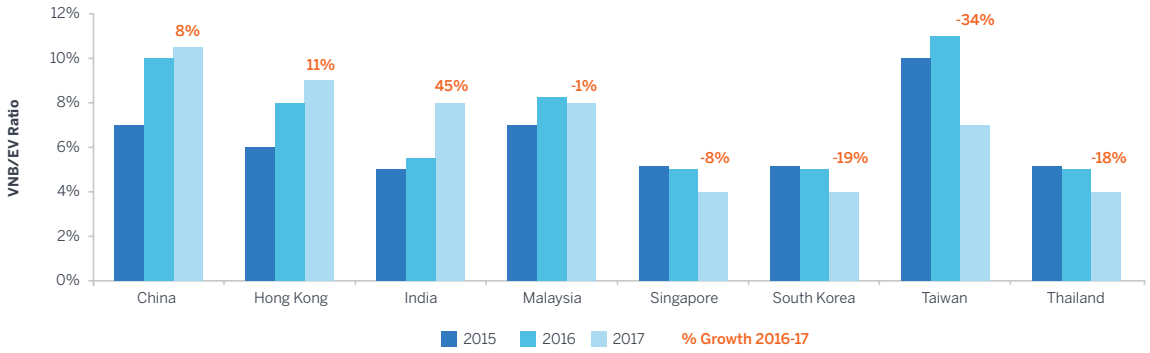
39 This percentage has been calculated on a comparable basis, i.e. only companies that have disclosed a full set of 2015, 2016 and 2017 numbers have been included here.

40 As at the data cut-off date (4 May 2018), some insurers have not yet disclosed their 2017 EV figures. Hence, this chart and subsequent commentary only includes insurers that have a complete set of 2015, 2016 and 2017 EV figures. The performance of the remaining companies will be included in our mid-year EV update report. The missing companies include Bajaj Allianz, Tahoe, DB Insurance, Max Life, Exide Life and SCB Life. Cathay life has released its VNB and APE figures publically, but has not released any other EV-related information as at the cut-off date.

India and China reported the highest growth in VNB on a constant currency basis, largely driven by significantly higher new business volumes (on an APE basis). Taiwan saw a large reduction in VNB largely due to a decrease in new business volumes across most companies resulting from lower sales of traditional regular premium products. Thailand, Indonesia and South Korea experienced minor reductions in VNB in USD terms. VNB margins in Thailand are expected to remain under pressure in the near future as mortality margins are likely to reduce given that the maximum pricing premium rates for traditional products and the caps on unit-linked cost of insurance (COI) charges are based on a new table with lower mortality rates.

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,[41] 2015 TO 2017



Several markets have exhibited a relatively stable ratio over the last three years. The developing markets tend to show higher VNB/EV ratios compared with developed markets. Unfortunately, Taiwan comparable ratios were unavailable at our data cut-off date, which is due to their later EV disclosure cycles.

China, Hong Kong and India have witnessed a significant increase in their VNB / EV ratios in 2017, primarily, as a result of strong new business sales. China and India's VNB growth was driven by a significant increase in new business volumes (on an APE basis), coupled with an increase in VNB margins, which was attributed to a shift towards writing larger volumes of protection business. Hong Kong's VNB growth is reflective of a significant increase in sales through agency and bancassurance channels.

41 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 2015 to 2017.

FIGURE 25: ASIAN VNB BY COMPANY, 2015 TO 2017

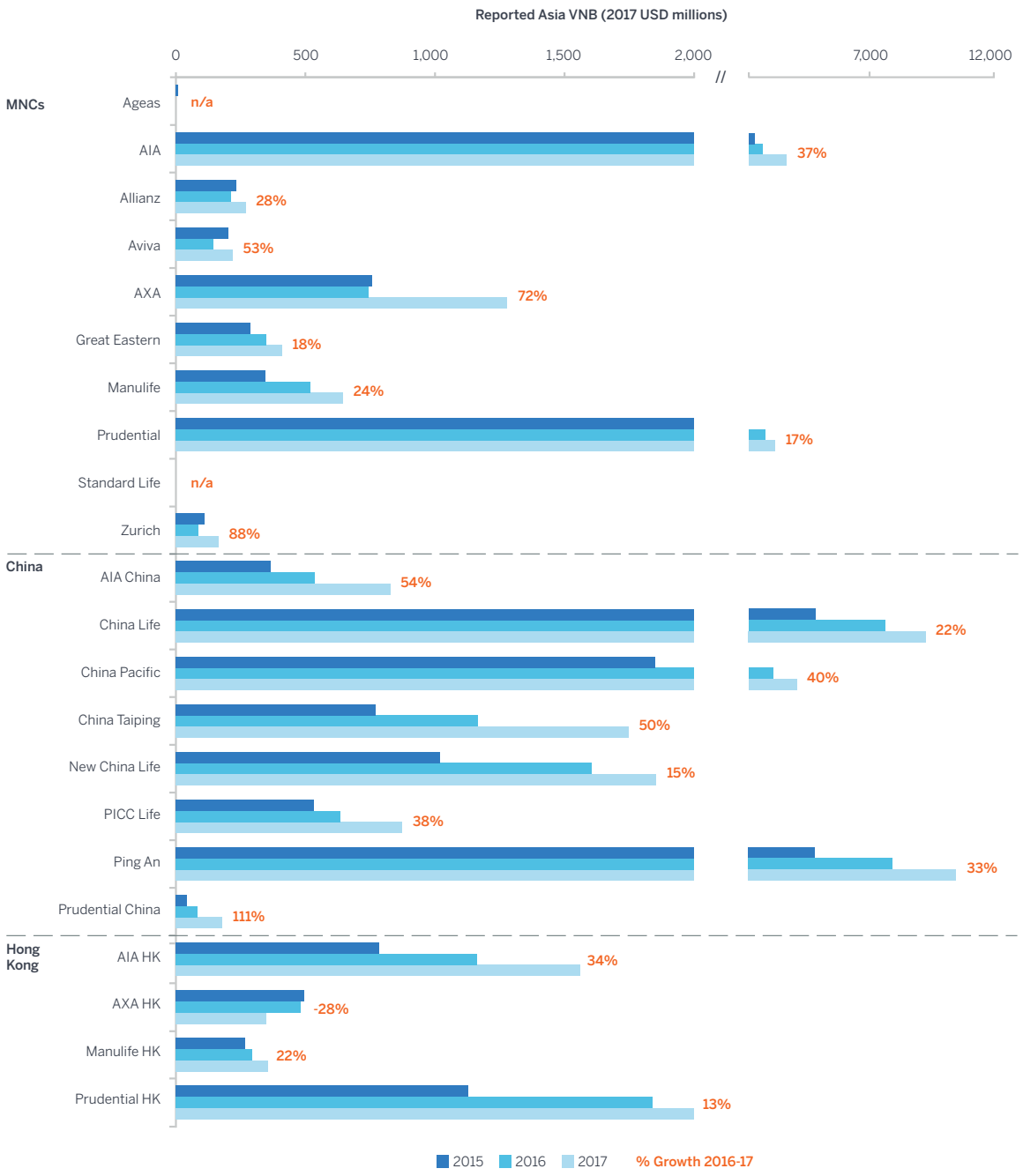
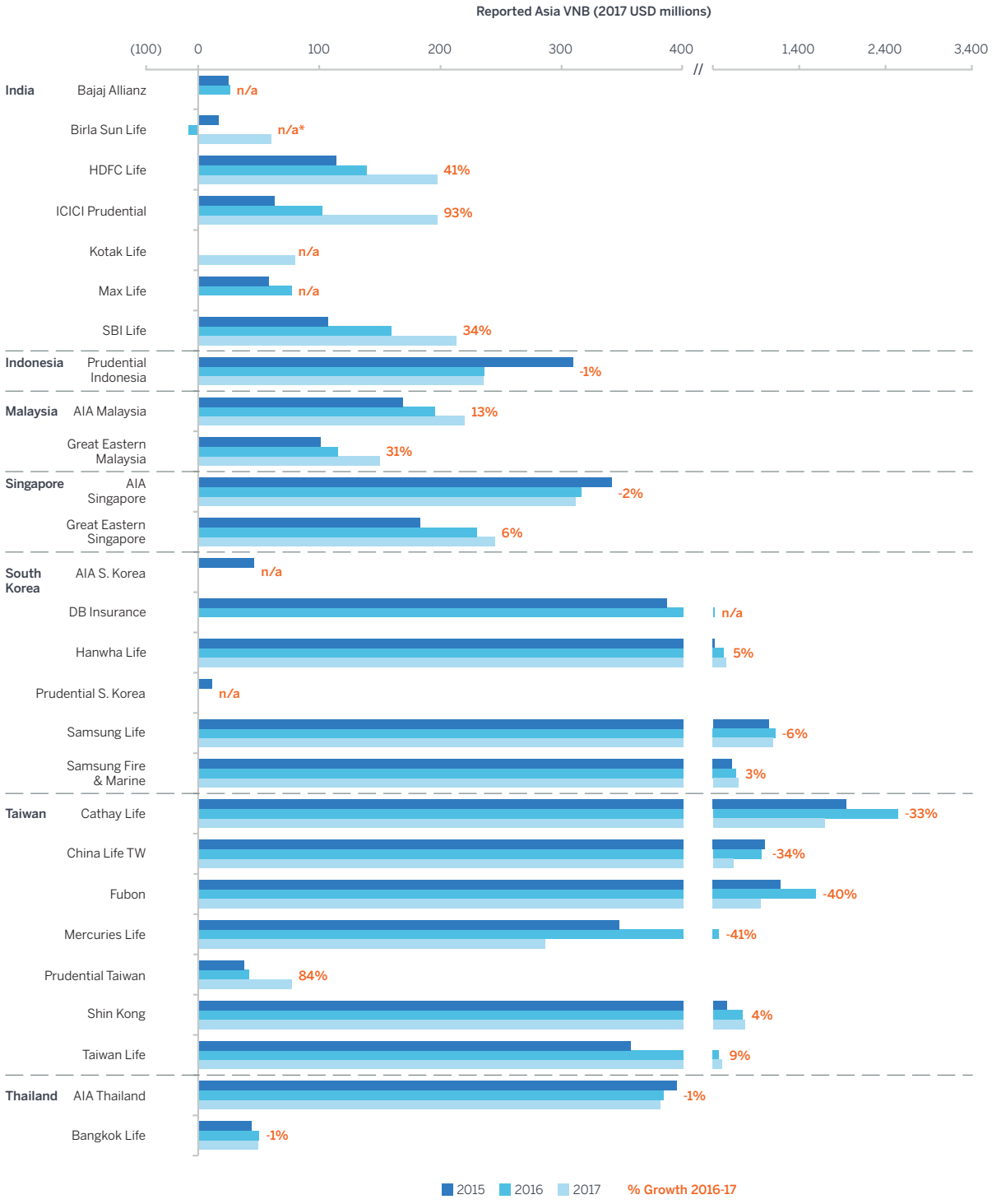


FIGURE 25: ASIAN VNB BY COMPANY, 2015 TO 2017 (CONTINUED)



*Birla Sun Life's VNB moved from negative to positive hence, the 1-year growth is not shown.

Prudential China at 111% and ICICI Prudential at 93% reported the largest increases in 2017 VNB. The reasons for this growth provided by Prudential are summarised below:

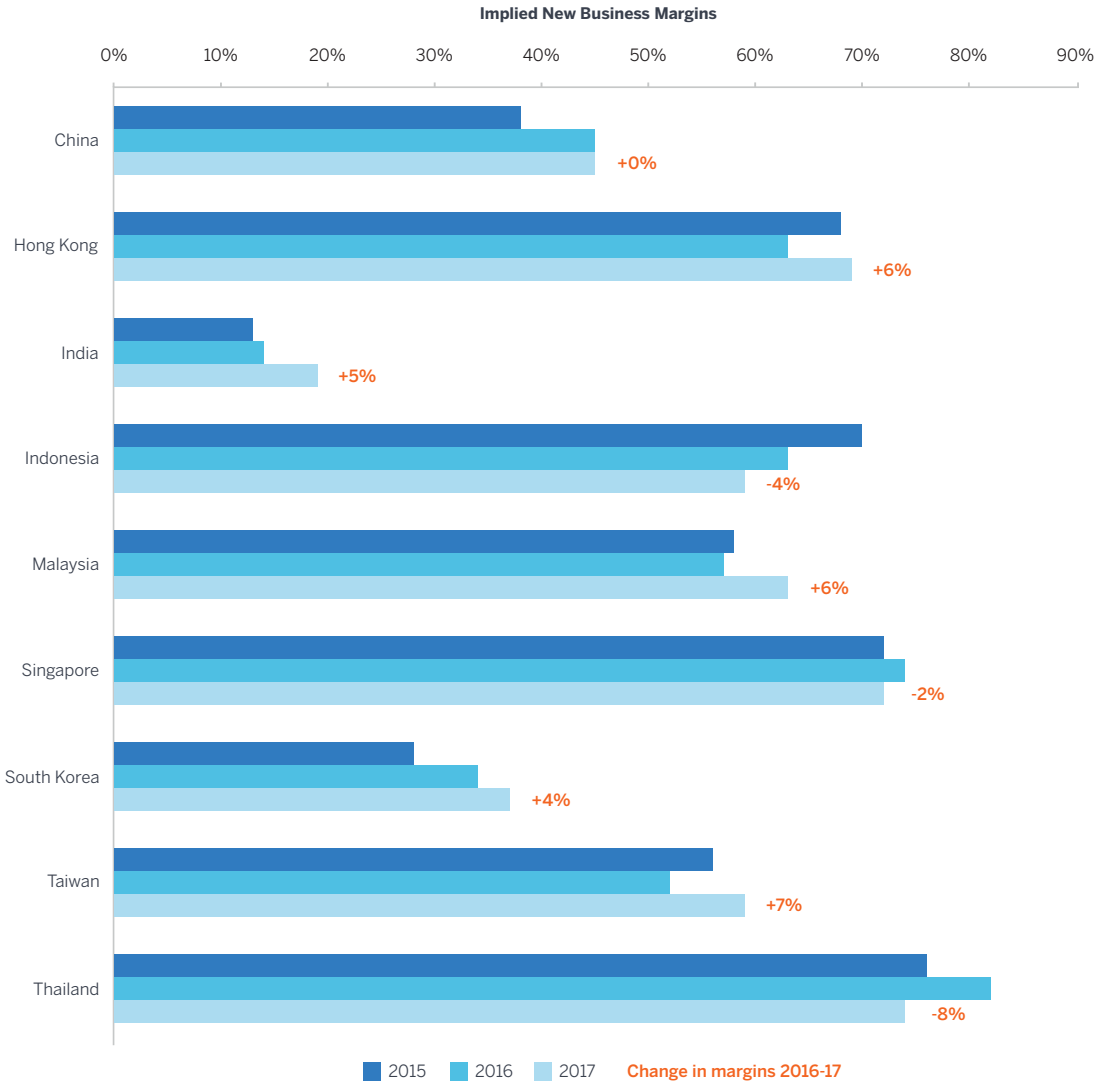
- Prudential China posted strong VNB growth, driven by increased new business sales as well as the change in focus to protection products with higher margins. The company attributed the increase in new business volumes to its use of technology to speed up the customer on-boarding process.
- ICICI Prudential's large increase in VNB was largely due to increased APE sales (including for higher-margin protection business), improvements in persistency and a reduction in expenses.

Most of the Chinese domestic insurers recorded strong VNB growth, mainly as a result of large volumes of new business and, for some, increased margins associated with significant protection sales. Additionally, the change in capital requirements from a Solvency I basis to the C-ROSS basis has generally accounted for a double-digit percentage growth in VNB (based on disclosures that have provided a comparison of VNB results on the two bases).

Prudential posted strong VNB growth across various Asian markets, led by their subsidiaries in China (111%) and Taiwan (84%). However, Prudential Indonesia reported a fall in VNB of 1% in 2017, which marks a recovery from 2016, when the company had reported a fall of 24% citing 'systemic challenges in the economy'.[42]

NEW BUSINESS MARGINS[43] IN ASIA

FIGURE 26: IMPLIED NEW BUSINESS MARGINS[44] BY MARKET, 2015 TO 2017



42 Source: Prudential plc 2017 Annual Report.

43 New business margin has been defined as the ratio of VNB and APE as commonly used in Asia, as opposed to the ratio of VNB to the present value of new business premiums as defined by the MCEV principles.

44 This chart has been calculated by taking the sum of all disclosed VNB in each market, 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 Country Analysis section below.

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. Thailand, Singapore and Hong Kong reported the highest margins in Asia. Bangkok Life did not disclose its new business margin for Thailand this year, hence AIA Thailand was the only data source, while Indonesia is also based on one data point, namely the reported margin for Prudential Indonesia.

AIA Thailand attributed the decline in its VNB margin to the costs associated with a large-scale transformation of its agency force, which the company is currently undertaking still.

It is also worth noting that many Taiwanese and Chinese insurers assume increasing investment returns for future years, which may contribute to higher implied new business margins. However, in Taiwan, both VNB and APE have reduced.

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 (2015, 2016 and 2017[45]). 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 2017. As a result of exchange rate differences, the 2017 growth rates for each MNC's subsidiary may not be the same as those presented in the previous sections.

