

MILLIMAN RESEARCH REPORT

# 2016 Embedded Value Results: Asia (excl. Japan)

Assessing the VNB explosion

July 2017

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## Opening remarks

Welcome and 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 2016, helping several emerging markets post double-digit percentage rises in life insurance premiums for the year. Growth in EV was also positive across almost all markets. Low interest rates continue to affect margins in some countries, however, although recent interest rate increases in the US are likely to lead to improvements in the future if the widely expected rate rise cycle continues to unfold.

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 2017 EV results, as well as any 2016 year-end reporting not disclosed in time for this report, will be produced later in the year. We have also published a report covering the 2016 reported EV results of European companies.

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 growth remains the strongest in the world, with 5.3%<sup>1</sup> gross domestic product (GDP<sup>2</sup>) growth recorded for 2016, compared with overall global GDP growth of 3.1%. India, Cambodia and China posted the highest 2016 GDP growth rates of 7.6%, 6.9% and 6.6% respectively.

Life insurance sales continued to rise strongly in the region during 2016, with gross written premium (GWP) estimated to have increased by 28%,<sup>3</sup> with China's 43% growth being a major contributor.

Regulations continue to evolve at a brisk pace. China implemented its new China Risk Oriented Solvency System (C-ROSS) in 2016. Singapore, Taiwan and Thailand are moving ahead with enhancements to their existing risk-based capital (RBC) frameworks, while Hong Kong is also developing its own RBC framework to replace its current Solvency I type capital requirements.

Digital insurance sales regulations are emerging in several countries. Singapore has issued guidelines allowing direct life insurers to offer all types of life insurance policies via online direct channels with no advice provided, subject to certain safeguards. Malaysia has mandated that all life insurers will be required to offer commission-less pure protection products through a direct channel from January 2017, and announced plans to develop a life insurance product comparison website. Thailand has issued new regulations covering the sale of insurance policies through electronic channels, to be effective from August 2017.

Thailand has also relaxed the foreign shareholding and board limits for insurance companies, such that foreign shareholdings exceeding 49% may be permitted subject to certain conditions. The Indian regulator has set aside its proposal to make the listing of life insurers mandatory for the next two years. Meanwhile, the Indonesian regulator has issued a new regulation formalising deadlines for insurance companies to comply with a minimum local Indonesian shareholding requirement of 20%. There are also reports that the Malaysian regulator is looking to enforce a strict 70% foreign ownership cap on insurers, affecting companies that have been granted exemptions to this ownership cap in the past.

EV methodologies used in the region remain varied, including Traditional Embedded Value (TEV), European Embedded Value (EEV), Market-Consistent Embedded Value (MCEV<sup>4</sup>) and Indian Embedded Value (IEV). Interestingly, the number of multinational corporations (MNCs) reporting EV in Asia decreased over 2016. The increased focus on Solvency II reporting in Europe has resulted in diminished embedded value reporting for some insurers. For example, Ageas no longer discloses its Asia EV results separately and Aviva has stopped disclosing group MCEV results, although 2016 market consistent value of new business figures have been published, including separate Asian results. AXA also discontinued the disclosure of its Asia EV in 2016, although it did produce 2016 Asia VNB on a market-consistent EEV basis. On the other hand, three Indian insurers, Exide Life, Reliance Life and SBI Life, published their EV results for the first time for fiscal year (FY<sup>5</sup>) 2015-16.

### EV RESULTS

This report examines the EV results published by MNCs and domestic insurers within Asia,<sup>6</sup> excluding Japan. Please refer to our report '2016 Embedded Value Results – Europe' report at <http://www.milliman.com/insight/2017/2016-Embedded-Value-Results-Europe/> for information regarding European results, and to our report '2017 March Year-End Embedded Value Results – Japan', for information regarding

1 Inclusive of Japan.

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

3 As not all Asian economies have reported their 2016 total GWP as at the date of publication of this report, market growth rates have been estimated by Milliman. A more precise update will be presented in our report '2017 Mid-Year Embedded Value Results – Asia (excl. Japan)'.  
 4 The MCEV principles are a copyright of the Stichting CFO Forum Foundation 2008.

5 Please note that that not all insurers have their financial years coincide with calendar years. In this report, we have defined FY2016 results to be the financial year results, which contain the majority of 2016 calendar year results. Companies with non-coinciding financial years include Indian insurers (March year-end) and AIA (November year-end). Additionally, when referring to Indian insurers, we will be using FY2016-17 to refer to the year ending 31 March 2017.

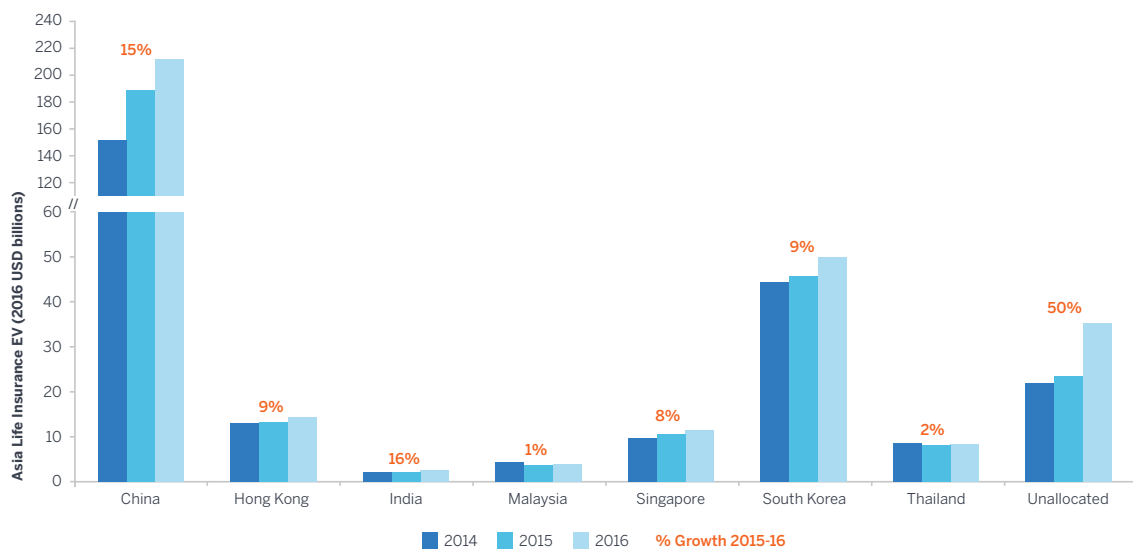
6 For the avoidance of doubt, Asia does not include Australia or New Zealand.

Japanese EV results. The latter report on Japan, along with the ‘2017 Mid-Year Embedded Value Results – Asia (excl. Japan)’ report will be released later in the year.

The scope of this report is limited to EV results directly related to solely, or predominantly, Asian operations. Insurers with a presence in Asia that do not provide separate results for the region are not included in this report.

In 2016, total reported Asian EV grew by 15.3% on a comparable basis<sup>7</sup> to USD 339 billion from USD 294 billion. The companies reporting the largest Asian<sup>8</sup> EV at the 2016 year-end were China Life, Ping An Life and AIA, at USD 94 billion, USD 52 billion and USD 42 billion, respectively.

**FIGURE 1: COMPARABLE ASIAN LIFE INSURANCE COVERED EV BY MARKET,<sup>9,10</sup> 2014 TO 2016<sup>11</sup>**



China reported the highest comparable EV growth in 2016 of 15% (India’s 16% EV growth is purely based on ICICI Prudential, which was the only company to disclose FY2016-17 EV results by our report data cut-off date<sup>12</sup>). The strong EV growth in China was mainly due to high new business sales, improved VNB margins, and investment-related gains, as well as a one-off change (generally an increase) from the adoption of new rules for compulsory EV reporting issued by the China Association of Actuaries in November 2016. Investment return assumptions for all life insurers in China reporting EV results have decreased from 2015, with domestic life insurers typically assuming investment returns rising from around 4.5% to 5.0%. The risk discount rates used by different Chinese companies vary between the range of 9.55% to 11.50%, with the majority of the insurers keeping their discount rate unchanged from 2015 (this is discussed further in the China section below).