45 Please note that not all insurers have their financial years coincide with calendar years. In this report, we have defined 2017 results to be the financial year results that contain the majority of 2017 calendar year results. Results for Indian insurers that have a March financial year-end date correspond to the financial results for the year ending 31 March 2018. Hence, when referring to Indian insurers, we have used FY2017-18 to refer to the year ending 31 March 2018. In this report, companies with non-coinciding financial years include Indian insurers (March year-end) and AIA (November year-end).

CHINA

FIGURE 27: REPORTED EV OF CHINESE INSURANCE OPERATIONS, 2015-2017

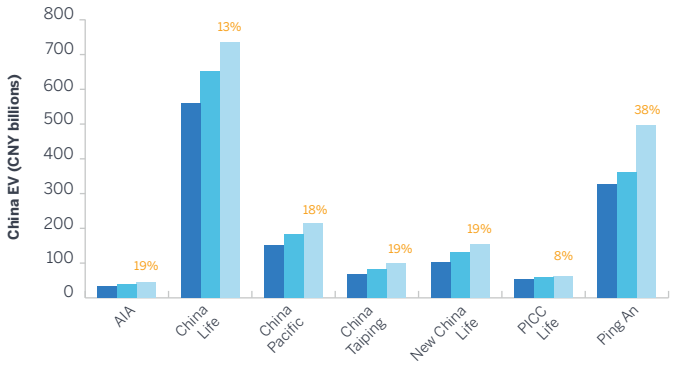


FIGURE 28: REPORTED ANW OF CHINESE INSURANCE OPERATIONS, 2015-2017

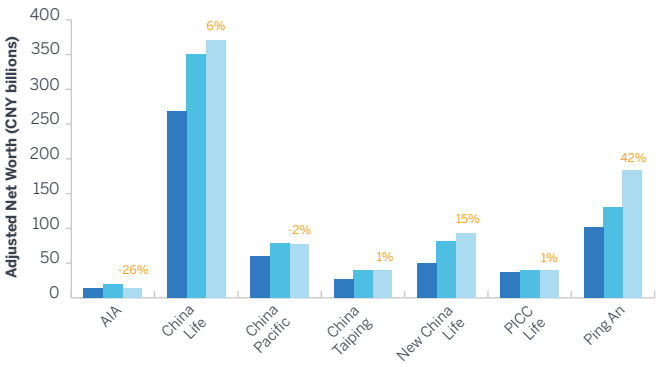


FIGURE 29: REPORTED VIF OF CHINESE INSURANCE OPERATIONS, 2015-2017

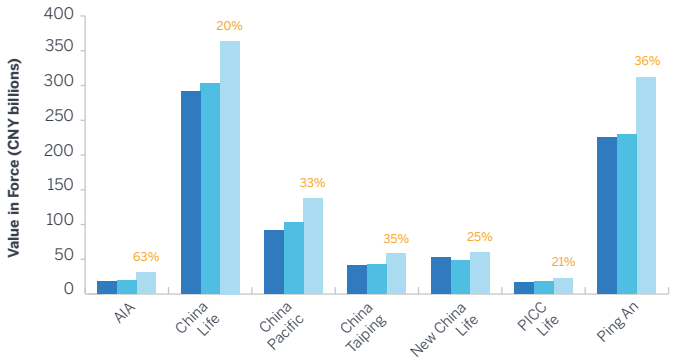


FIGURE 30: REPORTED VIF/ANW SPLIT OF CHINESE INSURANCE OPERATIONS, 2017

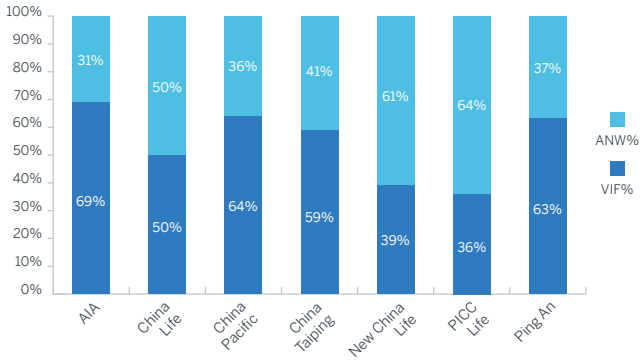


FIGURE 31: REPORTED VNB OF CHINESE INSURANCE OPERATIONS, 2015-2017

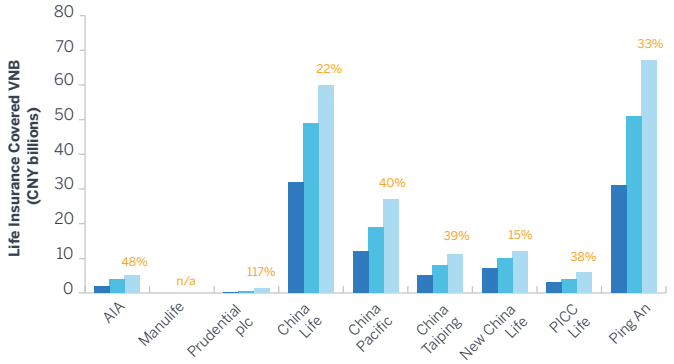


FIGURE 32: REPORTED APE[46, 47] OF CHINESE INSURANCE OPERATIONS, 2015-2017

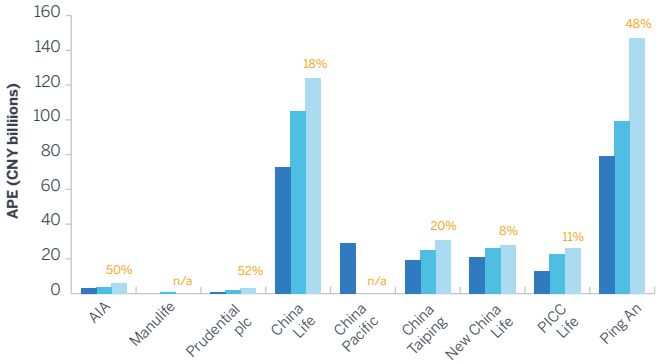
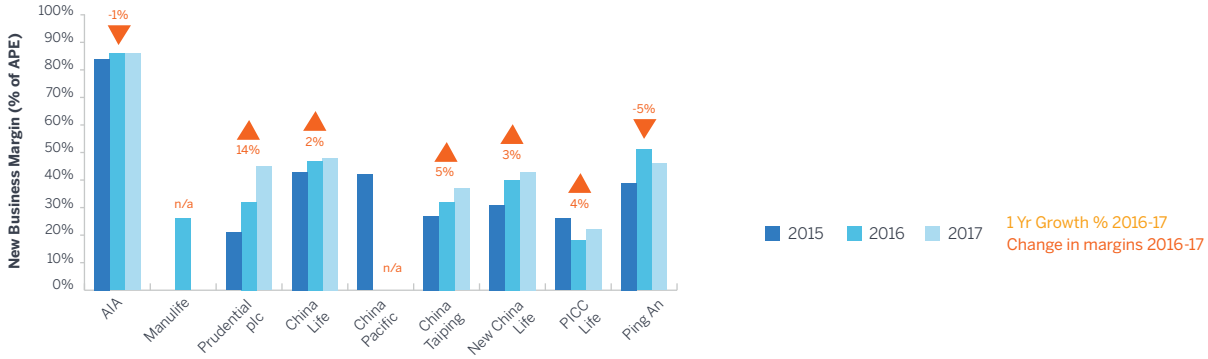


FIGURE 33: REPORTED NEW BUSINESS MARGINS[48] OF CHINESE INSURANCE OPERATIONS, 2015-2017



46 APE figures, where they are not disclosed explicitly by the company, are calculated by Milliman based on disclosed regular premium and single premium new business figures, and may not represent actual APE of the respective companies.

47 For China Pacific, the 2016 and 2017 EV disclosures did not provide sufficient information to calculate APE.

48 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 2017 EV results in China, almost all of which managed double-digit growth for the year with the only exception being PICC Life. Ping An reported the highest growth at 38%, followed by AIA China, China Taiping and New China Life, all recording a growth rate of 19%. Prudential only disclosed VNB results for its China joint venture, which have also been included in the analysis (on an EEV basis with the rest of the market reporting TEV).

The majority of insurers have kept their discount rate assumptions unchanged from 2016. However, AIA and Prudential China increased their discount rate by 20bps to 9.75% and 9.70%, respectively.

All life insurers have either maintained or increased their investment return assumptions in 2017. The full set of economic assumptions disclosed in the market is set out in Figure 92 below. The domestic life insurers typically assume investment returns rising from around 4.5% to 5.0%, with risk discount rates of around 11%.

Another important factor in the increase of EV was the growth in VNB, which was mainly driven by significant new business volumes and increased margins associated with a general industry shift away from low margin short-medium term universal life products towards products with more protection components. All life insurers reported significant growth in VNB in 2017, with Prudential China topping the list with a growth of 117% in VNB. Prudential China cited a significant uplift in its new business sales, especially with respect to high margin regular premium protection business, as the key reason for its VNB growth. The company attributed the increase in new business volumes to an increase in the scale and productivity of its agency and bancassurance channels and the use of technology to speed up the customer on-boarding process. Among other insurers, better sales performance and product diversification strategy to achieve rapid growth in protection-oriented business were common reasons given for increases in VNB.

It is worthwhile to note that while the overall APE increased, overall GWP has decreased from 2016 to 2017. The decrease in GWP was mainly due to the regulator restricting the sales of short-medium term universal life products.

In July 2017, CIRC issued the second consultation paper on insurance company's shareholder management (the first one was issued in December 2016). The proposed rules classified shareholders into four categories – financial shareholder class I, financial shareholder class II, strategic shareholder and controlling shareholder. Amongst others, the key rules specified eligibility criteria of each category and the approach to obtain shares.

China's new capital regime, C-ROSS, which was launched in 2016, was fully implemented by 2017. In September 2017, CIRC issued the C-ROSS Phase 2 plan. Phase 2 covers the following three main areas and is expected to take three years to finish:

- Enhancing supervision rules;
- Completing the execution mechanism; and
- Strengthening collaboration between regulators.

Following the high-profile collapse of Anbang Insurance Group, one of the biggest insurers in China in February 2018, the China Banking Insurance Regulatory Commission (CBIRC) has replaced the China Insurance Regulatory Commission (CIRC) and the China Banking Regulatory Commission (CBRC), starting March 2018.

As at Q4 2017, the officially reported solvency adequacy ratio of the life insurers covered in this report are summarized below.

COMPANY	CORE SOLVENCY ADEQUACY RATIO	COMPREHENSIVE SOLVENCY ADEQUACY RATIO
CHINA LIFE	277.6%	277.7%
NEW CHINA LIFE	275.9%	281.7%
PING AN LIFE	226.5%	234.1%
CPIC LIFE	245.0%	245.0%
CHINA TAIPING LIFE	239.0%	246.0%
PICC LIFE	191.6%	219.3%

HONG KONG

FIGURE 34: REPORTED EV OF HONG KONG INSURANCE OPERATIONS,[49] 2015-2017[50]

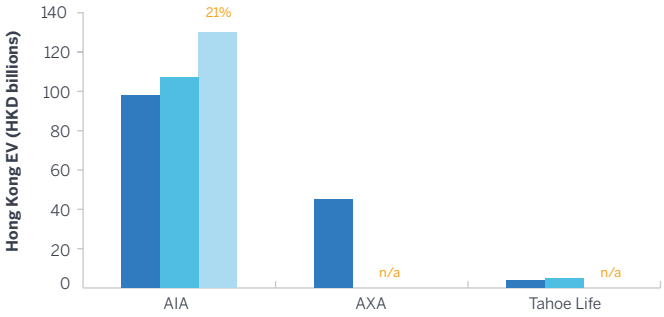


FIGURE 35: REPORTED ANW OF HONG KONG INSURANCE OPERATIONS, 2015-2017

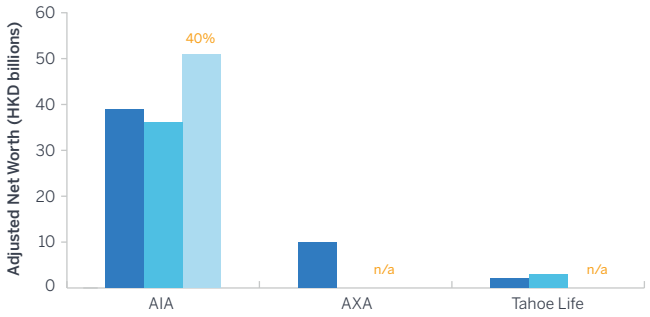


FIGURE 36: REPORTED VIF OF HONG KONG INSURANCE OPERATIONS, 2015-2017

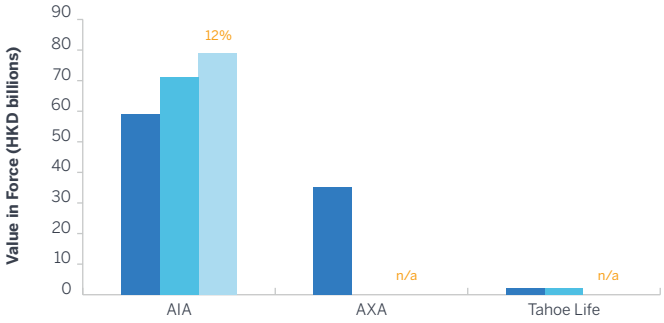


FIGURE 37: REPORTED VIF/ANW SPLIT OF HONG KONG INSURANCE OPERATIONS, 2017

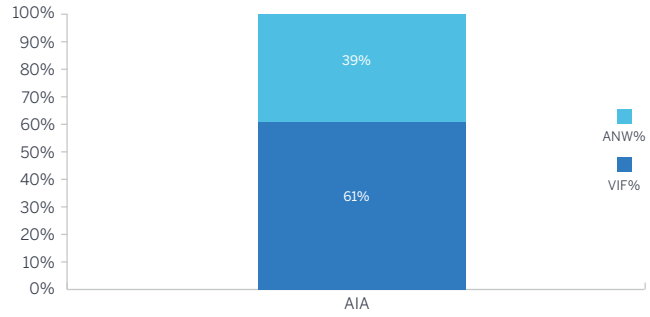


FIGURE 38: REPORTED VNB OF HONG KONG INSURANCE OPERATIONS, 2015-2017[51]

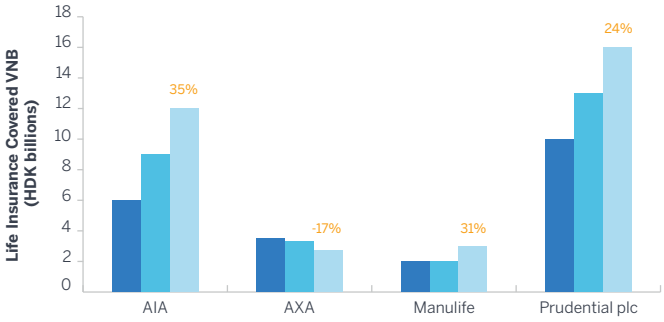


FIGURE 39: APE OF HONG KONG INSURANCE OPERATIONS, 2015-2017

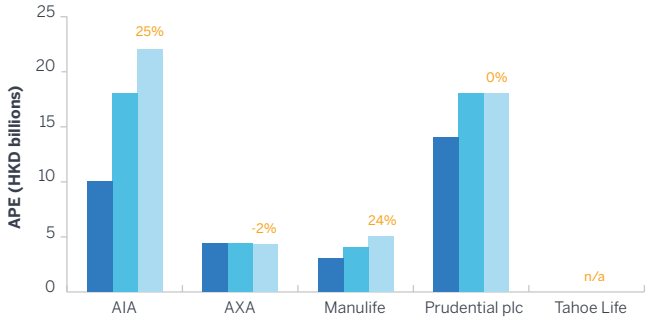
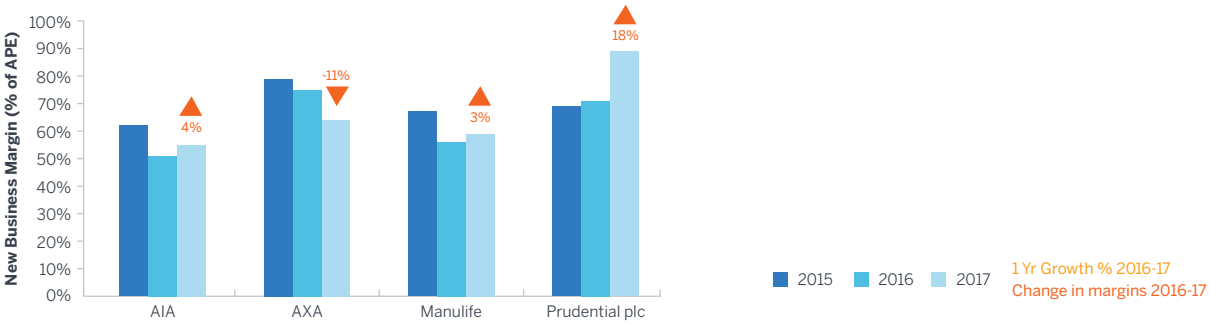


FIGURE 40: REPORTED NEW BUSINESS MARGIN (% OF APE) OF HONG KONG INSURANCE OPERATIONS, 2015-2017



49 Dah Sing's public EV disclosures include its subsidiary Macau Life, which is not separately disclosed. The business was acquired by Tahoe Investment Group during 2017 and renamed Tahoe Life later that year. The new shareholder has ceased publicly disclosing EV results.

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

51 Dah Sing is excluded, as the company has not published their 2017 results as at this report's data cut-off date (4 May 2018). Furthermore, Tahoe Investment Group acquired Dah Sing in 2017 and the company has now been renamed to Tahoe Life. The new shareholder has ceased publicly disclosing VNB results.

AIA is the only company to have disclosed separate EV results for its Hong Kong operation, since AXA and Tahoe Life (Dah Sing Life) stopped this practice. Prudential and Manulife only disclose VNB and new business margins for their Hong Kong business.

According to the Insurance Authority (IA), Hong Kong individual non-linked business premiums increased by 10.5% to HKD 381.2 billion, whereas linked business premiums increased by 10.9% to HKD 31.7 billion over the course of 2017.

AIA reported a 12% increase in its VIF. The company has maintained its ability to write profitable new business despite various market challenges. For insurers with sufficient scale or those operating successfully in profitable niches, new business margins in Hong Kong continue to be amongst the highest in Asia.

The growth in VNB was mixed, with AIA posting the highest figure of 35%, citing the success of its Premier Agency Strategy, strong performance from its retail Independent Financial Adviser (IFA) channel and its bancassurance relationship with Citibank. AXA, in contrast, saw a decline in its VNB.

Our analysis covers AIA, AXA, Manulife and Prudential plc. These companies have seen an overall increase in APE in local currency terms.[52] However, the IA has reported a fall in NB APE for the market as a whole. Further, the IA has reported that the new office premiums of long-term business for 2017 decreased by 15.7% to HKD 156.4 billion compared with 2016. Non-linked new business decreased by 20.2% to HKD 142.9 billion, while linked new business increased by 121.3% to HKD 12.7 billion.

In respect of mainland Chinese visitor sales, new office premiums in 2017 decreased by 30.1% to HKD 50.8 billion when compared with 2016, representing 32.6% of the total new individual business. This was mainly a result of bank and credit card restrictions on foreign currency insurance sales imposed by the Chinese authorities in late 2016 and early 2017.

Despite these moves, there has been an overall rise in market APE, with AIA reporting the highest increase of 25% over 2016 followed by Manulife with an increase of 24%. Prudential Hong Kong's APE was flat and AXA's reduced by 2% in 2017.

There has been an overall rise in new business margins, with Prudential Hong Kong reporting the highest growth of 18%. AIA and Manulife reported an increase of 6% and 3% in new business margins, respectively. The drop in VNB margins for AXA was mainly attributed to unfavourable business mix and higher unit costs because of lower sales volumes.

The IA formally took over from the Office of the Commissioner of Insurance as the industry's regulatory body on 26 June 2017. Insurers and insurance intermediaries operating in Hong Kong must now align their governance and business practices and processes with the new regulator's requirements.

As part of phase 2 of the development of the RBC regime, the OCI launched the first quantitative impact study (QIS 1) in the first quarter of 2017, with insurance companies providing their QIS 1 submissions in December 2017. The second QIS (QIS 2) was released in early August 2018 and submissions are required by the end of November. Milliman has released e-alerts containing our analysis of both QIS 1 and QIS 2.

Whilst it is premature to speculate about the impact of the new RBC framework on EV reporting, the new rules will undoubtedly affect both the EV and VNB of all life insurers operating in Hong Kong, as well as those operating branches from a Hong Kong 'parent'.

The IA released draft Guidelines on Enterprise Risk Management (ERM Guidelines) on 8 May 2018 as part of the Pillar 2 requirement under Hong Kong RBC regime. As per the ERM Guidelines, authorised insurers are required to establish an ERM framework with sufficient governance to ensure safe and sound operations; to submit an Own Risk and Solvency Assessment (ORSA) report at least annually; to assess the impact on capital requirement under different stress and scenario testing; to notify the IA of any group events and intra-group transactions, etc. Insurers will be required to enhance their risk quantification capabilities and to establish strong and consistent sponsorship between the board of directors and senior management.

52 APE throughout this section have been converted to local currency using the prevailing exchange rates applicable at each reporting date (2015, 2016 and 2017). These figures are different to the disclosed APE in reported currency terms.

INDIA

FIGURE 41: REPORTED EV OF INDIAN INSURANCE OPERATIONS, 2015-2017

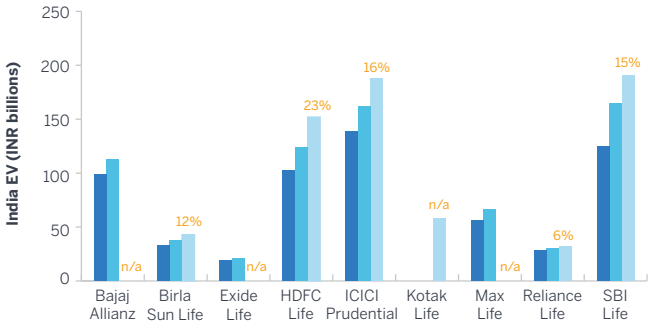


FIGURE 42: REPORTED ANW OF INDIAN INSURANCE OPERATIONS, 2015-2017[53]

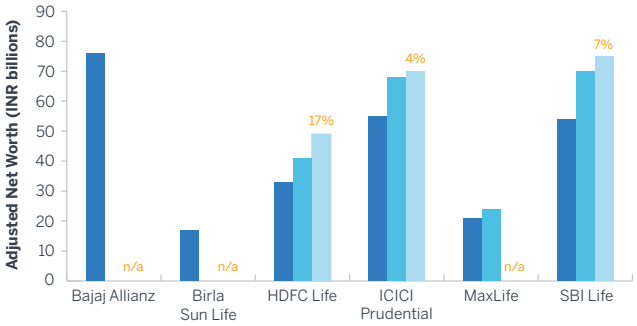


FIGURE 43: REPORTED VIF OF INDIAN INSURANCE OPERATIONS, 2015-2017[54]

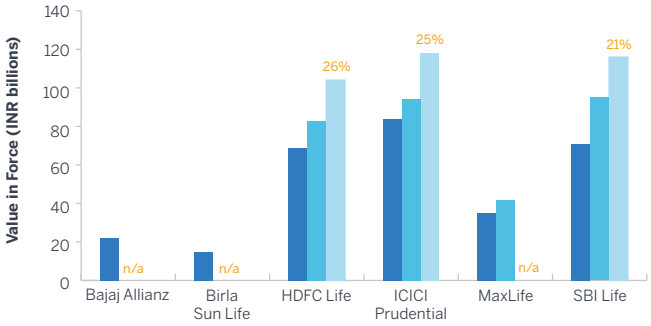


FIGURE 44: REPORTED VIF/ANW SPLIT OF INDIAN INSURANCE OPERATIONS, 2015-2017[55]

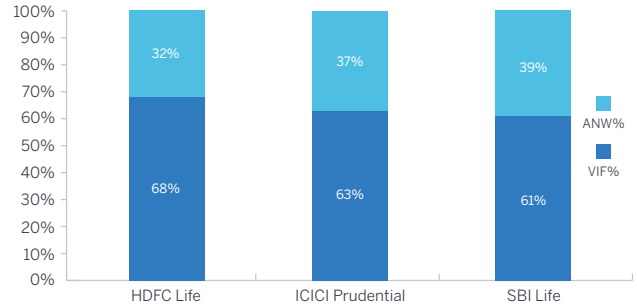
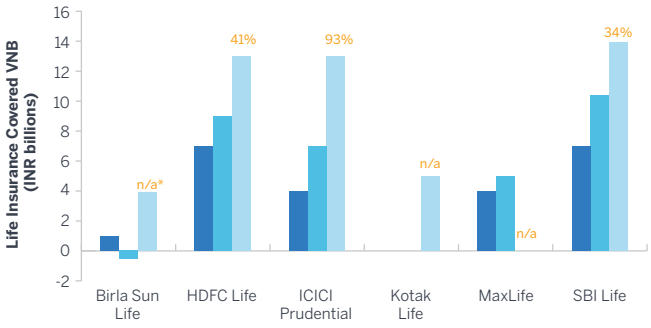


FIGURE 45: REPORTED VNB[56] OF INDIAN INSURANCE OPERATIONS, 2015-2017[57]



*Birla Sun Life's VBN moved from negative to positive hence, the 1-year growth is not shown

FIGURE 46: REPORTED APE OF INDIAN INSURANCE OPERATIONS, 2015-2017[58]

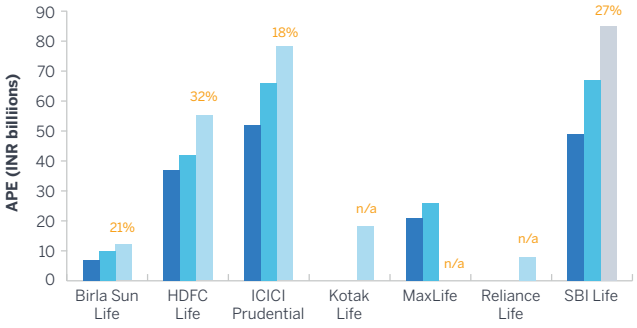
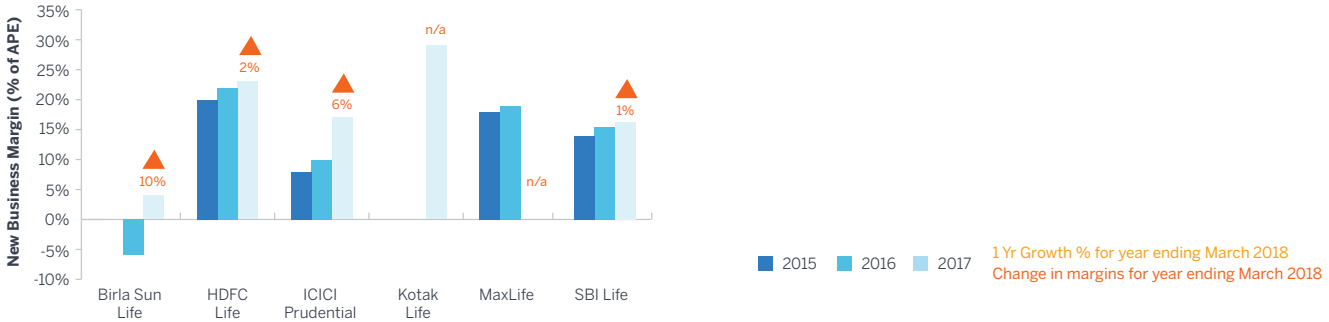


FIGURE 47: REPORTED NEW BUSINESS MARGIN[59] OF INDIAN INSURANCE OPERATIONS, 2015-2017



53 Kotak Life and Reliance Life have been excluded, as the company does not disclose the split of EV between ANW and VIF.

54 Kotak Life and Reliance Life have been excluded, as the companies do not disclose the split of EV between ANW and VIF.

55 Bajaj Allianz, Birla Sun Life, Kotak Life, Max Life, Reliance Life and Exide Life have been excluded, as their split of EV for FY2017-18 has not been disclosed.

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

57 Exide Life has been excluded, as VNB results for FY2017-18 were not disclosed at the time of writing this report. Also, Birla Sun Life's VNB moved from negative to positive hence, the 1-year growth is not shown.

58 Bajaj Allianz and Exide Life have been excluded, as APE results were not disclosed at the time of writing this report. For Kotak Life, APE has been calculated.

59 For comparability, the VNB and new business margin figures for India in the charts are after the impact of expense overruns. Because Bajaj Allianz and Reliance Life do not disclose post-expense overrun results, their VNB disclosures have been excluded from the charts. Further information can be found in the commentary.

India currently has three directly listed life insurers, which have directed significant attention towards the EV results produced by various companies operating in this sector. More companies have been disclosing their EV information regularly, with FY2017-18[60] results now available for Birla Sun Life, HDFC Standard Life, ICICI Prudential, Kotak Life, Reliance Life and SBI Life. The remaining insurers, Bajaj Allianz, Exide Life and Max Life, are expected to release their results later this year. Revised Figures 41 to 47 containing the later disclosed FY2017-18 results will be included in the upcoming '2018 Mid-Year Embedded Value Results – Asia (excl. Japan)' report.

EV/VNB reporting in India has also started to show a gradual convergence of methodologies. Insurers including Exide Life, HDFC Standard Life, SBI Life, Bajaj Allianz and ICICI Prudential all use market-consistent approaches. Birla Sun Life was the latest to join the group by adopting a market-consistent approach for their FY2017-18 reporting. Reliance Life is now the only insurer publicly disclosing results using the Traditional Embedded Value (TEV) methodology.

Reported VNB margins are in the range of 4% to 29% after allowing for the impact of acquisition expense overruns. Birla Sun Life reports margins on a pre- and post-overrun basis. Bajaj Allianz and Reliance Life do not disclose any expense-overrun information in their VNB disclosures. As we have only shown post-overrun VNB margins in the charts above, we have excluded the disclosures for these companies. The VNB margin declared by Reliance Life was 37.7% for FY2017-18. Bajaj Allianz has not disclosed its VNB margins for FY2017-18 as at the cut-off date for this report.

Key highlights of the EV results for FY2017-18 are:

- Insurers increased margins across the board, while increasing new business APE, leading to a growth in the VNB for all companies;
- Embedded values continue to increase, with many companies posting double digit growth;
- An increasing share of protection business has contributed to improving the VNB margins; and
- Birla Sun Life was able to move from negative to positive VNB margins over the course of FY2017-18.

Following the successful listing of ICICI Prudential on the Indian stock exchanges in September 2016, SBI Life and HDFC Standard Life went public in October and November 2017, respectively. The Initial Public Offering (IPO) for SBI Life was oversubscribed 3.6 times and on the day of listing, the share price opened at a premium of 5% to the upper band of the issue price. The IPO was valued at INR 84 billion, setting the company's overall valuation at INR 700 billion at the upper band of the issue price. It is now India's largest private sector life insurer in terms of weighted new business premium. The IPO for HDFC Standard Life was oversubscribed 4.9 times and on the day of listing, the company's share price opened at a premium of 7% to the upper band of the issue price. The IPO was valued at INR 87 billion, setting the company's overall valuation at INR 581 billion at the upper band of the issue price.

As at 31 March 2018, SBI Life's traded valuation to EV multiple was 3.56 and the implied VNB multiple was approximately 35. For comparison, as at 31 March 2018, ICICI Prudential's traded valuation to EV multiple was 2.97 and the implied VNB multiple was around 29; while for HDFC Standard Life the corresponding figures were 5.98 and 59, respectively.

60 For the purposes of this report, FY2017-18 for Indian insurers represents the financial year ending 31 March 2018.

The actuarial disclosures by HDFC Standard Life, ICICI Prudential and SBI Life within their IPO processes, which have been prepared in accordance with APS10, have set a new benchmark for EV reporting in the market and several insurers have already started taking steps to re-assess their EV in a manner consistent with the APS10 principles.

PNB MetLife has released a draft red herring prospectus (DRHP) in connection with its proposed IPO later this year. This is the first public disclosure of the company's EV and VNB results. The company has reported an EV of INR 33.3 billion, a VNB of INR 2.2 billion and a VNB margin of 17.1%. The DRHP was released post the cut-off date for this report, therefore, its results have not been in included elsewhere in this report.

In July 2017, the Insurance Regulatory and Development Authority of India (IRDAI) formed a 10-member steering committee to help implement a new risk-based capital (RBC) regime. The primary responsibility of the steering committee is to ensure smooth and timely implementation of RBC from the existing solvency capital regime, which is formula driven. The IRDAI has started to engage with consulting firms to seek support for the design and implementation process.

The GST council, chaired by the Union Finance Minister, implemented the new GST regime in July 2017, grouping insurance with the financial services sector and subjecting the premiums in all products, except annuity and endowment products, to a GST of 18%, making insurance cover more expensive. For endowment products, the GST on first-year premium is set at 4.50% and that on renewal premiums is set at 2.25%; and for annuity products, the GST rate on single premiums is 1.80%. This represents a 20% increase in the service tax compared with the existing regime.