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 2016, yield curves have stabilised to some extent, and yield curve rises in the US have resulted in a general expectation of rising interest rates across the region.

7 Comparable basis = comparing only companies that have reported 2014, 2015 and 2016 EV results for Asia. For example, Ageas, which has discontinued its Asian EV reporting in 2016, is not included in this comparison.

8 Excluding Japan.

9 To provide comparability and eliminate foreign exchange (FX) effects, results for all years have been converted to USD using the prevailing FX rate as at the FY2016 reporting date.

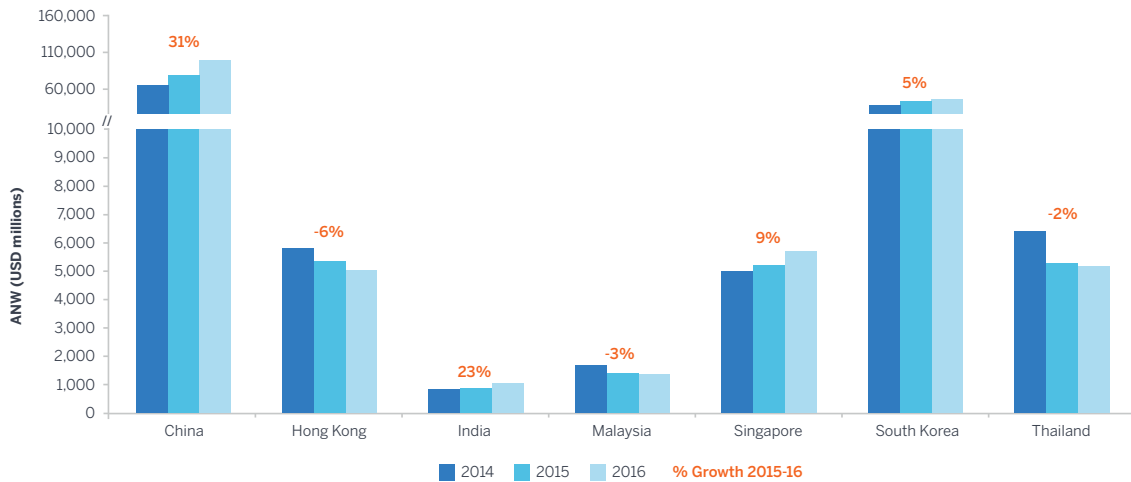
10 Unallocated indicates EV figures that are reported by insurers to relate to their Asian operations, but have not been allocated to specific countries.

11 With the exception of Manulife—which disclosed its main results in May 2017, then came out with a further breakdown of these results in June 2017—the insurers that have not yet published their FY2016 results as at the report data cut-off date (3 May 2017) include: Bajaj Allianz, Birla Sun Life, Exide Life, HDFC Life, Max Life, Reliance Life, SBI Life, Cathay Life, China Life TW, Fubon, Mercuries Life, Shin Kong, Taiwan Life and Dai-ichi Life Vietnam.

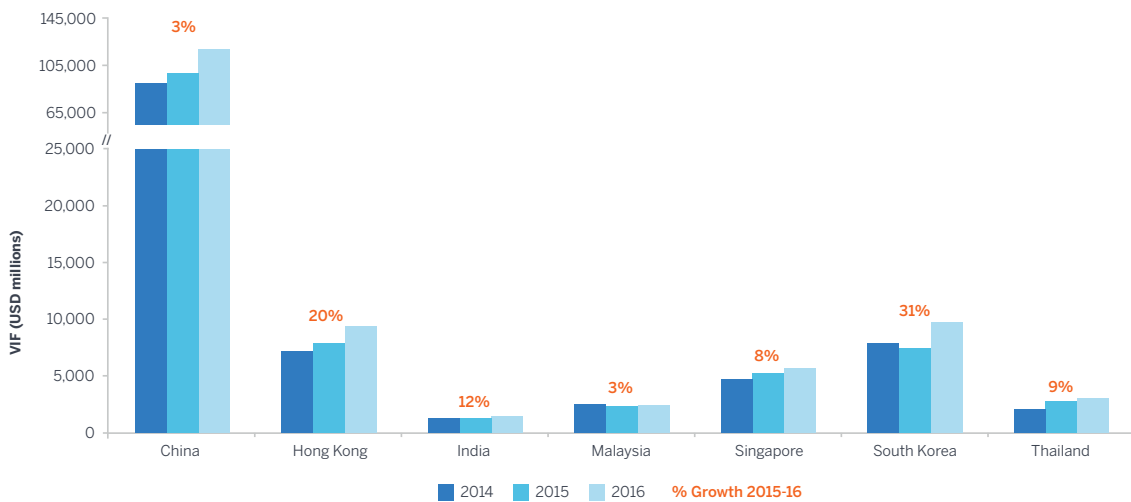
12 Ibid.

In situations where 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 assets.

**FIGURE 2: COMPARABLE<sup>13</sup> ASIAN LIFE INSURANCE COVERED ANW, 2014 TO 2016**



**FIGURE 3: COMPARABLE<sup>14</sup> ASIAN LIFE INSURANCE COVERED VIF, 2014 TO 2016**



Interestingly, there were falls in total adjusted net worth (ANW) in three markets during 2016 (Hong Kong, Malaysia and Thailand), although the overall EV growth for all countries remained positive. For China, the change in capital requirements from a Solvency I basis to the C-ROSS basis has generally led to higher ANW but lower value of in-force business (VIF) being reported.

VIF growth was positive for all countries, underpinned primarily by strong VNB results and, in some cases, increasing long-term investment return assumptions. South Korea saw the largest VIF growth of 31%, mainly from strong margin-driven growth in VNB across all companies, despite a fall in new business annualised premium equivalent<sup>15</sup> (APE). Hong Kong also posted strong VIF growth of 20%, mainly from significant VNB contributions, in particular large volumes of new business sold to mainland Chinese visitors.

13 Comparable basis = comparing only companies that have reported 2014, 2015 and 2016 EV results for Asia. Insurers that have not yet published their FY2016 results as at the data cut-off date (3 May 2017) include: Bajaj Allianz, Birla Sun Life, Exide Life, HDFC Life, Max Life, Reliance Life, SBI Life, Cathay Life, China Life TW, Fubon, Mercuries Life, Shin Kong, Taiwan Life and Dai-ichi Life Vietnam. Because of this, there is currently no comparable data for Taiwan and Vietnam.