INDONESIA

FIGURE 48: REPORTED VNB[61] OF INDONESIAN INSURANCE OPERATIONS, 2015-2017[62]

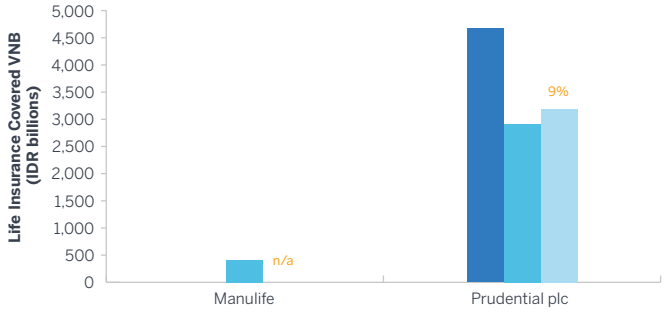


FIGURE 49: REPORTED APE[63] OF INDONESIAN INSURANCE OPERATIONS, 2015-2017

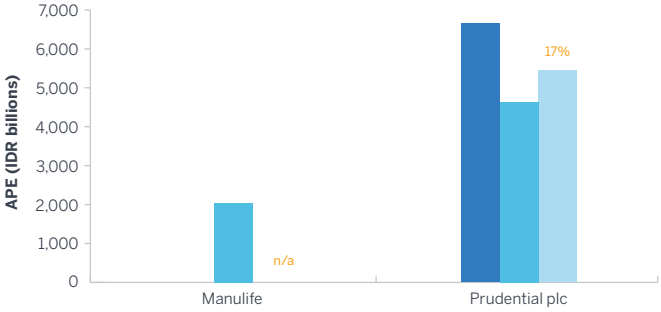
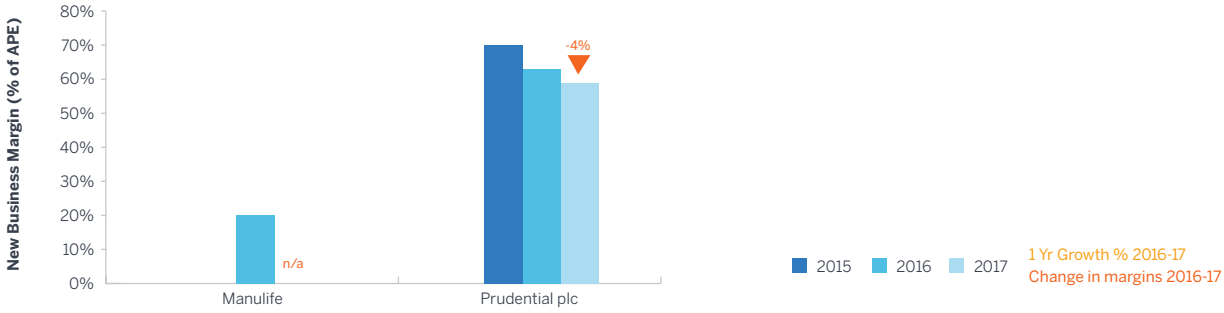


FIGURE 50: REPORTED NEW BUSINESS MARGIN OF INDONESIAN INSURANCE OPERATIONS, 2015-2017



None of the insurers publicly disclose EV figures for their Indonesian operations. Prudential remains the only insurer to disclose its VNB and new business margins for Indonesia. For 2017, Prudential reported an increase in APE, in local currency terms,[64] from IDR 4,645 billion to IDR 5,443 billion, an increase of 17.0%. In local currency terms, the VNB grew[65] by 9.0%.

According to the life insurance industry association (locally known as AAJI), the growth in total premium income in 2017 was 17.2%, up from IDR 167.04 trillion in 2016 to IDR 195.72 trillion in 2017. This can be attributed to a 22.4% increase in new business premium and 8.4% increase in renewal premium.

In 2017 the industry has seen a number of new regulations announced by the regulator, including updates to guidelines for technical reserving (Circular 27/SEOJK.05/2017 & Circular 28/SEOJK.05/2017) and changes to the risk-based capital framework (Circular 24/SEOJK.05/2017 & Circular 24/SEOJK.05/2017). Shortly after the release of these regulations, Milliman prepared an e-Alert to highlight and compare changes in the capital and technical reserves requirements as set out in these circulars. The e-Alert can be found here.

On 18 April 2018, the long-awaited rules on foreign ownership were finally enacted, with President Joko Widodo signing 'Regulation no.14/2018 on Foreign Ownership of Insurance Companies', which sets the foreign ownership limit at the prevailing rate of 80%. Existing companies with foreign shareholdings above 80% have been allowed to be 'grandfathered', however, any future capital raised will be subject to the 80:20 rule. Following the finalisation of this regulation, companies are expected to take much greater care with managing their capital, particularly as domestic partner capital may be limited.

61 VNB and APE throughout this section have been converted to local currency using the prevailing exchange rates applicable at each reporting date (2015, 2016 and 2017). These figures are different to the disclosed VNB/APE in local currency terms due to exchange rate differences as VNB/APE presented in EV disclosures have been converted based on average exchange rates rather than the prevailing exchange rate applicable at the reporting date.

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

63 Ibid.

64 The disclosed 2017 VNB and APE growth for Prudential in GBP terms are different from the values shown in Figure 48 and 49. Please refer to footnotes 61 and 62 for further explanation.

65 In its 2017 annual report, Prudential reported a slight drop of 0.6% in VNB, from GBP 175 million to GBP 174 million, using average exchange rates which have moved in the opposite direction as compared with the prevailing exchange rates between 2016 and 2017. Prudential has attributed the decline in performance due to a change in product mix.

MALAYSIA

FIGURE 51: REPORTED EV OF MALAYSIAN INSURANCE OPERATIONS, 2015-2017[66,67]

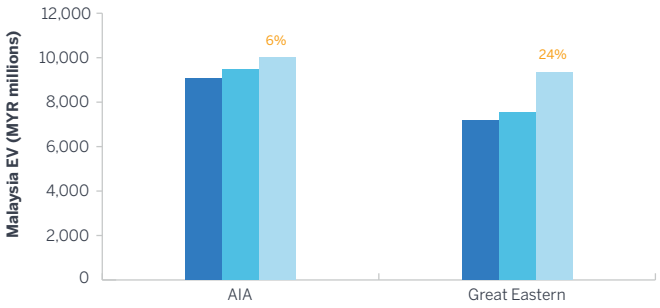


FIGURE 52: REPORTED ANW OF MALAYSIAN INSURANCE OPERATIONS, 2015-2017[68]

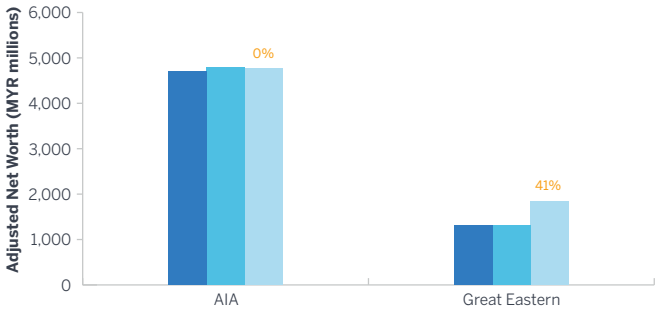


FIGURE 53: REPORTED VIF OF MALAYSIAN INSURANCE OPERATIONS, 2015-2017[69]

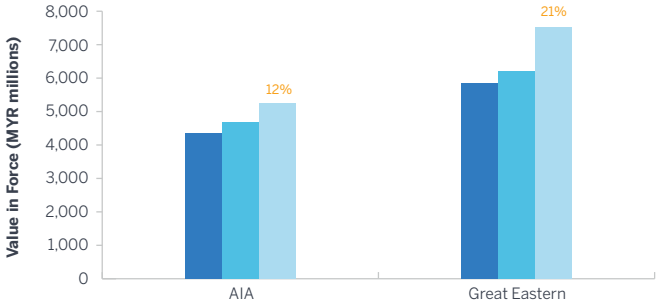


FIGURE 54: REPORTED VIF/ANW SPLIT OF MALAYSIAN INSURANCE OPERATIONS, 2017

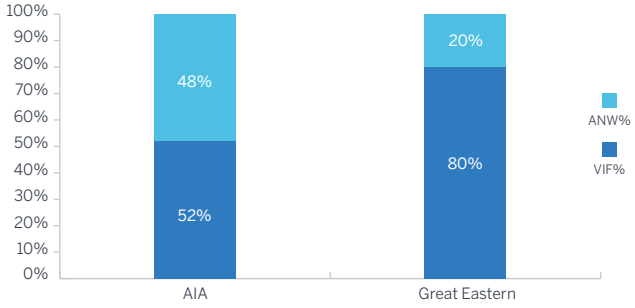


FIGURE 55: REPORTED VNB[70] OF MALAYSIAN INSURANCE OPERATIONS, 2015-2017[71]

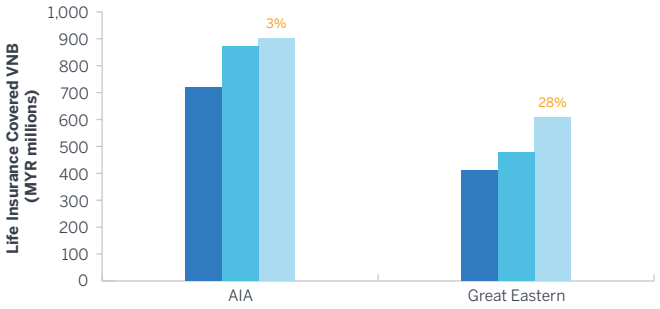


FIGURE 56: REPORTED APE[72] OF MALAYSIAN INSURANCE OPERATIONS, 2015-2017

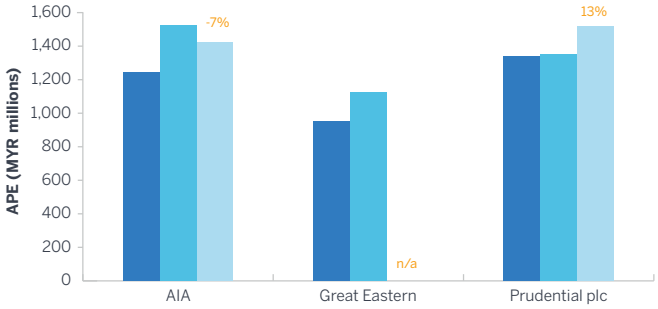
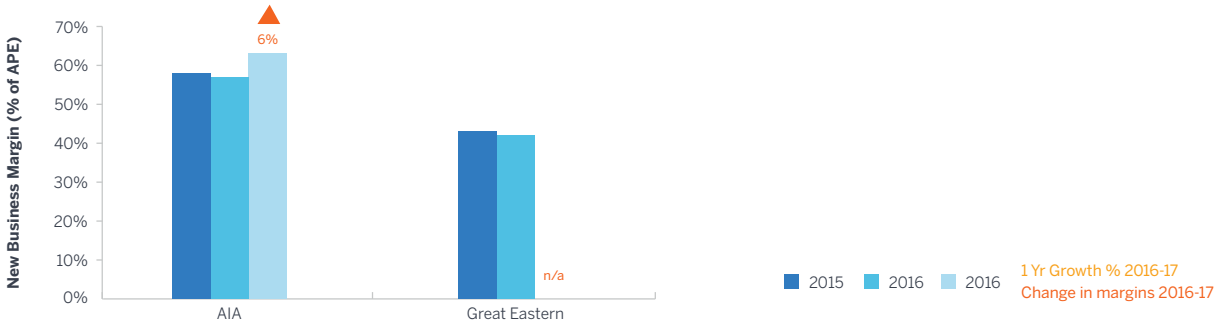


FIGURE 57: REPORTED NEW BUSINESS MARGIN OF MALAYSIAN INSURANCE OPERATIONS, 2015-2017



66 Great Eastern Malaysia's EV figure excludes Great Eastern Takaful Berhad.

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

68 Great Eastern Malaysia's ANW figure excludes Great Eastern Takaful Berhad.

69 Great Eastern Malaysia's VIF figure excludes Great Eastern Takaful Berhad.

70 AIA's VNB and APE figures exclude pension business.

71 Great Eastern Malaysia's VNB figure excludes Great Eastern Takaful Berhad.

72 The values have been determined based on APE reported in EV disclosure converted to local currency using the prevailing exchange rate applicable at each reporting date (2015, 2016 and 2017). These figures are different to the disclosed APE for AIA and Great Eastern Malaysia in local currency terms due to exchange rate differences as APE presented in EV disclosures have been converted based on average exchange rates rather than the prevailing exchange rate applicable at the reporting date.

Only Great Eastern and AIA disclosed 2017 EV and VNB results for Malaysia. Prudential Malaysia'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 has reduced to 8.75% for 2017, from 9.00% in 2016. Great Eastern did not disclose its investment return assumptions for 2017, however, the assumptions for 2016 were 5.6% for participating contracts and 4.8% for non-participating contracts. Elsewhere, Prudential decreased its risk discount rate assumption marginally for new business and in-force business from 6.8% to 6.4% and from 6.9% to 6.5%, respectively from 2016 to 2017. Its 10-year bond yield assumption also decreased to 3.9% in 2017 from 4.3% in 2016. The 10-year government bond yield in Malaysia as at 31 December, 2017 was 3.9%.

According to AIA's disclosures, the APE for its business in Malaysia in USD terms grew slightly by 2.0%[73] compared with 2016 (it decreased in local currency terms), whereas its VNB and new business margin figures grew by 16.0% and 5.4%, respectively. The main reasons cited for these results were its continued focus on long-term unit-linked protection business, strong performance from both their agency and partnership distribution channels, as well as growth in its Takaful business combined with increased sales of regular premium products.

Great Eastern continues to disclose less information around its EV results. However, in Malaysia, it does mention that the goal-based advisory initiative launched by its bank partner, OCBC, has helped Great Eastern tap into more opportunities with the bank's high net worth and mass market customers.

According to the Life Insurance Association of Malaysia (LIAM), overall life insurance protection sales continued on an upward trend in 2017, reflecting an 'increased awareness of the importance of insurance protection among Malaysians'. In terms of new business APE, the life insurance industry grew by 1.9% in 2017.

In November 2015 Bank Negara Malaysia (BNM) introduced its three-pronged Life Insurance and Family Takaful Framework (LIFE Framework) involving:

- The gradual removal of limits on operational costs to promote product innovation while preserving policy value: this is intended to provide greater flexibility for insurers to manage their expenses, while certain safeguards are applied to protect consumers' interests;
- The development of diversified distribution channels to widen outreach and increase insurance and Takaful penetration; and
- The strengthening of market practice to enhance consumers' protection through instilling greater professionalism in the industry.

In line with the implementation plan, significant developments have already been made by the industry to improve the efficiency and effectiveness of distribution channels. Simple life insurance (term) products will be made available through direct distribution channels (including electronic channels) from July 2017 onwards. Further life insurance products (such as critical illness and medical) will be offered via the direct channel from July 2018 onwards.

The LIFE Framework is being implemented in a phased approach up to its target completion date in 2019.

73 The values for 2016 and 2017 APE growth for AIA and Great Eastern Malaysia in MYR terms, shown in Figure 56, are different from the reported disclosures. Please refer to footnote 72 for further explanation.

SINGAPORE

FIGURE 58: REPORTED EV OF SINGAPOREAN INSURANCE OPERATIONS, 2015-2017[74]

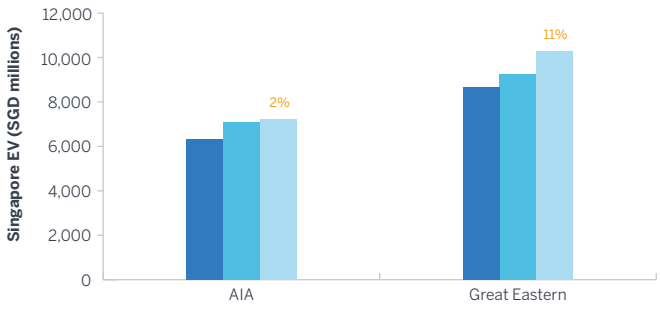


FIGURE 59: REPORTED ANW OF SINGAPOREAN INSURANCE OPERATIONS, 2015-2017[75]