14 Ibid.

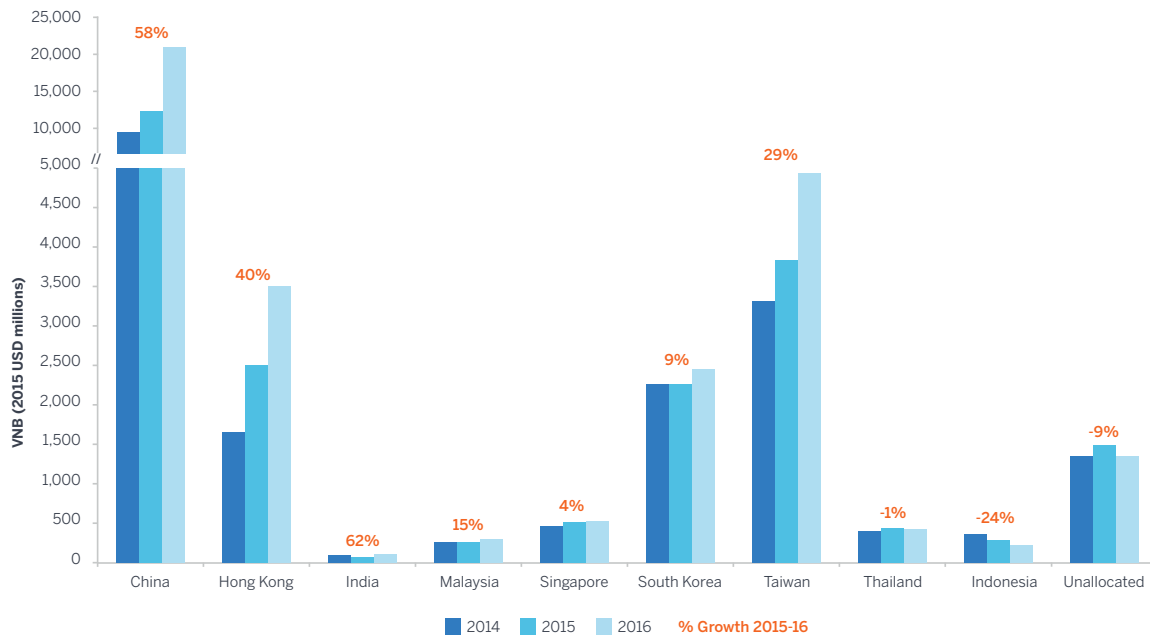
15 Defined to be: regular premiums + 10% of single premiums.

By insurer, Zurich, Prudential<sup>16</sup> and New China Life reported the largest growth in EV during 2016, with increases of 36%, 35% and 25%, respectively. Zurich’s growth in Asia EV was driven by favourable operating assumption changes as well as capital injections. Prudential’s significant EV growth came from strong growth in VNB, as well as favourable exchange rate movements from the depreciation of sterling in 2016.

**NEW BUSINESS RESULTS**

Total reported VNB for Asia stood at USD 35.0 billion in 2016, compared with USD 25.0 billion in 2015,<sup>17</sup> representing growth of 40%.

**FIGURE 4: COMPARABLE ASIAN LIFE INSURANCE COVERED VNB BY MARKET, 2014 TO 2016**

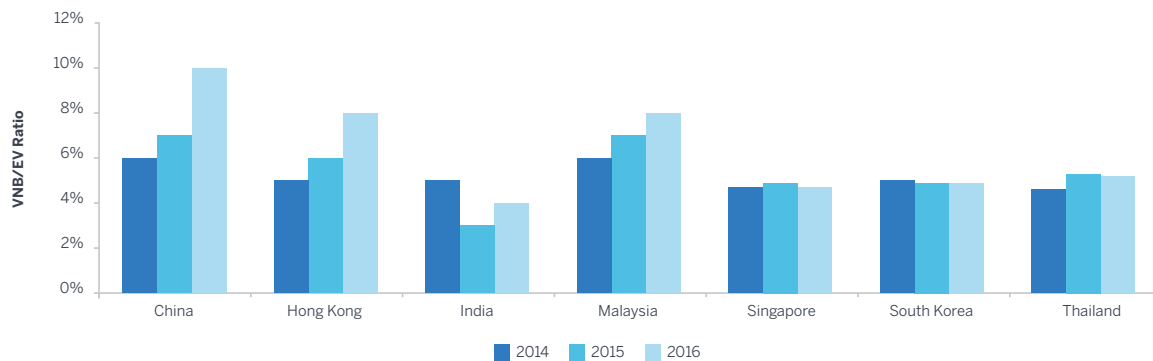


By market, Hong Kong and China reported the highest growth in VNB on a constant currency basis, largely driven by significantly higher new business premiums (India’s 62% VNB growth is purely based on ICICI Prudential, which was the only company to disclose FY2016-17 EV results by our report data cut-off date). Indonesia and Thailand reported reductions in VNB; the former was mainly due to Prudential Indonesia experiencing reduced new business sales because of ‘systemic challenges in the economy’,<sup>18</sup> while the latter was mainly driven by AIA Thailand seeing ‘lower new business volumes including reduced activity... during the mourning period following the passing of the Thai king’.<sup>19</sup>

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.

16 Within the report, ‘Prudential’ refers to Prudential plc, the global insurer domiciled in the UK.  
 17 On a comparable basis.  
 18 Source: Prudential plc 2016 Annual Report.  
 19 Source: AIA 2016 Annual Report.



**FIGURE 5: VNB/EV RATIO,<sup>20</sup> 2014 TO 2016**

Several markets have exhibited a relatively stable ratio over the last three years. The developing countries tend to show higher VNB/EV ratios compared with developed countries. Unfortunately, the Taiwan comparable ratios were unavailable at our report data cut-off date,<sup>21</sup> this is due to their EV disclosure cycles materialising on a later date, although it was noted in last year's report that these companies had a high VNB/EV ratio because of large volumes of 'negative spread' in-force business.

China, Hong Kong and Malaysia's ratios increased significantly in 2016, primarily as a result of strong new business sales. As discussed more extensively in our China section, the strong growth in VNB was mainly driven by large volumes of new business and increased margins associated with a shift away from savings to protection products. The Hong Kong results reflect AIA's growth in VNB, with about half the new business sales being to mainland Chinese visitors. The Malaysian results reflect increasing new business sales for both conventional and Takaful business (see the Malaysia section below for further details).

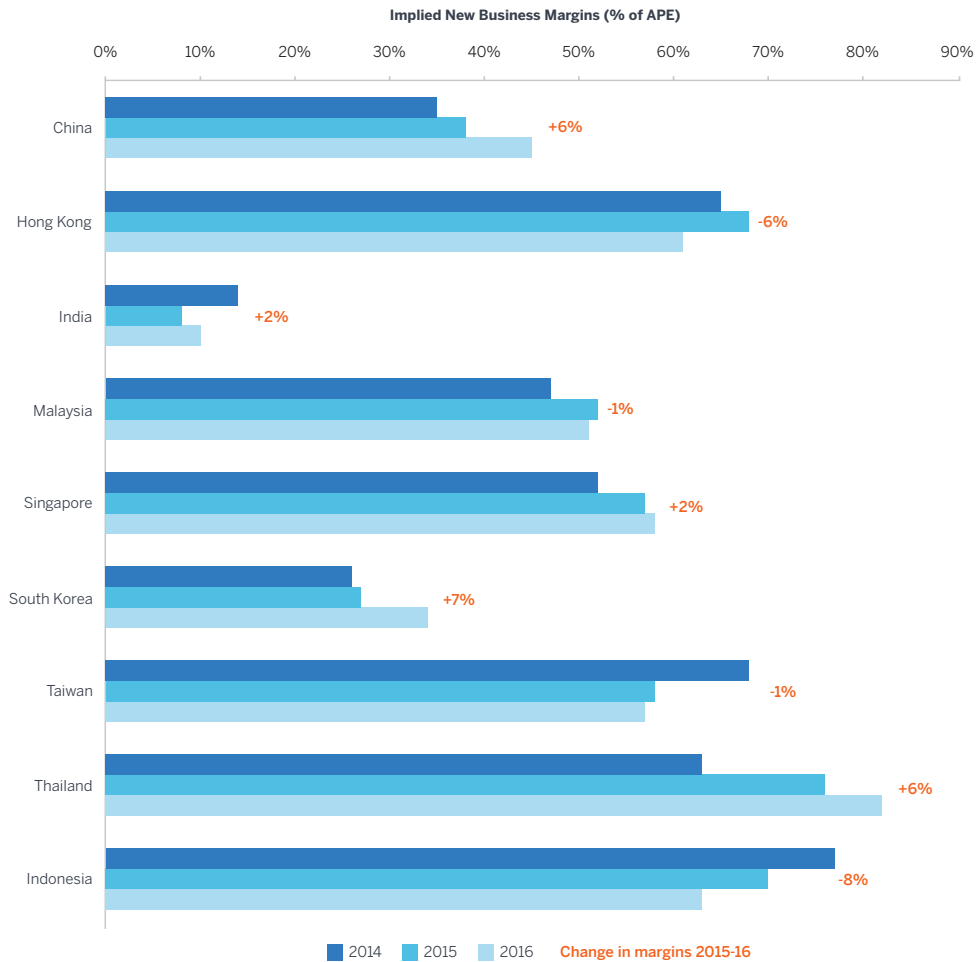
Ping An and ICICI Prudential reported the largest growth in VNB, at 65% and 62%, respectively. These results were driven by increased new business sales for both, a change in capital requirements for Ping An, and improvements in persistency for ICICI Prudential. Prudential saw strong VNB growth for its subsidiaries in China (110%) and Hong Kong (63%). Manulife's Asia (excluding Japan) VNB also increased substantially (more than 50% in comparison with 2015), as a result of strong new business sales, with Singapore a key contributor, helped by the new bancassurance partnership with DBS.

<sup>20</sup> This ratio has been calculated on a constant currency basis, using the EV and VNB figures of insurers that have reported both EV and VNB during those periods. Companies that only report EV or VNB have been excluded from this analysis.

<sup>21</sup> Insurers that have not yet published their FY2016 results as at the data cut-off date (3 May 2017) include: Bajaj Allianz, Birla Sun Life, Exide Life, HDFC Life, Max Life, Reliance Life, SBI Life, Cathay Life, China Life TW, Fubon, Mercuries Life, Shin Kong, Taiwan Life and Dai-ichi Life Vietnam. Due to this, there is currently no comparable data for Taiwan and Vietnam.

**NEW BUSINESS MARGINS**

**FIGURE 6: IMPLIED NEW BUSINESS MARGINS<sup>22</sup> BY COUNTRY, 2014 TO 2016**



Based on the various EV disclosures, the most profitable life insurance new business in 2016 appeared to be sold in Thailand, Indonesia and Hong Kong. Thailand’s increased margin is surprising in the context of the very low yield curve over the last year but it does reflect AIA Thailand’s success in refocusing sales efforts into higher-margin long-term protection business and capital-efficient unit-linked products. The VNB data for Thailand is based on one AIA data point, however, with a margin that is unlikely to be replicated across the whole industry. Meanwhile, Indonesia and Hong Kong saw lower margins than in 2015, reflecting lower reported profitability of new business for Prudential Indonesia, and the material falls in margins for AIA Hong Kong and Manulife Hong Kong.

**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. The table in 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.

22 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 India, 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, Manulife, Prudential plc, China Life, China Pacific, China Taiping, New China Life, PICC Life and Ping An); Hong Kong (AIA, AXA, Manulife and Prudential Life); India (ICICI Prudential only); Korea (Dongbu Insurance, Hanwha Life, Samsung Life and Samsung Fire & Marine); Malaysia (AIA and Great Eastern); Singapore (AIA, Great Eastern and Manulife); Taiwan (Prudential Life, Cathy Life, China Life TW and Fubon); Thailand (AIA and Bangkok Life); Indonesia (Manulife and Prudential Life).

**FIGURE 7: SUMMARY OF EV METHODOLOGY HOT TOPICS**

HOT TOPIC	COMMENT
<b>Risk discount rate</b>	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 610 basis points (bps) to 650 bps.
<b>Investment return assumptions</b>	<p>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.</p> <p>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. 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).</p>
<b>Cost of guarantees</b>	Only EEV, IEV and MCEV firms are obligated to calculate the time value of options and guarantees (TVOG). TEV firms typically only include the intrinsic value of such options and guarantees using their deterministic investment return assumptions.
<b>Expense overruns</b>	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.
<b>Cost of capital</b>	<p>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.</p> <p>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.</p>

**RECENT AND UPCOMING REGULATORY CHANGES**

EV by its nature will be impacted by changes in insurance regulations. The table in Figure 8 provides a summary of some of the major recent and upcoming regulatory changes in the region.

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

JURISDICTION	REGULATION	DESCRIPTION
<b>China</b>	Regulations on living benefits	The China Insurance Regulatory Commission (CIRC) issued a circular reiterating insurance products' risk protection fundamentals. Annuity or endowment products can only provide living benefits after five years with annual living benefit payments less than 20% of paid premiums and universal life or unit-linked products can no longer be sold as riders. Lastly, long-term care and disability insurance should not provide living benefits ahead of maturity, unless the insured is impaired in daily living activity or is disabled, prohibiting excessive investment features being built into a health policy. The new regulations will apply to new products immediately but allow a grace period until 1 October 2017 for existing products.
<b>Hong Kong</b>	Risk-based capital solvency regime	As part of phase 2 of the development of the RBC regime, the Office of the Commissioner of Insurance <sup>23</sup> (OCI) rolled out its quantitative impact studies (QIS) in the first quarter of 2017, after hiring consulting support. Detailed rules will be drafted and another round of consultation will be conducted after the QIS. The new rules are not expected to be introduced before 2020.
<b>India</b>	New regulations	<p>The Insurance Regulatory and Development Authority of India (IRDAI) has suspended its proposal to make the listing of life insurers mandatory for the next two years. They have also recently released the following new regulations:</p> <ul style="list-style-type: none"> <li>• Equity investment restrictions have been tightened; insurers can now only invest in the shares of listed companies that have paid no less than 10% dividends for the last two years, instead of the earlier 4% in the last eight of the previous nine years.</li> <li>• A new regulation regarding Maximum Commission/ Remuneration on Single/Regular Premium payable to insurance agent/ insurance intermediary was issued in December 2016. It came into force on 1 April 2017.</li> </ul>

23 The Insurance Authority (IA) superseded the Office of the Commissioner of Insurance (OCI) to regulate insurance companies with effect from 26 June 2017. The OCI has been disbanded on the same day.

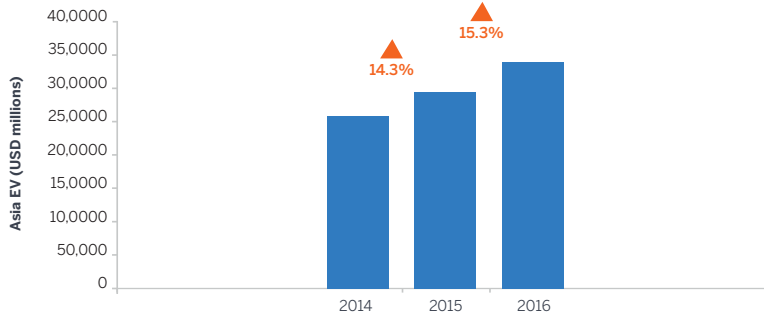
**FIGURE 8: SUMMARY OF RECENT AND UPCOMING MAJOR REGULATIONS BY JURISDICTION (CONTINUED)**