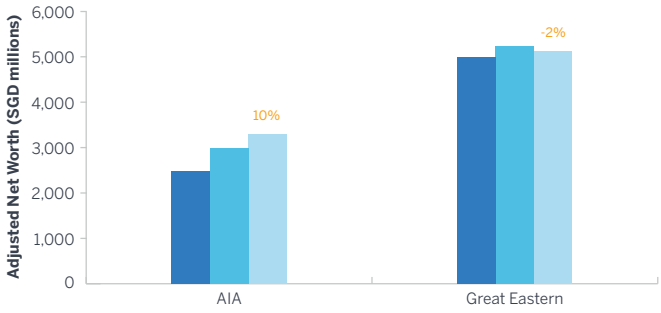


FIGURE 60: REPORTED VIF OF SINGAPOREAN INSURANCE OPERATIONS, 2015-2017

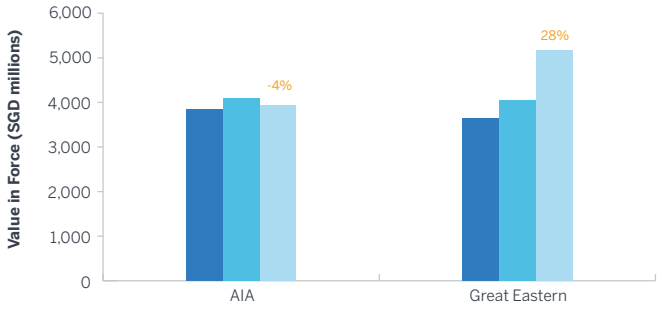


FIGURE 61: REPORTED VIF/ANW SPLIT OF SINGAPOREAN INSURANCE OPERATIONS, 2017

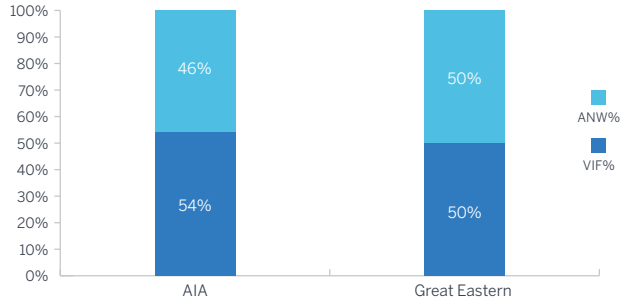


FIGURE 62: REPORTED VNB OF SINGAPOREAN INSURANCE OPERATIONS, 2015-2017

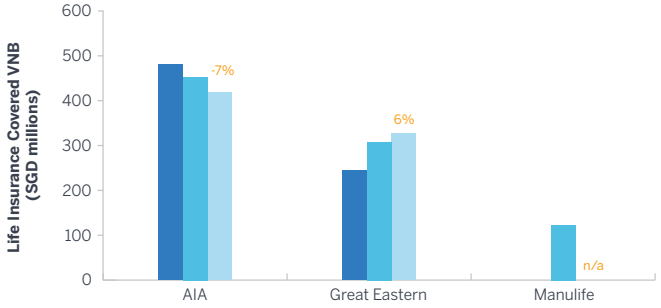


FIGURE 63: REPORTED APE[76] OF SINGAPOREAN INSURANCE OPERATIONS, 2015-2017

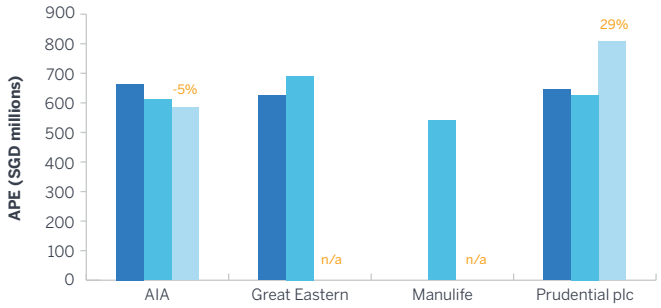
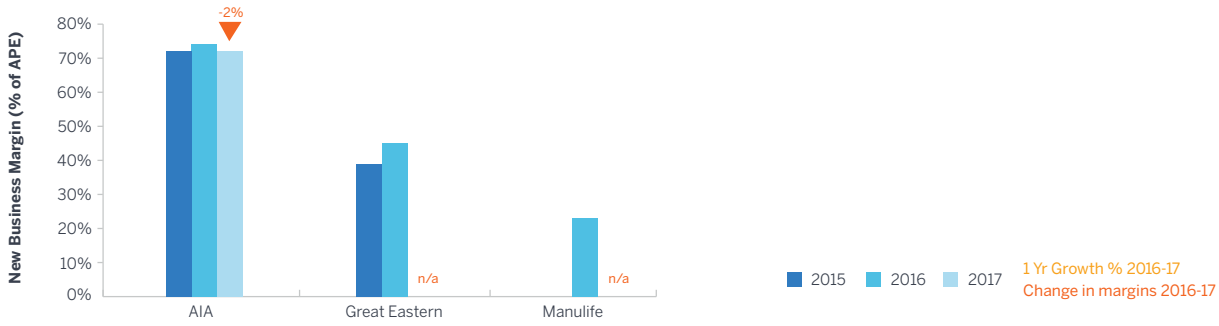


FIGURE 64: REPORTED NEW BUSINESS MARGIN OF SINGAPOREAN INSURANCE OPERATIONS, 2015-2017



74 Great Eastern Singapore's EV include its businesses in Brunei, Hong Kong, Indonesia and Sri Lanka.

75 Great Eastern Singapore's ANW include its businesses in Brunei, Hong Kong, Indonesia and Sri Lanka.

76 The values shown in Figure 63 have been determined based on APE reported in EV disclosure converted to local currency using the prevailing exchange rate applicable at each reporting date (2015, 2016 and 2017). These figures are different to the disclosed APE for Prudential and AIA Singapore in local currency terms due to exchange rate differences as APE presented in EV disclosures have been converted based on average exchange rates rather than the prevailing exchange rate applicable at the reporting date.

Only Great Eastern and AIA disclose EV and VNB 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 AIA has remained unchanged at 6.9%, while for Great Eastern it has fallen from 7.25% to 7.00%. There was a significant decrease in the in-force business risk discount rate used by Prudential for EEV reporting from 5.0% to 4.4%, further increasing the gap between the rates adopted by TEV reporting Great Eastern and AIA. Great Eastern did not disclose its investment return assumptions for 2017. AIA's 2017 investment return assumptions remained unchanged from 2016 (7% for equity, 2.5% for 10-year government bond yields). Prudential decreased its 10-year government bond yield assumption from 2.5% to 2.0%. Manulife did not disclose economic assumptions for its Singapore results. The 10-year government bond yield in Singapore as at 31 December 2017 was approximately 2%.

Prudential disclosed a 27% increase in its Singapore APE in SGD terms,[77] driven by both agency and bancassurance channels. AIA reported a slight increase of 1% in Singapore APE in SGD terms after reporting a 9% fall in 2016, attributing this turnaround to its continued disciplined approach of managing its product mix from its partnership distribution channels. While AIA recorded a small fall in VNB margin in 2017, its margins have remained fairly constant over the last three years. Unlike previous years, Great Eastern did not disclose its VNB margin for 2017. According to Great Eastern's published MAS returns, the company achieved a growth in new business APE of over 35% in 2017, largely driven by short-term single-premium non-participating endowment sales. The strong growth in new business APE suggests a reduction in new business margins for Great Eastern as VNB only increased by 6%. This indicates that the new single-premium business has materially lower margins.

Great Eastern reported a reduction in ANW (-2%) and a significant increase in VIF (+28%). We believe a major reason for the increase in VIF is the reduction in risk discount rate by 25 basis points.

AIA has reported the highest new business margins, with Manulife showing the lowest margins (for 2016). AIA's higher margins are likely to be attributed to a strong focus on regular premium products sold through its tied agency channel, while the lower margins for Manulife (2016) may be due to lower economies of scale (higher expense loadings) and lower margin products sold through its DBS bancassurance partnership.

On the regulatory front, during 2017 the Monetary Authority of Singapore (MAS) announced that the planned implementation date for the new risk-based capital framework (referred to as RBC 2) is 1 January 2020. Details of the final Quantitative Impact Study (QIS) are expected to be circulated in Q3 2018, with the complete RBC 2 rules finalised by the end of 2018.

77 The values shown in Figure 63 for 2017 APE growth for Prudential and AIA Singapore, in SGD terms, are different from the reported disclosures. Please refer to footnote 76 for further explanation.

SOUTH KOREA

FIGURE 65: REPORTED EV OF SOUTH KOREAN INSURANCE OPERATIONS, 2015-2017[78]

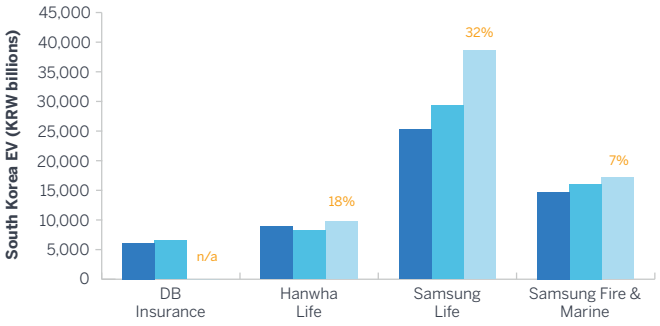


FIGURE 66: REPORTED ANW OF SOUTH KOREAN INSURANCE OPERATIONS, 2015-2017

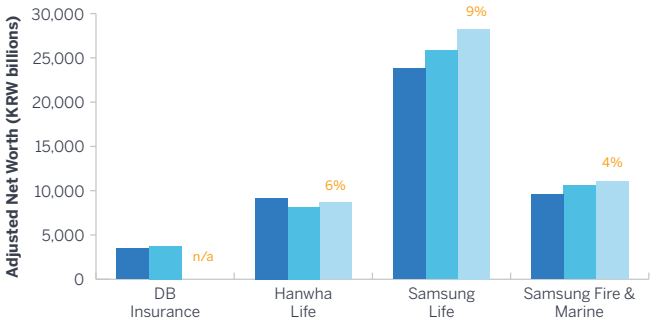


FIGURE 67: REPORTED VIF OF SOUTH KOREAN INSURANCE OPERATIONS, 2015-2017[79]

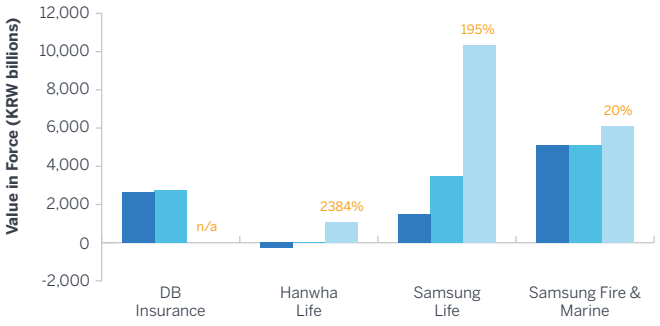


FIGURE 68: REPORTED VIF/ANW SPLIT OF SOUTH KOREAN INSURANCE OPERATIONS, 2017

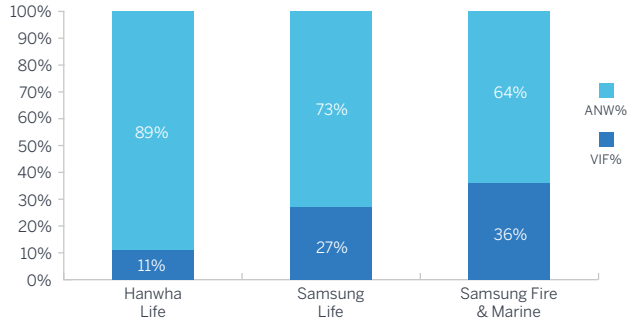


FIGURE 69: REPORTED VNB OF SOUTH KOREAN INSURANCE OPERATIONS, 2015-2017

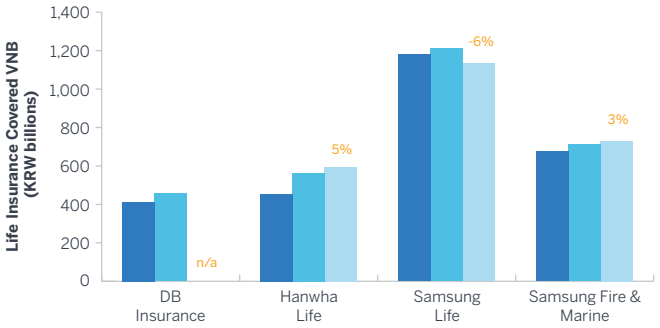


FIGURE 70: REPORTED APE OF SOUTH KOREAN INSURANCE OPERATIONS, 2015-2017

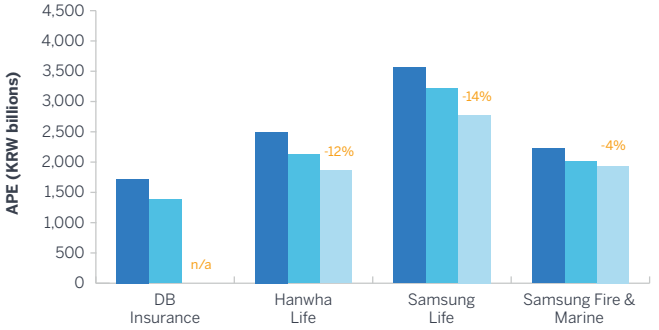
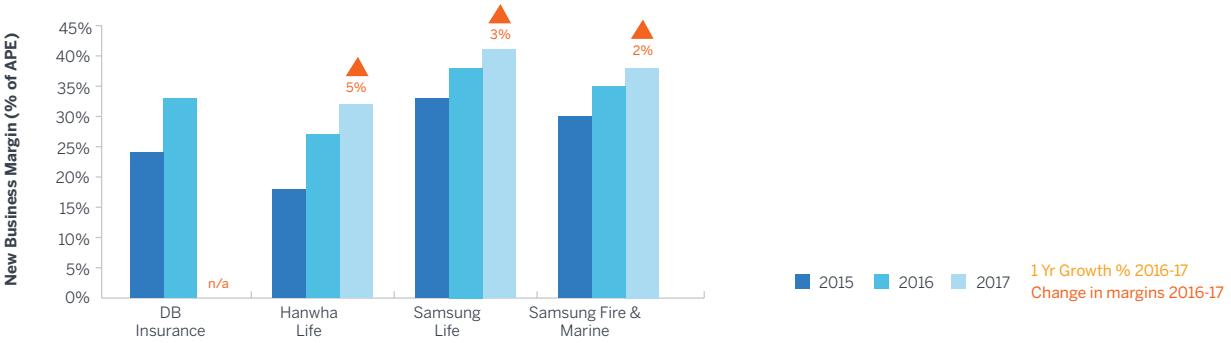


FIGURE 71: REPORTED NEW BUSINESS MARGIN OF SOUTH KOREAN INSURANCE OPERATIONS, 2015-2017



78 As Hanwha Life's EV for 2017 is before dividend payout, we have shown all past EV figures for Hanwha Life prior to dividend payouts for comparability purposes.

79 Hanwha Life reported negative VIF in 2015.

Our South Korea analysis includes the EV and VNB results of Hanwha Life, Samsung Life and Samsung Fire & Marine.[80] 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 2017. Hanwa Life, Samsung Life and Samsung Fire & Marine have increased their investment return assumptions to 3.65% from 3.45%, 4.00% from 3.50% and 3.30% from 3.00%, respectively. The 10-year government bond yield in South Korea, as at 31 December 2017 was 2.47%, up from 2.09% as at 31 December 2016.

All Korean insurers reported an increase in their ANW. Hanwha Life attributed its increase in VIF to growth in new business and rises in investment return assumptions. From a negative KRW 269 billion VIF in 2015, the figure moved to a positive KRW 43 billion by 2016 and then increased to KRW 1,068 billion in 2017. Samsung Life recorded a 195% increase in VIF, citing VNB growth, efficiency gains and the rise in investment return assumption as the main reasons. Although VNB dropped by around 6% for Samsung Life, VNB margins improved by 3.1% due to more protection product sales and higher economic assumptions.

In May 2017, Prudential plc completed the sale of the its life insurance subsidiary in Korea, PCA Life Insurance Co. Ltd. to Mirae Asset Life Insurance Co. Ltd. for KRW 170 billion.

On 10 August 2017, the Financial Services Commission proposed amendments to the Regulations on Supervision of Insurance Business in preparation for the implementation of IFRS 17 in 2021. They include enhancements to the Liability Adequacy Test (LAT) rules and the phase-in of higher policy reserve testing standards from 2017, aimed at smoothing the transition to IFRS 17 in 2021. In addition, Korean regulators announced a road map for new K-ICS capital requirements planned to be effective from 2021.