JURISDICTION	REGULATION	DESCRIPTION
Indonesia	New regulations	<p>The Indonesian regulator (OJK) issued a regulation in December 2016 formalising deadlines for the implementation and submission of business plans for 1) the divestment of Shariah units, 2) the compliance of single presence policy requirements and 3) the compliance of a minimum local Indonesian shareholding requirement of 20%. This regulation also sets out increased capital requirements for newly established entities and existing companies upon a change in shareholdings (via takeover or addition of new shareholders). For life insurance companies the minimum paid-up capital upon such events, would be increased from IDR 100 billion to IDR 150 billion.</p> <p>In another regulation, a target solvency level of at least 120% of RBS for insurers was introduced. Rules around how an insurance company can expand its business scope by selling other financial services institutions' non-insurance products were also introduced.</p>
Malaysia	Guidelines on the 'Management of Participating Life Business'	With the introduction of the new guidelines on the 'Management of Participating Life Business' effective from 1 July 2016, insurers are expected to continue to make further adjustments in bonus rates over the next few years to comply with the stricter asset share requirements.
Philippines	Directive on Demutualisation	In early 2017, the Insurance Commission issued a new directive for the demutualisation of domestic mutual life insurance companies, presumably as a result of rumours surrounding the demutualisation of Insular Life last year. The aim is to provide policyholder protection and ensure fair and equitable treatment between members. The regulator will have the power to call or conduct hearings or consultations in the interests of existing policyholders or eligible members or interested groups.
Singapore	Guidelines on the Online Distribution of Life Policies with No Advice, Risk-Based Capital 2 (RBC 2)	<p>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. This has the potential to spur additional innovation in product development in Singapore. For more information on these guidelines, please refer to our e-Alert at <a href="http://www.milliman.com/uploadedFiles/insight/Periodicals/asia-ealert/singapore-online-distribution-life-policies.pdf">http://www.milliman.com/uploadedFiles/insight/Periodicals/asia-ealert/singapore-online-distribution-life-policies.pdf</a>. Following the issue of the new guidelines, FWD and Etiqa have expanded their suites of online life insurance products.</p> <p>In July 2016, the regulator released the third consultation paper for RBC 2 and conducted its second QIS 2 to evaluate the impact of the RBC 2 proposals. The proposed changes within QIS 2 have been accepted within the industry given the less stringent risk charges compared with the previous QIS 1, which was performed in 2014. The main changes relate to a greater allowance for diversification and the relaxation of the matching adjustment (MA) criteria. MAS has since indicated that it will be working with the industry to fine-tune some of the components prior to finalisation of the framework, although no additional QIS is expected in 2017.</p>
South Korea	Relaxation of Asset Management Regulations	In April 2016, the Financial Services Commission (FSC) relaxed measures on asset management, which expands the boundary of investment in foreign securities. Previously, local insurers could invest only in foreign securities with credit ratings set by international credit rating agencies such as S&P. Following this, foreign securities that are approved and qualified by other credit rating agencies could be purchased as well.
Taiwan	Risk-based Capital 2 (RBC 2)	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.
Thailand	Relaxation of foreign shareholding cap, Risk-Based Capital 2 (RBC 2)	<p>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.</p> <p>At the end of 2016, the OIC released the findings of the first QIS 1 for the revised RBC 2 framework. The QIS 1 findings showed that the proposed RBC 2 regime would have resulted in significantly more onerous capital requirements for the industry, with market risk charges and credit risk charges being the major determinants of capital adequacy. A subsequent QIS 2 is being carried out in the second quarter of 2017, with some changes proposed to the QIS 1 framework based on the QIS 1 findings and industry feedback. The results of the QIS 2 exercise are due to be released by the end of 2017.</p>
Vietnam	Restrictions on Investment of Capital	In July 2016, the government issued decree 73/2016/ND-CP, which provided guidelines for implementation of the law on insurance business. This decree tightens restrictions on investment of capital where insurance enterprises are not permitted to borrow for purposes of direct investment in securities, real estate or capital contribution to other enterprises. It also restricts the companies from investing more than 30% of investment capital in companies within one group or reinvesting in a company's own shareholders.

## Introduction and background

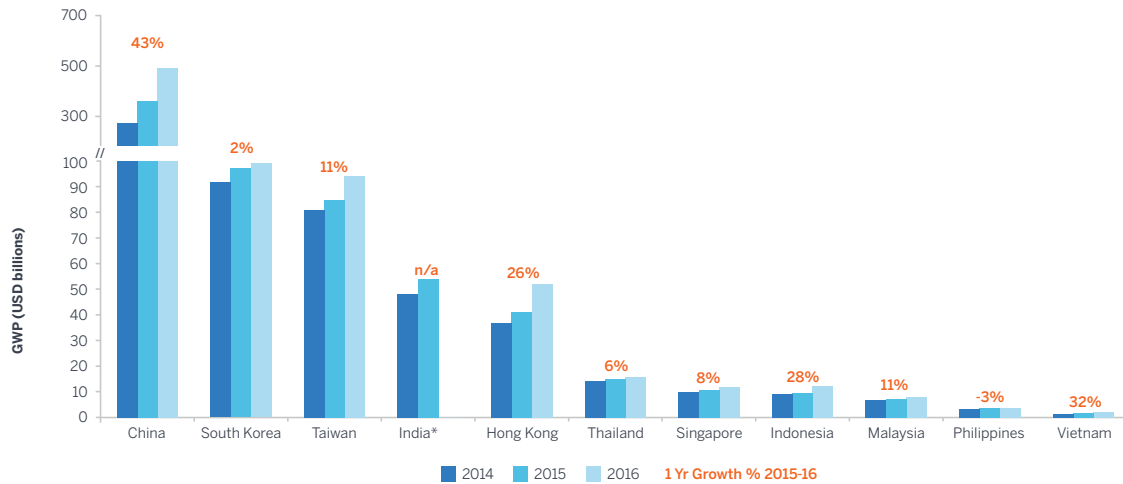
The Asian EV story in 2016 shows continued strong growth across different countries. Comparing only insurers that have reported FY2014 to FY2016 EV figures,<sup>24</sup> Asian Life Insurance EV<sup>25</sup> grew by 15.3% in 2016.

**FIGURE 9: REPORTED COMPARABLE ASIA LIFE INSURANCE COVERED EV, 2014 TO 2016**



The main drivers of this growth have been increasing life insurance premiums (see Figure 10), and increasing insurance penetration (see Figure 11). Household income growth continued to increase in local currency terms for most countries, despite decreasing in USD terms in some countries (see Figure 12), while many equity markets experienced volatility in 2016 (see Figure 13).

**FIGURE 10: LIFE INSURANCE GROSS WRITTEN PREMIUMS IN ASIA (USD BILLIONS)**



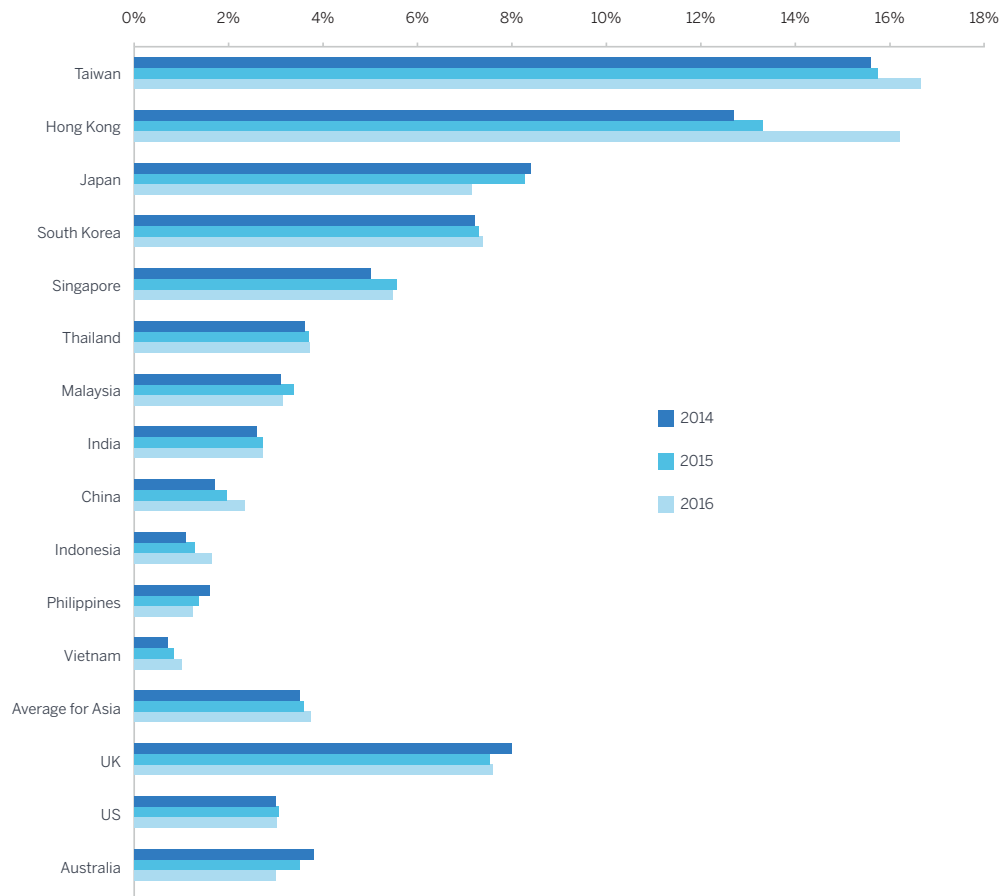
\* Note that the 2016 GWP for India was unavailable during the production of this report.

Sources: Various life insurance associations and insurance regulators.

24 Companies that have not yet disclosed their 2016 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 2016 reporting date.

25 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.

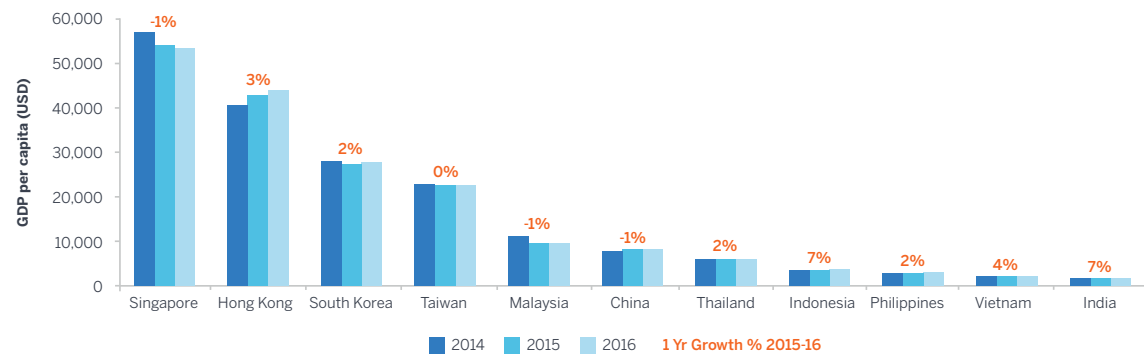
**FIGURE 11: ASIAN LIFE INSURANCE PENETRATION,<sup>26</sup> 2014 TO 2016, % OF GDP PER CAPITA**



Source: Swiss Re Sigma 2017

It is clear that life insurance markets continue to grow in the region. 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 gross written premiums, reflecting their large populations, high GDP per capita and high insurance penetration.

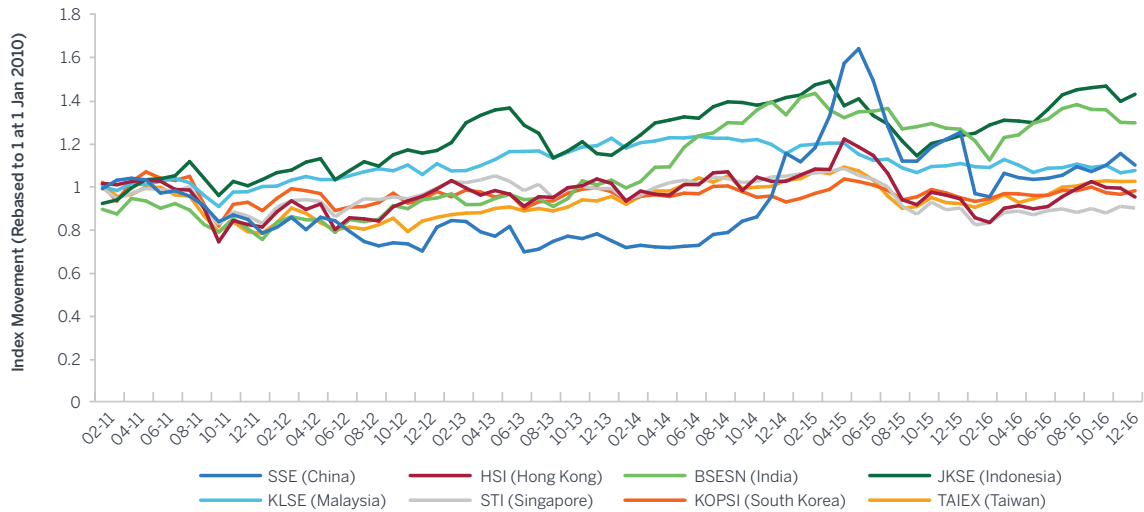
**FIGURE 12: GDP PER CAPITA<sup>27</sup> OF IN-SCOPE ASIAN COUNTRIES, 2014 TO 2016**



26 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.

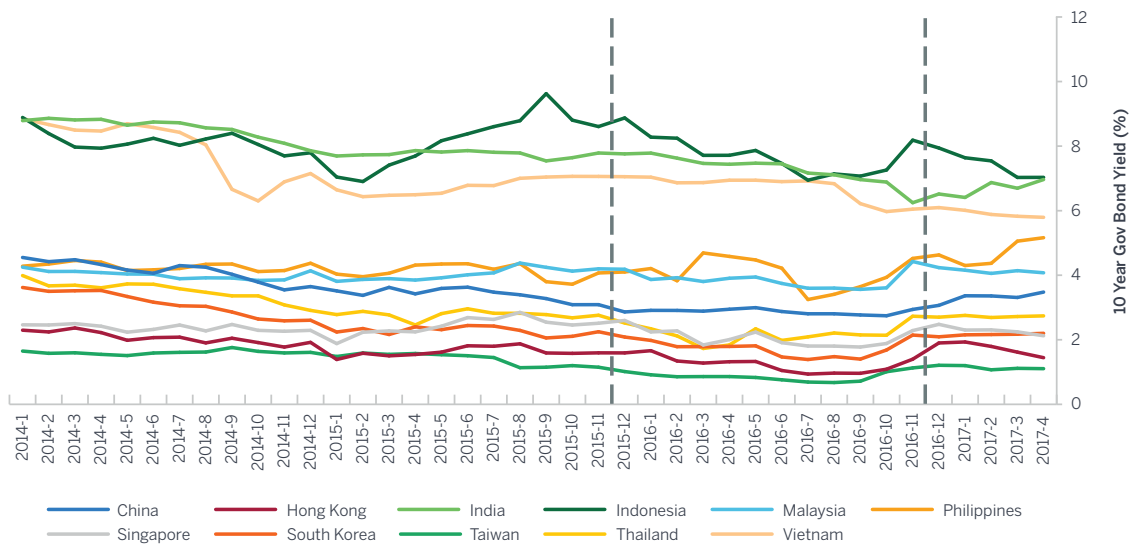
27 Source: International Monetary Fund, World Economic Outlook Database, April 2017.