80 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 72: REPORTED EV OF TAIWANESE INSURANCE OPERATIONS, 2015-2017

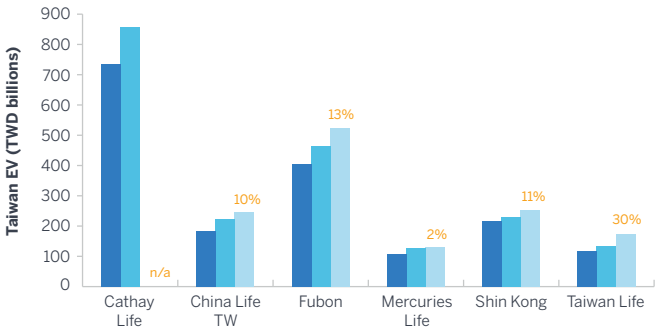


FIGURE 73: REPORTED ANW OF TAIWANESE INSURANCE OPERATIONS, 2015-2017

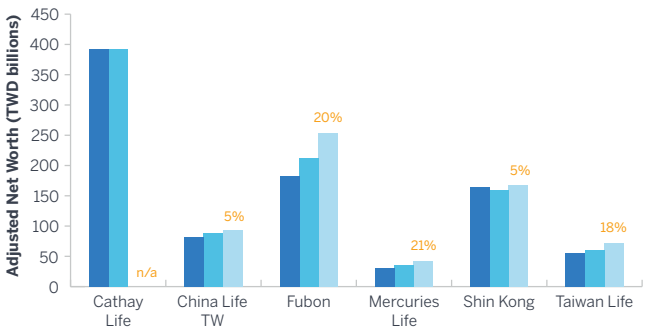


FIGURE 74: REPORTED VIF OF TAIWANESE INSURANCE OPERATIONS, 2015-2017

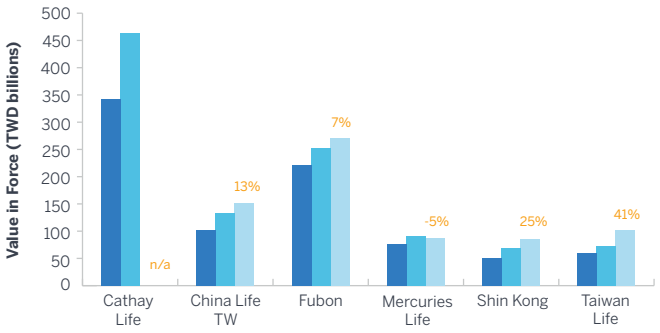


FIGURE 75: REPORTED VIF/ANW SPLIT OF TAIWANESE INSURANCE OPERATIONS, 2017

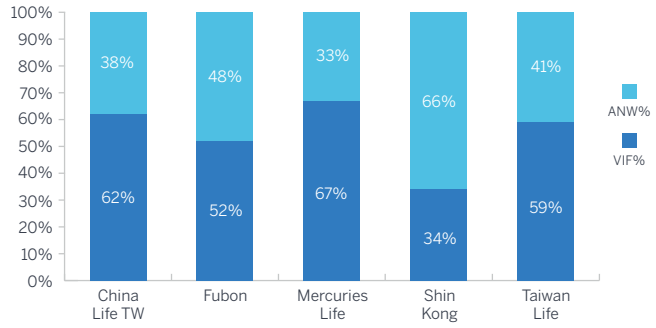


FIGURE 76: REPORTED VNB OF TAIWANESE INSURANCE OPERATIONS, 2015-2017

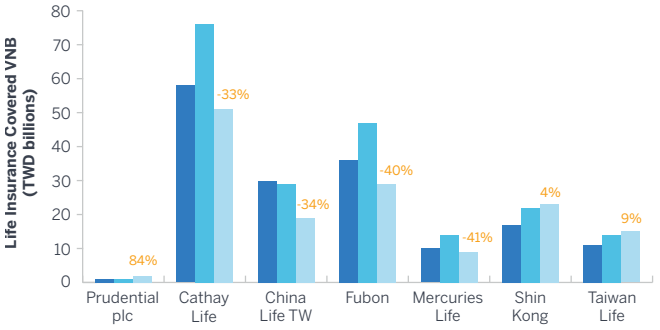


FIGURE 77: REPORTED APE[81] OF TAIWANESE INSURANCE OPERATIONS, 2015-2017

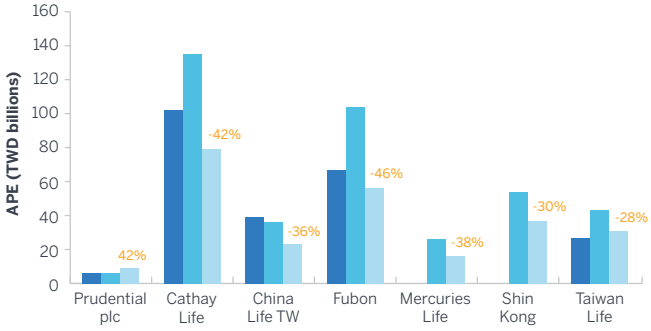
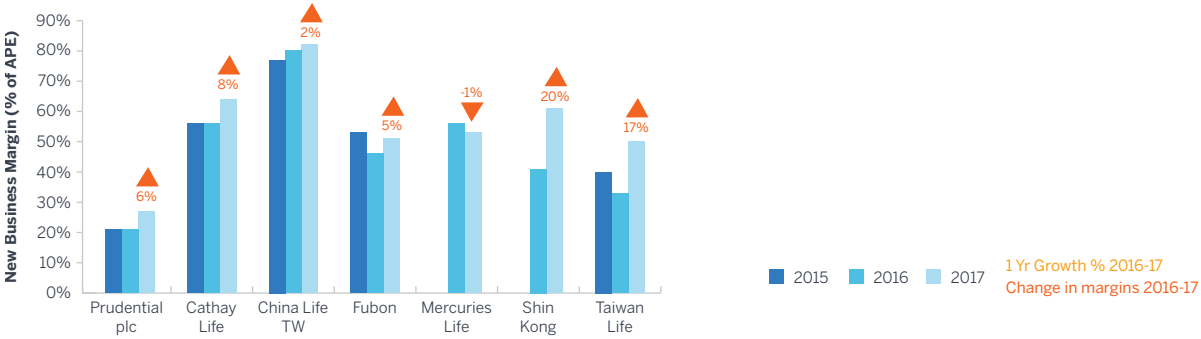


FIGURE 78: REPORTED NEW BUSINESS MARGIN OF TAIWANESE INSURANCE OPERATIONS, 2015-2017



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

All insurers in Taiwan saw a growth in EV with Taiwan Life reporting the highest growth of 30%, and Mercuries Life reported the smallest growth of 2%. Mercuries Life was the only insurer that witnessed a fall in VIF, of approximately 5%. The remaining insurers reported a growth in both VIF and ANW numbers.

Cathay Life, China Life TW, Fubon Life and Mercuries Life reported a fall in VNB, whereas Prudential plc, Shin Kong and Taiwan Life posted increases. Fubon's VNB decreased by 40% for the year ending 2017 due a reduction in sales of traditional regular-pay business. Prudential has slightly decreased its investment return assumption for in-force business from 4.0% to 3.9% and 10-year government bond yield assumption from 1.2% to 0.9%. The domestic life insurers in 2016 typically assumed investment returns that start from around 3.5% to 4.0%, and increase to a long-term rate of around 5.0% to 5.5%, with risk discount rates of around 10.5%. The 10-year government bond yield stood at approximately 0.95% at the end of 2017, down from 1.21% at the end of 2016. Although the EV investment assumptions used will certainly be based on the higher-yielding assets that insurers are holding, it is not clear how this widening gap between the assumptions and the yield curve can be justified. The full set of economic assumptions disclosed in the market is set out in Figure 92 below.

For many years, Taiwan's life insurance market has been characterised by large in-force blocks of high guarantee business and low domestic fixed interest yields. Most life insurers hold large foreign investment in order to enhance the investment yields. Overseas investments accounted for over 65%[82] of life insurer's invested assets as of end of March 2018. The Financial Supervisory Commission (FSC) continues to expand the domestic capital market and encourage insurance companies to keep their funds at home because of increase in uncertainty in interest rates, exchange rate movements and international event risks.

As the IASB published its new IFRS 17 standard on 18 May 2017, Taiwan insurance companies have started preparing for the implementation of the new accounting rules. However, the expected implementation date agreed by Taiwan regulator is January 1, 2024, which is three years behind the international adoption date.

82 Source: Financial Supervisory Commission (FSC).

THAILAND [83] [84] [85] [86]

FIGURE 79: REPORTED EV[83] OF THAILAND INSURANCE OPERATIONS, 2015-2017[84]

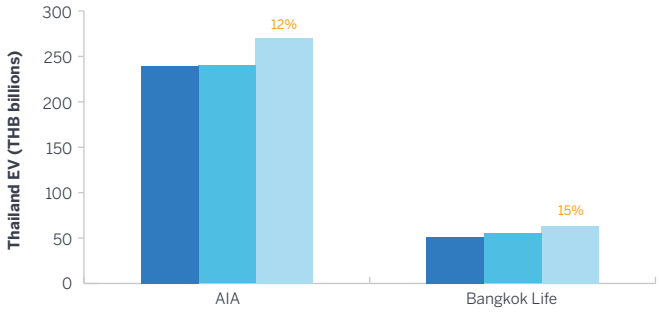


FIGURE 80: REPORTED ANW OF THAILAND INSURANCE OPERATIONS, 2015-2017

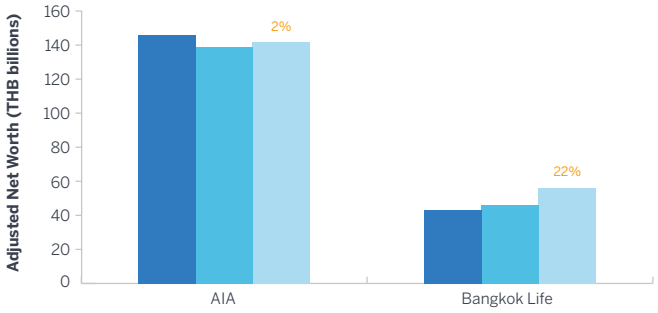


FIGURE 81: REPORTED VIF OF THAILAND INSURANCE OPERATIONS, 2015-2017

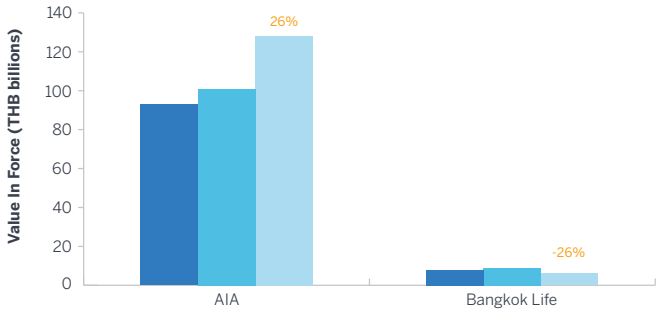


FIGURE 82: REPORTED VIF/ANW SPLIT OF THAILAND INSURANCE OPERATIONS, 2017

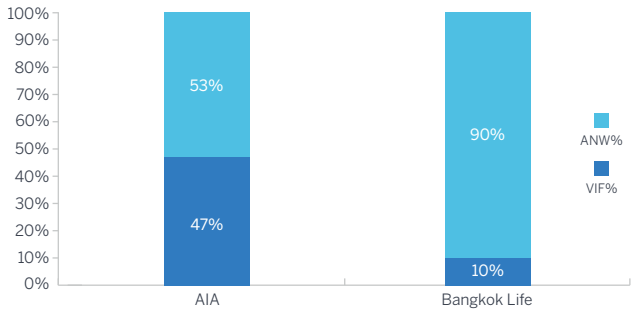


FIGURE 83: REPORTED VNB OF THAILAND INSURANCE OPERATIONS, 2015-2017

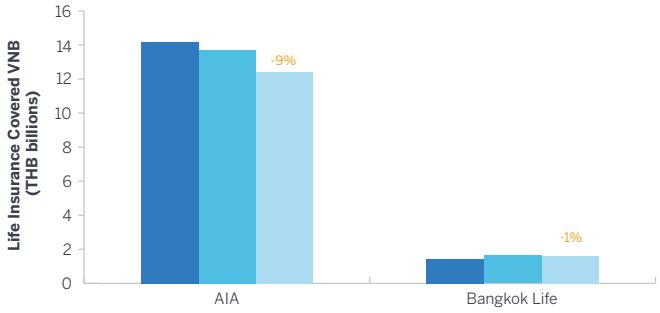


FIGURE 84: REPORTED APE OF THAILAND INSURANCE OPERATIONS, 2015-2017[85]

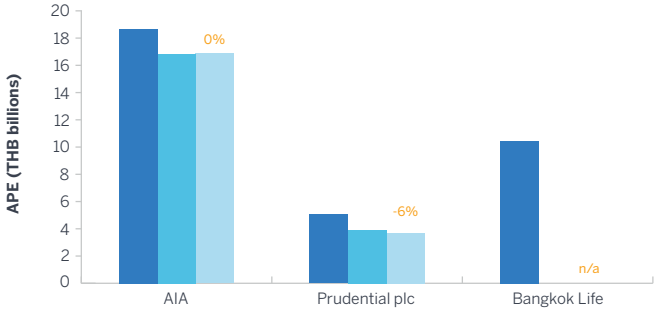
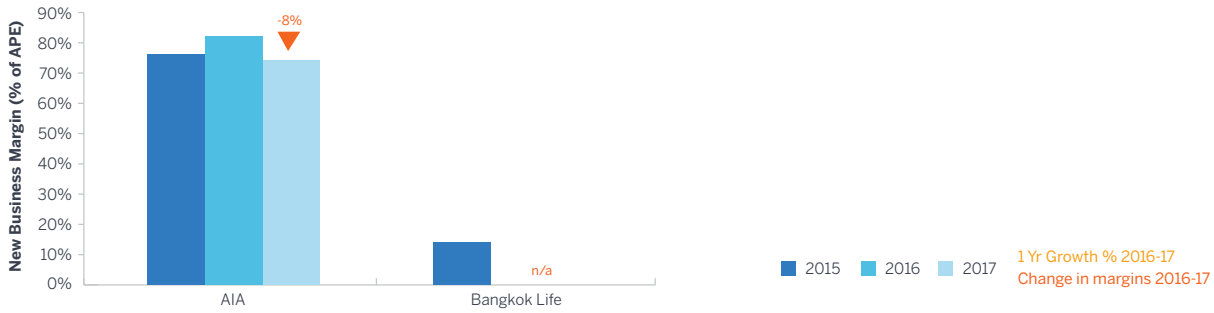


FIGURE 85: REPORTED NEW BUSINESS MARGIN OF THAILAND INSURANCE OPERATIONS, 2015-2017[86]



83 EV, VNB and APE throughout this section have been converted to local currency using the prevailing exchange rates applicable at each reporting date (2015, 2016 and 2017).

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

85 Bangkok Life 2016 and 2017 APE has not been disclosed.

86 Bangkok Life 2016 and 2017 VNB margin has not been disclosed.

Two life insurance companies have disclosed their EV and VNB results in recent years in Thailand, namely AIA and Bangkok Life. The 2017 EV results for Prudential are not disclosed (they are part of an aggregated classification), but there is some information provided on the underlying EV assumptions. Prudential's risk discount rate and long-term 10-year government bond yield assumptions were 9.80% and 2.30%, respectively. Bangkok Life did not disclose its new business APE or new business margin in 2016 and 2017.

The general decline in medium- and longer-dated government bond yields in the latter half of the year, as shown in Figure 86, adversely affected the sector in 2017. The reduction in yields resulted in increases in gross premium valuation reserves and higher interest rate risk charges for several players. There has been some pick-up in bond yields in the first quarter of 2018, with 10-year Thai government bond yields recovering to January 2017 levels.

FIGURE 86: HISTORICAL 10-YEAR THAILAND GOVERNMENT BOND YIELDS

Source: The Ministry of Finance, Thailand.

AIA's 2017 year-end assumptions for long-term equity return, 10-year government bond yield and risk discount rate were unchanged compared with those at 2016 year-end, at 9.00%, 3.20% and 8.60%, respectively. After converting AIA's EV disclosure to local currency terms at valuation date exchange rates, its ANW increased by 2% in 2017, whilst VIF increased by 26% in 2017, leading to a 12% increase in EV as compared with 2016. The equivalent movements in USD terms were increases of 12%, 38% and 23% in ANW, VIF and EV, respectively. It is interesting to note that the ANW rose significantly less than the increase in VIF. AIA's APE was flat in 2017 and, whilst the new business margin dropped by 8 percentage points during 2017, it remained high at 73.6%.

Bangkok Life's investment return assumption and risk discount rate were also left unchanged at 4.25% and 9.00%, respectively. Bangkok Life saw a sharp rise in ANW and a significant reduction in VIF in 2017, resulting in a 15% increase in EV.

Prudential decreased its long-term 10-year government bond yield assumption by 40 bps to 2.3%, whilst raising its risk discount rate from 9.4% to 9.8%. According to Prudential's disclosures, the increase in risk discount rate reflected an increase in the assumed equity risk premium for Thailand, although the equity return assumption has not been disclosed.

The Thai life insurance industry continued to experience difficult sales conditions in 2017, with industry new business APE reducing by 5.0%. AIA's new business APE fared better than some players and remained broadly flat in 2017 compared with 2016. However, AIA's VNB fell by 9% in local currency terms (4% in USD terms), due to a drop in VNB margins from 81.5% for 2016 to 73.6% for 2017. This was attributed to the costs associated with a large-scale transformation of the agency force that the company is currently undertaking.

Profit margins for protection-oriented and unit-linked products are expected to reduce in the near term as a result of new industry mortality tables. On 31 August 2017, the Office of Insurance Commission (OIC) released the TMO 17 mortality table for Ordinary Life business and the TMI 17 mortality table for Industrial business, respectively. The new industry tables reflect continuing improvements in mortality over recent years and show significantly lower mortality rates for both genders at most ages. According to the regulatory announcement, all new life insurance products filed with the OIC on or after 1 September 2017 must use the new 2017 mortality tables. The new mortality tables must be used as the cap for the COI charges for existing unit-linked policies for policy anniversaries on or after 1 June 2018. In addition, the following existing protection-oriented products, for which the new tables will determine the maximum premium rate, need to be re-filed by 1 June 2018:

1. Term life insurance
2. Endowment life insurance policy with guaranteed interim survival benefits (coupon) plus survival benefits at contract maturity less than 100% of sum-insured
3. Mortgage reducing term assurance (MRTA)
4. Whole life without guaranteed survival benefits and excluding senior plans
5. Term life riders
6. Endowment life riders with guaranteed interim survival benefits (coupon) plus survival benefits at contract maturity less than 100% of sum-insured

More details can be found in the Milliman e-Alert.[87]

At the end of 2017, the OIC released the findings of the second quantitative impact study (QIS 2) for the revised risk-based capital framework, RBC 2. The QIS 2 findings showed that the proposed RBC 2 regime would not result in significantly more onerous capital requirements for the industry, as the increases in market risk charges are offset by the reduction in credit and insurance risk charges. The newly introduced operational risk charge has a small impact on industry capital adequacy ratios. More details are available in the Milliman e-Alert.[88]

87 http://www.milliman.com/uploadedFiles/insight/Periodicals/asia-ealert/asia-e-alert-thailand-mortality-tables.pdf.

88 http://www.milliman.com/uploadedFiles/insight/Periodicals/asia-ealert/20180109_Asia%20e-alert_Thailand-final.pdf.