**FIGURE 13: RECENT EQUITY MARKET PERFORMANCE: GROWTH OF MAJOR EQUITY INDICES<sup>28, 29</sup> FROM 1 JANUARY 2011 TO 31 DECEMBER 2016**



Indonesia and Taiwan’s equity markets, in particular, performed well in 2016 with double-digit growth for the year, contributing to EV growth within those markets, both from enhanced investment performance and elevated sales of products with material equity exposure. Meanwhile, China’s equity market had a disappointing 2016, mainly as a result of the sharp sell-off in the first quarter.

**FIGURE 14: 10-YEAR SOVEREIGN BOND YIELDS,<sup>30</sup> 2014 TO 2016**



Movements in Asian sovereign bond market yields, which are usually closely related to the EV risk discount rate and investment return assumptions adopted by insurers, were not uniform across the region. Yield curves in 2016 rose slightly in most countries, although three markets (India, Indonesia and Vietnam) saw a significant fall in their 10-year government bond yields of around 100 bps. However, most (outside of Japan) remain above the levels seen in Europe, and are generally stable and positive.

28 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.

29 Source: [Investing.com](http://Investing.com).

30 Ibid.

Overall, Asian economies continue to perform well relative to the rest of the world in GDP growth terms. Economists expect the strong growth momentum to continue in the near term and remain robust for the medium term, although several risk factors remain that may affect medium-term growth prospects. Some commonly cited risks include:

- There is the possibility of a shift toward protectionism in major economies, which can lead to slower global trade. This could have a significant negative impact on Asia, given the dependence on exports for many economies.
- China continues to rebalance its economy to become more reliant on domestic consumption. As a result, the country is expected to see slower growth in the short term, and the rebalancing may potentially adversely affect some of its trading partners in the region.
- Steeper-than-expected US interest rate rises could have negative effects for Asia, especially those with high dollar-denominated corporate and sovereign debt. A corresponding hike in domestic yield curves would also have a negative impact on indebted firms and households, with many Asian countries having worryingly high household debt to GDP ratios.
- The rapidly ageing populations in some countries can be a significant limiting factor for growth, with the International Monetary Fund (IMF) mentioning ‘parts of Asia risk growing old before becoming rich’.<sup>31</sup>
- For insurers, continued GDP growth and an associated rapid growth in the middle class are fuelling widespread expansion of insurance markets. As Figure 11 above shows, insurance penetration remains low for emerging Asian economies, compared with the more developed markets of Taiwan, Hong Kong, Japan and South Korea. The continuing, and sometimes worsening, low interest rate environment across the region (see Figure 14) is presenting serious challenges to the life insurance industry, however.

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 regime, as well as Hong Kong’s upcoming RBC framework and Singapore and Thailand’s forthcoming RBC 2 enhancements, are prominent examples. These changes will affect EV 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.

With premium growth of double-digits in many Asian emerging countries, EV is now firmly established as a performance measurement tool and 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. However, this is not to say that the former approaches are superior and more appropriate for all insurers; something we discuss further in the Methodology Overview section below.

Other changes on the horizon for the Asian insurance industry include the International Financial Reporting Standards (IFRS) 17, ‘Accounting for Insurance Contracts’, which was recently published on 18 May 2017. The effective date for the accounting standard will be 1 January 2021, although prior year comparative figures will be required. Most Asian countries are expected to begin implementing IFRS 17 by 2021, though the exact completion dates are typically not yet agreed. However, the scale of and the timetable for the adoption of IFRS 17 in China is uncertain. In the short term, there does not seem to be a likely impact on insurers in China but the current regulation could be modified to align more closely to IFRS 17 in the future. Some Asian accounting and financial reporting boards may choose to customise their implementations of IFRS 17, or to wait for full implementation elsewhere before following suit. For example, Indonesia is targeting a one-year delay between the implementation of IFRS 17 and its harmonisation with Indonesian GAAP.

31 Please see our detailed report titled ‘Milliman’s Asia Retirement Income Report’ at <http://www.milliman.com/asia-retirement-income-report/> for more on this topic.



In this publication, we focus on EV results as at year-end 2016. 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 United States. 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.<sup>32</sup>

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

EV reporting started in the United Kingdom 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.

32 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 United States, Canada and Asia. However, the future of EV reporting in Europe is in some doubt since the introduction of more realistic and risk-sensitive Solvency II and IFRS financial reporting.

### 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<sup>33</sup> or MCEV<sup>34</sup> reporting. A summary of adopted methodologies 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	–	2	–	3	5
NORTH AMERICAN MNC	1	–	–	–	1
CHINA	6	–	–	–	6
HONG KONG	1	–	–	–	1
INDIA	1	–	1	4	6
SOUTH KOREA	4	–	–	–	4
TAIWAN	6	–	–	–	6
THAILAND	1	–	–	–	1
VIETNAM	1	–	–	–	1
TOTAL	23	2	1	7	33

Apart from European and Japanese insurers, the only companies operating in Asia that are reporting EEV, IEV<sup>35</sup> or MCEV are the Indian insurers. However, none of the Indian insurers reporting MCEV currently presents externally reviewed EV results to the extent specified in the disclosure requirements of the MCEV principles. In July 2016, ICICI Prudential became the first insurer to file for an initial public offering (IPO), with its IEV disclosure having been formally reviewed by an external party. Several other Indian insurers have also taken steps to re-assess EV based on the IEV 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 main differences between the three main EV methodologies.

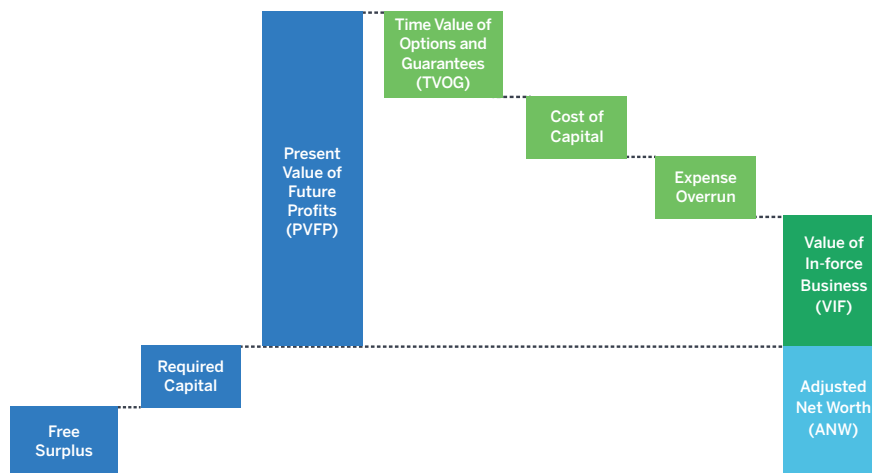
33 Including AXA and Prudential.

34 Including Allianz, Aviva and Zurich.

35 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
<b>PVFP</b>	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.
<b>TVOG</b>	Not explicitly allowed for, although companies may argue that the cost is implicitly included through the use of a risk-adjusted discount rate.	Mandatory calculation using stochastic models for material guarantees. While both risk-neutral and real-world models are theoretically allowed, most insurers will use risk-neutral models, for ease of calculation.	Consistent with PVFP methodology, a market-consistent risk-neutral calculation using stochastic models.
<b>Cost of Capital</b>	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.
<b>Discount Rate</b>	Subjective assumption, typically calculated as a risk-free rate plus a margin, or the portfolio investment return plus a margin.  A single discount rate is typical; using a curve is rare.	Two possible approaches: 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.
<b>Expenses</b>	No standardisation, but typically based on current or recent and expected ongoing experience. Where expense overruns exist, insurers will typically provide both pre- and post-overrun EV/VNB figures.	Future expenses such as renewal and maintenance expenses must reflect expected ongoing operating expenses, including investment in systems to support the business, and allowing for future inflation.  Overheads and holding company expenses must be allocated in a manner consistent with current and historical practice.  Expense overruns must be allowed for.	Similar to EEV principles, with additional guidance.  Favourable changes in unit costs such as productivity gains should not normally be included, if they have not been achieved by the end of the reporting period. However, for start-up operations, allowing for improvements in unit costs in a defined period may be allowed 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.
<b>Investment Returns</b>	Typical practice is to use a risk-free rate plus risk premium approach for main asset classes, where the risk-premium assumptions differ by asset class.	Some insurers opt to use a risk-neutral approach, while others use a risk-free rate plus 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 United States 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 flaw in companies' TEV financial reporting.