VIETNAM

FIGURE 87: REPORTED EV OF VIETNAM INSURANCE OPERATIONS, 2015-2017

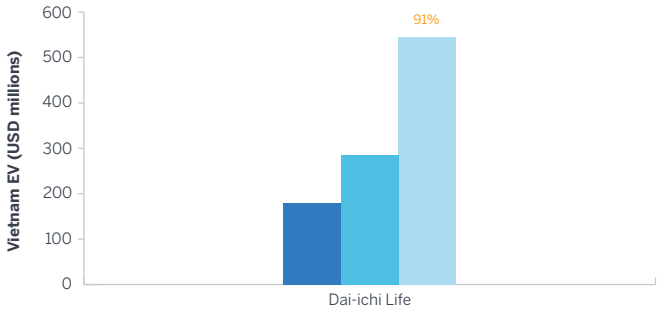


FIGURE 88: REPORTED ANW OF VIETNAM INSURANCE OPERATIONS, 2015-2017

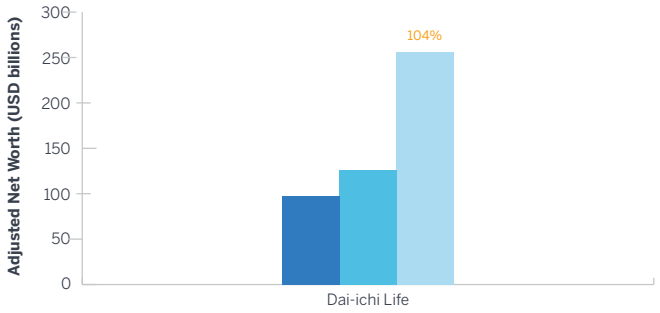


FIGURE 89: REPORTED VIF OF VIETNAM INSURANCE OPERATIONS, 2015-2017

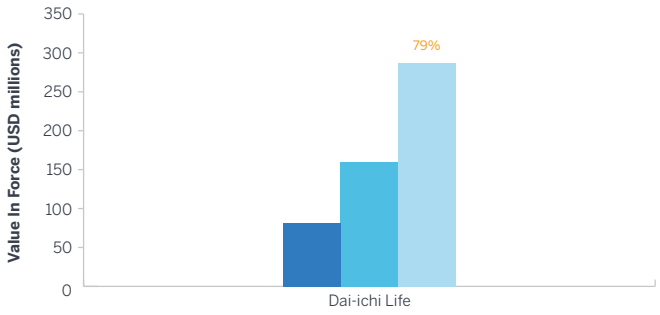
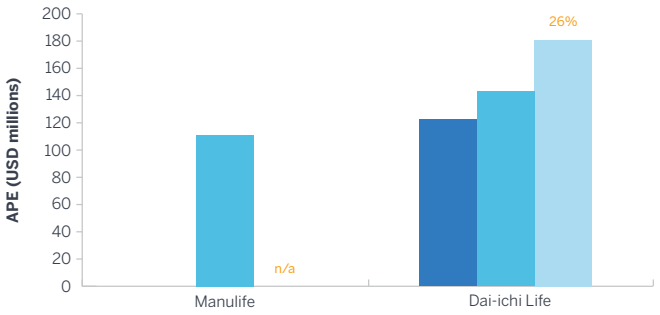


FIGURE 90: REPORTED APE OF VIETNAM INSURANCE OPERATIONS, 2015-2017[89]



89 Dai-ichi Life is excluded, as the APE is not reported.

Dai-ichi Life is the only company that discloses separate EV results for Vietnam, although interestingly it uses a TEV methodology for Vietnam as opposed to the EEV methodology adopted at group level in Japan.

Dai-ichi Life Vietnam does not disclose its risk discount rate and investment return assumptions. The 2017 EV results for AIA and Prudential are 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 its 2017 EV, to 12.3% and 6.5%, respectively. Prudential reduced its risk discount rate and long-term, 10-year government bond yield assumption for its 2017 EV to 12.6% and 5.1%, respectively. These changes reflect the continuing steep decline in longer-dated local government bond yields, with the 10-year government bond yield falling from 6.09% to 5.05% during 2017. This bond yield has dropped further in the early months of 2018, and stood at 4.63% as at the end of April 2018. The sharp decline in government bond yields is leading to increasing pressure on reserves, solvency capital and the management of participating business under the current regulations for several players.

The Vietnam life insurance market continued to grow very strongly in 2017, with life insurance premiums totalling VND 65 trillion; an increase of 28.9% from 2016, and new business APE growing by 26% in 2017.[90] The strong new business growth (leads to higher capital strains) and decline in yields (leads to an increase in reserves) has led to an increase in capital injections from a number of players including Dai-ichi Vietnam (November 2017), Manulife Vietnam (end 2016) and Prudential Vietnam (June 2018).

Dai-ichi Life's EV increased by 91% in 2017 on a constant currency basis.[91] On 30 November 2017, the company obtained approval from the MOF for an increase of charter capital to VND 5,400 billion (approximately USD 256 million). The significant increase in EV was largely driven by this increase in capital.

Industry discussions regarding the future implementation of a risk-based capital framework are continuing but there are no definitive rules or timelines yet established.

In addition, the MOF recently drafted a proposal to the Prime Minister for the Restructuring Plan of the Insurance Market for 2017-2020. The plan proposes the following main insurance related objectives:

- Developing the Vietnamese insurance market in alignment with the national socio-economy and financial development schemes;
- Enhancing sustainable growth and productivity of the insurance market and capabilities to meet the diversified demand for insurance; and
- Adopting international standards and best practices on insurance business and gradually narrowing the development gap with other markets in the region.

90 AVI Statistics (2017).

91 To provide comparability and eliminate FX effects, results for all years for all MNCs/markets have been converted to USD using the prevailing FX rate as at the 2017 reporting date.

Effective from 1 July 2017, Circular No. 50 aims to contribute to the reform of the legal framework of insurance and cover a comprehensive scope of legal aspects for local insurers, insurance brokers, agents and insurance-related entities in Vietnam. Specific amendments under Circular No. 50 are:[92]

- In cases where an insurer sells its life or health insurance products directly to customers, insurers are now allowed to reduce their premiums, in order to pass on commission savings to their customers. However, the amount of reduction must not exceed the maximum insurance commissions rates set by the Ministry of Finance (MOF).
- Every insurer must submit a monthly report to the MOF within the first 15 days of each month. The monthly report should contain the list new products sold during the previous month along with the terms and condition and premiums for these products.
- There is additional explanation to address the uncertainty of the term 'cedes insurance in accordance with a designation of the insured'.
- Appointed actuaries of life and health insurers are required to assess and report on investment activities on a quarterly and annual basis, specifying the risks arising and providing suggestions for assets to be invested to ensure a correlation between the duration of the invested assets and liabilities.
- The maximum technical interest rate used for determining mathematical reserves has been changed from 80% of the 10-year government bond yield as at valuation date to 70% of the average of the 10-year government bond yield for the last six months prior to valuation date.

Decree 71/2017/ND-CP took effect on 1 August 2017. It provides the corporate governance guidance for public interest companies. The new rules enhance the information disclosure requirement on such companies, and aims to improve the efficiency and effectiveness of the Board of Directors and the Supervisory Board.

92 Circular No. 50/2017/TT-BTC of the Ministry of Finance dated 15 May 2017 guiding the implementation of Decree No. 73/2016/ND-CP of the Government dated 1 July 2016 guiding the implementation of the Law on Insurance Business ('Circular No. 50').

Methodology hot topics

Within Asia, there are two groups of companies publicly reporting EV; those reporting TEV and 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/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 91 summarises the risk discount rate and investment return assumptions by the MNCs (both foreign and Asian MNCs). Figure 92 summarises the assumptions by market.

FIGURE 91: RISK DISCOUNT RATE AND INVESTMENT RETURN ASSUMPTIONS OF MNCS

COMPANY	EV PRINCIPLE	RISK DISCOUNT RATE	INVESTMENT RETURNS[93]
AIA	TEV	China: 9.75% Hong Kong: 7.30% Indonesia: 13.00% Malaysia: 8.75% Philippines (Philam Life): 11.30% Singapore: 6.90% South Korea: 8.60% Sri Lanka: 15.70% Taiwan: 7.85% Thailand: 8.60 % Vietnam: 12.30%	China: Equities 9.30%, 10Y Gov't Bonds 3.70% Hong Kong: Equities 7.60%, 10Y Gov't Bonds 2.80% Indonesia: Equities 12.00%, 10Y Gov't Bonds 7.50% Malaysia: Equities 8.80%, 10Y Gov't Bonds 4.20% Philam Life: Equities 10.00%, 10Y Gov't Bonds 4.80% Singapore: Equities 7.00%, 10Y Gov't Bonds 2.50% South Korea: Equities 7.20%. 10Y Gov't Bonds 2.70% Sri Lanka: Equities 12.00%, 10Y Gov't Bonds 10.00% Taiwan: Equities 6.60%, 10Y Gov't Bonds 1.60% Thailand: Equities 9.00%, 10Y Gov't Bonds 3.20% Vietnam: Equities 11.80%, 10Y Gov't Bonds 6.50%
Allianz	MCEV/SII	Swap rates, allowing for credit risk adjustment and volatility adjustment.	Swap rates, allowing for credit risk adjustment and 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%	Not disclosed
Manulife	TEV	Hong Kong: 9.50%	Hong Kong: Equity 10.00%, 10Y Gov't Bonds (immediate to 30 years in future) 1.81% to 3.43%
Prudential plc	EEV	China: 9.70% (NB), 9.70% (IF) Hong Kong: 4.10% (NB), 4.10% (IF) Indonesia: 10.60% (NB), 10.60% (IF) Malaysia: 6.40% (NB), 6.50% (IF) Philippines: 12.70% (NB), 12.70% (IF) Singapore: 3.50% (NB), 4.40% (IF) Taiwan: 4.30% (NB), 3.90% (IF) Thailand: 9.80% (NB), 9.80% (IF) Vietnam: 12.60% (NB), 12.60% (IF)	China: 10Y Gov't Bonds 3.90% Hong Kong: 10Y Gov't Bonds 2.40%, Equities 6.40% Indonesia: 10Y Gov't Bonds 6.40% Malaysia: 10Y Gov't Bonds 3.90%, Equities 10.40% Philippines: 10Y Gov't Bonds 5.20% Singapore: 10Y Gov't Bonds 2.00%, Equities 8.50% Taiwan: 10Y Gov't Bonds 0.90% Thailand: 10Y Gov't Bonds 2.30% 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. China, Malaysia and Philippines) but diverge sharply for other markets (e.g. Indonesia, Thailand and Vietnam).

93 Note that for AIA and Prudential, investment return assumptions are long-term assumptions.

FIGURE 92: RISK DISCOUNT RATE AND INVESTMENT ASSUMPTIONS OF INSURERS BY MARKET [94]

COUNTRY	COMPANY	EV PRINCIPLE	RISK DISCOUNT RATE	INVESTMENT RETURNS
China	Chinese 10-year government bond yield at 31 December 2017: 3.915%			
	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: 4.90% in Year 1 and 5.00% thereafter 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%
	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	9.70%	10Y Gov't Bonds 3.90%
Hong Kong	Hong Kong 10-year government bond yield at 31 December 2017: 1.810%			
	AIA	TEV	7.30%	Equities 7.60%, 10Y Gov't Bonds 2.80%
	AXA	MCEV	Swap rates + volatility adjustment - credit adjustment	Equities 7.10%, 30Y Gov't Bonds 3.80%
	Tahoe	TEV	8.25%	3.10% to 5.40% based on investment portfolios
	Manulife	TEV	9.50%	Equities 10.00%, 10Y Gov't Bonds (immediate to 30 years in future) 1.81% to 3.43%
	Prudential	EEV	4.10%	Mean equity return 6.40%, 10Y Gov't Bonds 2.40%
India	Indian 10-year government bond yield at 31 March 2018: 7.398%			
	Bajaj Allianz	MCEV	Risk-free yield curve	Risk-free yield curve
	Birla Sun Life	IEV	Not disclosed	Not disclosed
	Exide Life	MCEV	Not disclosed	Not disclosed
	HDFC Life	IEV	Risk-free yield curve	Risk-free yield curve
	ICICI Prudential	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
	Reliance Life	TEV	Not disclosed	Not disclosed
	SBI Life	IEV	Risk-free gov't bond yield curve	Risk-free gov't bond yield curve
Indonesia	Indonesian 10-year government bond yield at 31 December 2017: 6.307%			
	AIA	TEV	13.00%	Equities 12.00%, 10Y Gov't Bonds 7.50%
	Prudential	EEV	10.60%	10Y Gov't Bonds 6.40%
Malaysia	Malaysian 10-year government bond yield at 31 December 2017: 3.931%			
	AIA	TEV	8.75%	Equities 8.80%, 10Y Gov't Bonds 4.20%
	Great Eastern	TEV	8.75%	Not disclosed
	Prudential	EEV	6.40% (NB), 6.50% (IF)	Equities 10.4%, 10Y Gov't Bonds 3.90%
Philippines	Philippines 10-year government bond yield at 31 December 2017: 5.699%			
	AIA	TEV	11.30%	Equities 10.00%, 10Y Gov't Bonds 4.80%
	Prudential	EEV	12.70%	10Y Gov't Bonds 5.20%
Singapore	Singaporean 10-year government bond yield at 31 December 2017: 2.003%			
	AIA	TEV	6.90%	Equities 7.00%, 10Y Gov't Bonds 2.50%
	Great Eastern	TEV	7.00%	Not disclosed
	Prudential	EEV	3.50% (NB), 4.40% (IF)	Equities: 8.50%, 10Y Gov't Bonds 2.00%

94 Entries shaded in blue indicate that the 2017 risk discount rate and investment assumptions have not yet been disclosed, and that the assessment has been based on 2016 disclosures instead

FIGURE 92: RISK DISCOUNT RATE AND INVESTMENT ASSUMPTIONS OF INSURERS BY MARKET (CONTINUED)

COUNTRY	COMPANY	EV PRINCIPLE	RISK DISCOUNT RATE	INVESTMENT RETURNS
South Korea	Korean 10-year government bond yield at 31 December 2017: 2.467%			
	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%	3.65%
	Samsung Life	TEV	8.50%	4.00%
	Samsung Fire & Marine	TEV	8.50%	3.30%
Taiwan	Taiwan 10-year government bond yield at 31 December 2017: 0.948%			
	AIA	TEV	7.85%	Equities 6.60%,10Y Gov't Bonds 1.60%
	Allianz	MCEV/SII	Swap rates - credit adjustment + volatility adjustment	10Y Swap Rate 0.93%
	Cathay Life	TEV	10.00%	NTD: 3.95%-5.02% (IF), 2.96%-4.90% (NB) USD: 4.67%-5.81% (IF), 4.37%-5.81% (NB) IS products: 2.77%-3.00% (IF), 1.98%-2.28% (NB)
	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	11.00% (VIF), 10.50% (VNB)	New Business NTD Traditional Policies: Year 2017 to Year 2049 at 3.08% ~ 5.54% (2050+) USD Policies: Year 2017 to Year 2046 at 3.85% ~ 5.96% (2047+) In-Force Business NTD Traditional Policies: Year 2018 to Year 2049 at 3.72% ~ 5.57% (2050+) USD Policies: Year 2018 to Year 2043 at 4.44% ~ 5.96% (2044+)
	Mercuries Life	TEV	Not disclosed	Not disclosed
	Prudential	EEV	Taiwan: 4.30% (NB), 3.90% (IF)	Taiwan: 10Y Gov't Bonds 0.9%
	Shin Kong	TEV	10.50%	TWD: 3.83%-5.10% (IF), 3.50%-5.10% (NB) USD: 4.45%-5.62% (IF), 4.43%-5.62% (NB)
	Taiwan Life	TEV	10.00%	TWD Policies: Year 2018 to Year 2037 at 3.80% ~ 4.38% (2038+) USD Policies: Year 2018 to Year 2037 at 4.63% ~ 5.48% (2038+)
Thailand	Thailand 10-year government bond yield at 31 December 2017: 2.355%			
	AIA	TEV	8.60%	Equities 9.00%, 10Y Gov't Bonds 3.20%
	Bangkok Life	TEV	9.00%	4.25%
	Prudential	EEV	9.80%	10Y Gov't Bonds 2.30%
Vietnam	Vietnamese 10-year government bond yield at 31 December 2017: 5.053%			
	AIA	TEV	12.30%	Equities 11.80%, 10Y Gov't Bonds 6.50%
	Dai-ichi Life	TEV	Not disclosed	Not disclosed
	Prudential	EEV	12.60%	10Y Gov't Bonds 5.10%

The charts in Figure 93 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 93: 2017 PROXY RISK-FREE RATES AND IMPLIED RISK MARGINS[95, 96] BY COMPANY[97] FOR EACH MARKET

95 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 2016 reporting date.

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

97 Note that only TEV- and EEV-reporting companies using risk discount rates have been included in this analysis. Companies reporting on MCEV, IEV or market-consistent 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[98] 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 Figure 91 and Figure 92 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 costs, 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.

98 For example, Hanwha Life (South Korea) cites an investment assumption of 3.65% for its entire business instead of specifying the exact asset class assumptions.

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; and
- 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.

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 2015, 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 94 summarises the required solvency margin assumed by insurers for their Asian operations (excluding Japan).

FIGURE 94: SUMMARY OF SOLVENCY MARGIN REQUIREMENTS BY COMPANY[99]

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 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	EEV	Higher of local regulatory requirements and internal target.

99 Entries shaded in blue indicate that the 2017 required solvency capital information has not yet been disclosed, and that the assessment has been based on 2016 disclosures instead.

FIGURE 94: SUMMARY OF SOLVENCY MARGIN REQUIREMENTS BY COMPANY (CONTINUED)

CATEGORY	COMPANY	EV METHODOLOGY	REQUIRED CAPITAL
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	AIA China	TEV	100% of required capital as specified under the CAA EV assessment guidance
China	China Life	TEV	Not disclosed
China	China Pacific	TEV	Not disclosed
China	China Taiping	TEV	100% minimum SM
China	Manulife China	TEV	100% of required capital as specified under the CAA EV assessment guidance
China	New China Life	TEV	100% minimum SM
China	PICC Life	TEV	Not disclosed
China	Ping An	TEV	Not disclosed
Hong Kong	AIA Hong Kong	TEV	150% minimum SM
Hong Kong	Tahoe	TEV	Not disclosed
Hong Kong	Manulife Hong Kong	TEV	150% minimum SM
India	Bajaj Allianz	MCEV	Not disclosed
India	Birla Sun Life	IEV	Not disclosed
India	Exide Life	MCEV	Not disclosed
India	HDFC Life	IEV	170% of factor based solvency requirements
India	ICICI Prudential	IEV	150% of factor based solvency requirements
India	Kotak Life	IEV	Not disclosed
India	Max Life	MCEV	Not disclosed
India	Reliance Life	TEV	Not disclosed
India	SBI Life	IEV	180% of factor based solvency requirements
Indonesia	AIA Indonesia	TEV	120% RBC
Indonesia	Manulife Indonesia	TEV	120% RBC
Malaysia	AIA Malaysia	TEV	170% RBC
Malaysia	Great Eastern Malaysia	TEV	Based on the Risk-Based Capital framework as set out in local regulations
Malaysia	Manulife Malaysia	TEV	160% capital adequacy ratio
Singapore	AIA Singapore	TEV	180% RBC
Singapore	Great Eastern Singapore	TEV	Based on the Risk-Based Capital framework as set out in local regulations
Singapore	Manulife Singapore	TEV	200% capital adequacy ratio
South Korea	AIA South Korea	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
South Korea	DB Insurance	TEV	150% RBC
Taiwan	AIA Taiwan	TEV	250% 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	AIA Thailand	TEV	140% RBC
Thailand	Bangkok Life	TEV	Not disclosed
Vietnam	AIA Vietnam	TEV	100% minimum SM
Vietnam	Manulife Vietnam	TEV	100% minimum SM

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 2017);
- In Malaysia, where AIA uses 170% and Manulife uses 160% (Great Eastern did not disclose the minimum regulatory level for 2017); and
- In Taiwan, where AIA uses 250% compared with the 200% used by Cathay Life, China Life TW, Fubon, Mercuries Life, Shin Kong and Taiwan Life.

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[100] 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.

100 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 95 shows that, of those companies that disclosed the number of scenarios used, the majority applied 1,000 economic scenarios on a market-consistent basis.

FIGURE 95: 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	Stochastic	Not disclosed	Not disclosed	Not disclosed
MNC	AXA	Market-consistent, stochastic	At least 1,000	Yes	Yes (EUR 181 million for VNB)
MNC	Prudential	Stochastic	Not disclosed	Not disclosed	Yes (GBP 186 million)
MNC	Zurich	Market-consistent, stochastic	1,000	Yes	Yes (EUR 8 million)
India	Birla Sun Life	Not disclosed	Not disclosed	Not disclosed	Yes
India	HDFC Life	Not disclosed	Not disclosed	Not disclosed	Yes (INR 0.2 billion)
India	ICICI Prudential	Stochastic	Not disclosed	Not disclosed	Yes (INR 0.98 billion)
India	Kotak Life	Not disclosed	Not disclosed	Not disclosed	Not disclosed
India	SBI Life	Not disclosed	Not disclosed	Not disclosed	Yes (INR 0.1 billion)

Figure 95 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 provides 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 96 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, almost to the same level of detail as their statutory IFRS statements, in their annual reports. 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: The table 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 96: SUMMARY OF DISCLOSURES IN 2017[101]

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 Asia	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	✔			✔	✔	✔	✔		✔
Hong Kong	Tahoe Life	TEV	✔				✔	✔			
India	Bajaj Allianz	IEV		✔						✔	
	Birla Sun Life	IEV								✔	
	Exide Life	MCEV									
	HDFC Life	IEV	✔	✔		✔	✔	✔		✔	✔
	ICICI Prudential	IEV	✔	✔		✔	✔	✔		✔	✔
	Kotak Life	IEV	✔							✔	
	MaxLife	MCEV		✔			✔	✔		✔	✔
	Reliance Life	TEV								✔	
	SBI Life	IEV	✔	✔		✔	✔	✔		✔	✔
Korea	Hanwha Life	TEV		✔		✔	✔	✔	✔	✔	✔
	Samsung Life	TEV		✔			✔	✔	✔	✔	✔
	Samsung Fire & Marine	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	TEV								✔	

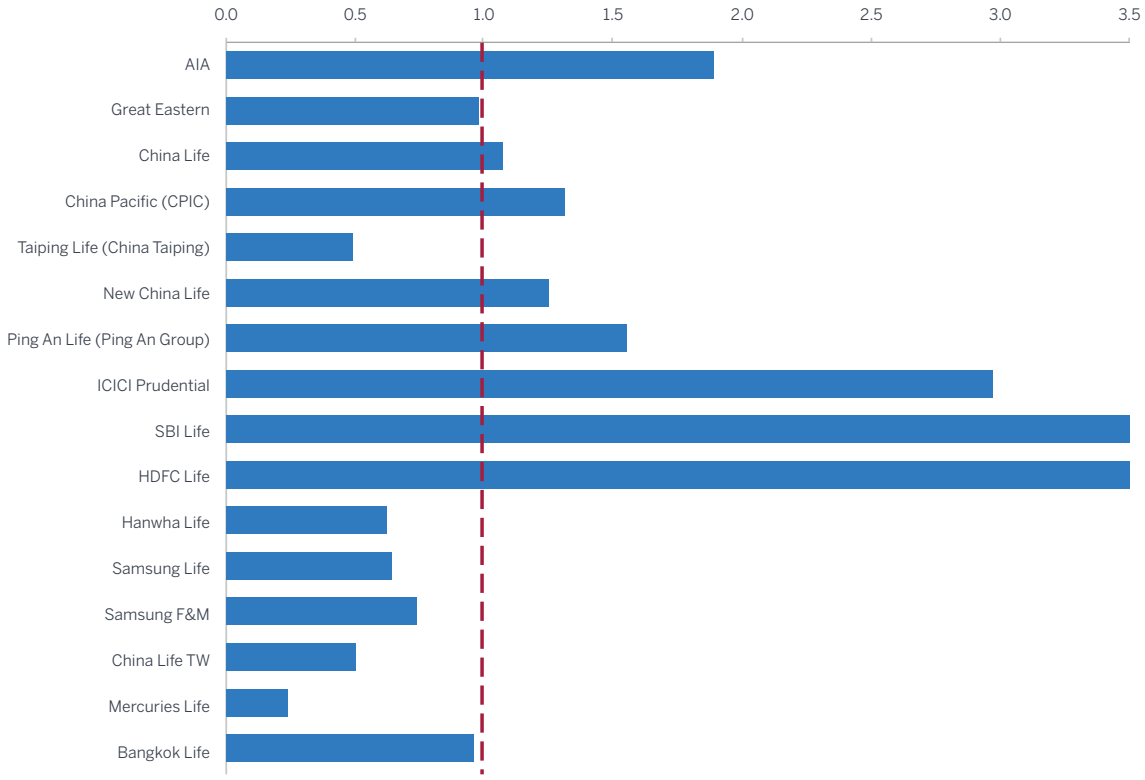
101 Entries shaded in blue indicate that the 2017 EV results have not yet been disclosed, and that the assessment has been based on 2016 disclosures instead.

Other measures of value

MARKET CAPITALISATION

Figure 97 gives the price/EV (P/EV) ratios for listed insurers.

FIGURE 97: MARKET CAPITALISATION TO EMBEDDED VALUE RATIOS AS AT 2017 REPORTING DATES[102]



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.

IFRS 17

The preparation of accounts on an IFRS basis gives rise to a different interpretation and timing of profit and loss compared with an EV basis. This is fundamentally due to current IFRS 4 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: IFRS 17. 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, increased transparency in financial information reported by insurance companies and reported information based on current estimates.

102 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).

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.

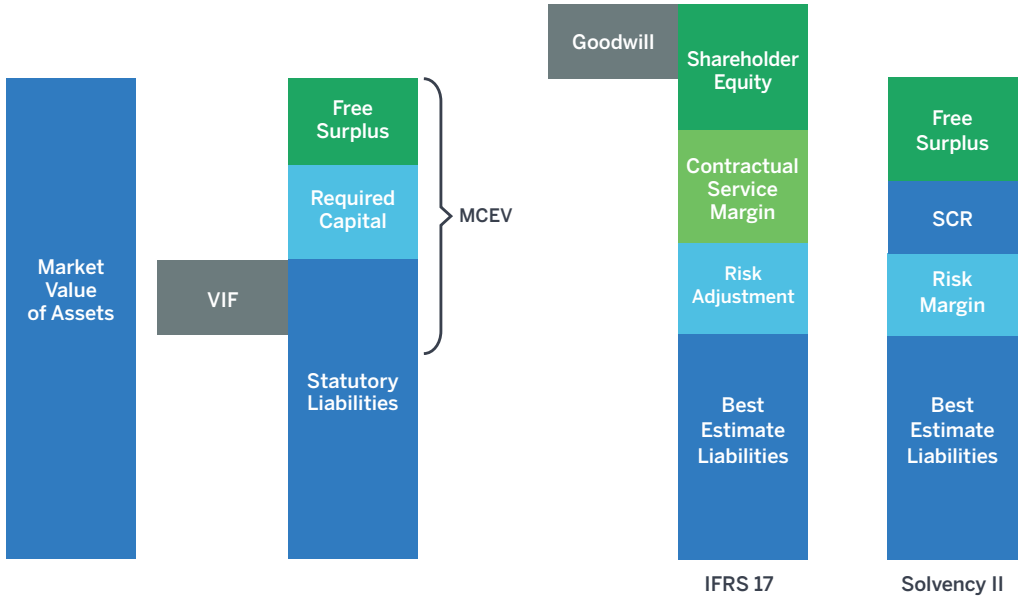
In summary, the principle-based standard requires an assessment of the profitability of insurance contracts when they are first issued and, if positive, recognition of that value over the lifetime of the contracts in a manner that reflects the timing of the insurance services being provided by the insurer. 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 contrast, in light of the feedback received on the 2013 proposed update, the Financial Accounting Standards Board (FASB) decided to limit the scope to insurance entities as described in existing US GAAP. The FASB also decided that the project should focus on making targeted improvements to existing US GAAP. For short-duration contracts, the FASB decided to limit the targeted improvements to enhancing disclosures.

The proposed IFRS 17 is compared with MCEV and Solvency II in Figure 98.

FIGURE 98: 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: IFRS 17, 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 IFRS 17 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.

Appendix A: Total Asian EV by company by territory

FIGURE 99: TOTAL ASIAN EV BY COMPANY (USD M)[103,104]

TYPE	COMPANY	EV PRINCIPLE	CHINA	HONG KONG	INDIA	SOUTH KOREA	MALAYSIA	SINGAPORE	TAIWAN	THAILAND	VIETNAM	OTHER ASIA	TOTAL ASIA EV
MNC	AIA	TEV	6,787	16,645	–	–	2,444	5,372	–	8,269	–	10,614	**50,131**
	Allianz	MCEV	–	–	–	–	–	–	–	–	–	1,968	**1,968**
	Great Eastern	TEV	–	–	–	–	2,310	7,702	–	–	–	–	**10,012**
	Prudential plc	EEV	–	–	–	–	–	–	–	–	–	28,285	**28,285**
	Zurich	MCEV	–	–	–	–	–	–	–	–	–	2,546	**2,546**
China	China Life	TEV	112,846	–	–	–	–	–	–	–	–	–	**112,846**
	China Pacific	TEV	32,889	–	–	–	–	–	–	–	–	–	**32,889**
	China Taiping	TEV	15,024	–	–	–	–	–	–	–	–	–	**15,024**
	New China Life	TEV	23,590	–	–	–	–	–	–	–	–	–	**23,590**
	PICC Life	TEV	9,516	–	–	–	–	–	–	–	–	–	**9,516**
	Ping An	TEV	76,296	–	–	–	–	–	–	–	–	–	**76,296**
Hong Kong	Tahoe Life	TEV	–	–	–	–	–	–	–	–	–	–	**–**
India	Bajaj Allianz	MCEV	–	–	–	–	–	–	–	–	–	–	**–**
	Birla Sun Life	IEV	–	–	657	–	–	–	–	–	–	–	**657**
	Exide Life	MCEV	–	–	–	–	–	–	–	–	–	–	**–**
	HDFC Life	IEV	–	–	2,337	–	–	–	–	–	–	–	**2,337**
	ICICI Prudential	IEV	–	–	2,884	–	–	–	–	–	–	–	**2,884**
	Kotak Life	IEV	–	–	894	–	–	–	–	–	–	–	**849**
	MaxLife	MCEV	–	–	–	–	–	–	–	–	–	–	**–**
	Reliance Life	TEV	–	–	494	–	–	–	–	–	–	–	**494**
	SBI Life	IEV	–	–	2,928	–	–	–	–	–	–	–	**2,928**
Korea	DB Insurance	TEV	–	–	–	–	–	–	–	–	–	–	**–**
	Hanwha Life	TEV	–	–	–	9,114	–	–	–	–	–	–	**9,114**
	Samsung Life	TEV	–	–	–	36,201	–	–	–	–	–	–	**36,201**
	Samsung Fire & Marine	TEV	–	–	–	16,103	–	–	–	–	–	–	**16,103**
Taiwan	Cathay Life	TEV	–	–	–	–	–	–	–	–	–	–	–
	China Life TW	TEV	–	–	–	–	–	–	8,237	–	–	–	**8,237**
	Fubon	TEV	–	–	–	–	–	–	17,649	–	–	–	**17,649**
	Mercuries Life	TEV	–	–	–	–	–	–	4,339	–	–	–	**4,339**
	Shin Kong	TEV	–	–	–	–	–	–	8,537	–	–	–	**8,537**
	Taiwan Life	TEV	–	–	–	–	–	–	5,864	–	–	–	**5,864**
Thailand	Bangkok Life	TEV	–	–	–	–	–	–	–	1,921	–	–	**1,921**
Vietnam	Dai-ichi Life	TEV	–	–	–	–	–	–	–	–	554	–	**554**

103 EV results have been converted at the prevailing USD exchange rate as at the reporting date.

104 Entries shaded in blue indicate that the 2017 EV results have not yet been disclosed as at the data cut-off date of this report (4 May 2018).

Appendix B: Exchange rates

FIGURE 100: EXCHANGE RATES USED IN THE REPORT

CURRENCY	31/03/2018	31/12/2017	30/11/2017	31/03/2017	31/12/2016	30/11/2016	31/03/2016	31/12/2015	30/11/2015
CAD	0.7754	0.7953	0.7761	0.7507	0.7439	0.7447	0.7712	0.7222	0.7503
CHF	1.0485	1.0259	1.0167	1.0000	0.9810	0.9816	1.0439	1.0003	0.9729
CNY	0.1594	0.1537	0.1512	0.1452	0.1440	0.1451	0.1552	0.1540	0.1563
EUR	1.2325	1.1999	1.1904	1.0698	1.0523	1.0581	1.1389	1.0867	1.0565
GBP	1.4011	1.3503	1.3506	1.2534	1.2332	1.2485	1.4380	1.4763	1.5046
HKD	0.1274	0.1280	0.1280	0.1287	0.1290	0.1289	0.1289	0.1290	0.1290
INR	0.0154	0.0157	0.0155	0.0154	0.0147	0.0146	0.0151	0.0151	0.0150
IDR	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
JPY	0.0094	0.0089	0.0089	0.0090	0.0085	0.0087	0.0089	0.0083	0.0081
KRW	0.0009	0.0009	0.0009	0.0009	0.0008	0.0008	0.0009	0.0009	0.0009
MYR	0.2588	0.2471	0.2444	0.2259	0.2229	0.2238	0.2584	0.2323	0.2353
SGD	0.7627	0.7478	0.7417	0.7159	0.6909	0.6975	0.7427	0.7063	0.7093
THB	0.0320	0.0306	0.0307	0.0291	0.0279	0.0280	0.0285	0.0278	0.0279
TWD	0.0344	0.0337	0.0333	0.0329	0.0308	0.0313	0.0311	0.0304	0.0307
VND*	0.4385	0.4403	0.4399	0.4396	0.4392	0.4401	0.4486	0.4515	0.4515
USD	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

* The exchange rate for Vietnamese dong is per 10,000USD. The exchange rate of VND per USD as at 31/3/2018 is 0.0000438471.
Source: **https://www.xe.com**.

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