**INDIAN EV**

In 2013, the Institute of Actuaries of India published Actuarial Practice Standard 10 (APS10), 'Determination of the Embedded Value', establishing a standard for what is now known as Indian 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 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.

Given the above, 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 flaw in companies' TEV financial reporting.

## Embedded value results

This section presents EV results under three different lenses:

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

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

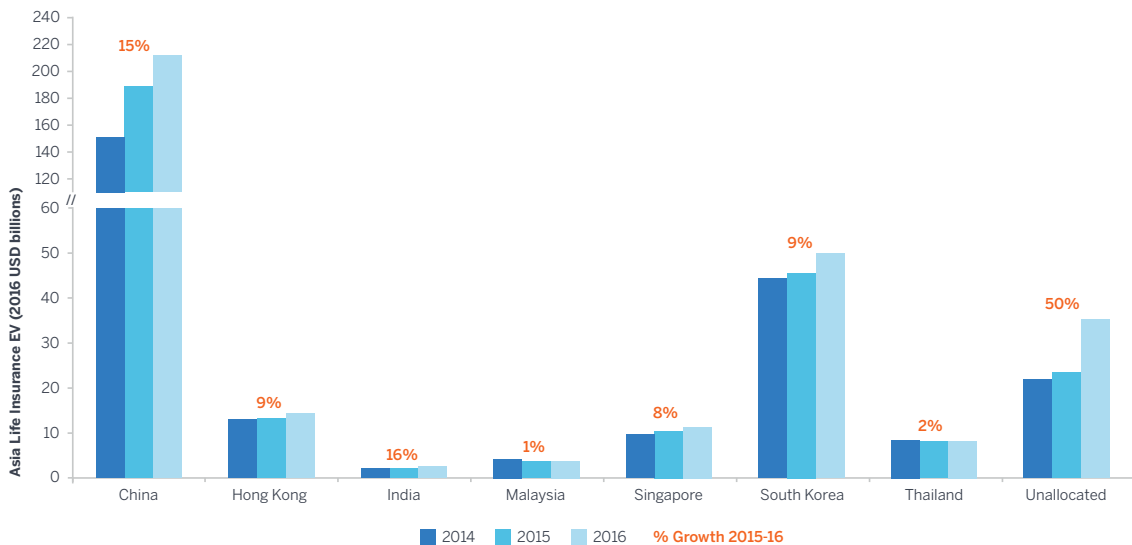
The values presented in this section relate to EV results for life insurance and other long-term insurance operations in Asia, excluding Japan. Because of the way some companies group their businesses, Asian operations are sometimes classed under their ‘international’ or ‘emerging markets’ business units,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

### EV IN ASIA

In 2016, reported Asian life insurance EV grew by 15.3% on a comparable basis<sup>36</sup> to USD 339 billion from USD 294 billion. The companies reporting the largest Asian<sup>37</sup> EV at the 2016 year-end were China Life, Ping An Life and AIA, at USD 94 billion, USD 52 billion and USD 42 billion, respectively. Figure 18 sets out the total EV growth by country (to the extent that such a breakdown has been disclosed by companies).

**FIGURE 18: COMPARABLE ASIAN LIFE INSURANCE COVERED EV,<sup>38, 39</sup> 2014 TO 2016**



36 As at the data cut-off date (3 May 2017), some insurers have not yet disclosed their FY2016 EV figures. Hence, this chart and subsequent commentary only include insurers that have a complete set of FY2014, FY2015 and FY2016 EV figures. The results of the remaining companies will be included in our ‘2016 Mid-year Embedded Value Results – Asia (excl. Japan)’ report. The missing companies include: Bajaj Allianz, Birla Sun Life, Exide Life, HDFC Life, Max Life, Reliance Life, SBI Life, Cathay Life, China Life TW, Fubon, Mercuries Life, Shin Kong, Taiwan Life and Dai-ichi Life Vietnam.

37 Excluding Japan.

38 To provide comparability and eliminate FX effects, results for all years have been converted to USD using the prevailing FX rate as at the FY2016 reporting date.

39 ‘Unallocated’ indicates EV figures that are reported by insurers to relate to their Asian operations, but have not been allocated to specific countries.

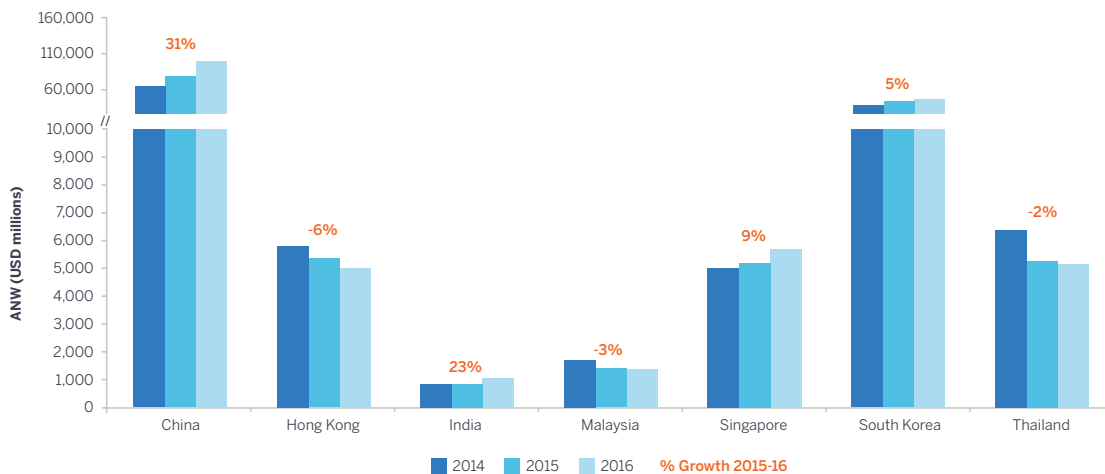
The two countries that posted weaker growth in EV in USD terms in 2016 were Malaysia and Thailand (1% and 2%, respectively). In Malaysia, a further devaluation of the Malaysian ringgit in 2016 affected the reported results of the Malaysian subsidiaries of AIA and Great Eastern, although the underlying growth in local currency terms was strong and similar to previous years. For Thailand, the lower growth was mainly due to the sustained low interest rate environment and disappointing new business sales in the aftermath of the king’s death.

China reported the highest comparable EV growth in 2016 of 15% (India’s 16% EV growth is purely based on ICICI Prudential, which was the only company to disclose FY2016-17 results by our data cut-off date<sup>40</sup>). The strong EV growth in China was mainly due to high new business sales and investment-related gains, as well as a one-off change (generally an increase) from the adoption of new rules for compulsory EV reporting issued by the China Association of Actuaries in November 2016. Investment return assumptions for most life insurers in China reporting EV results have decreased since FY2015, with domestic life insurers typically assuming investment returns rising from around 4.5% to 5.0% (this is discussed further in the China section below).

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 several Asian markets. In 2016, yield curves have stabilised to some extent, and expected interest rate hikes in the US have resulted in a general expectation of rising interest rates for many countries in the near future.

In situations where 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 assets.

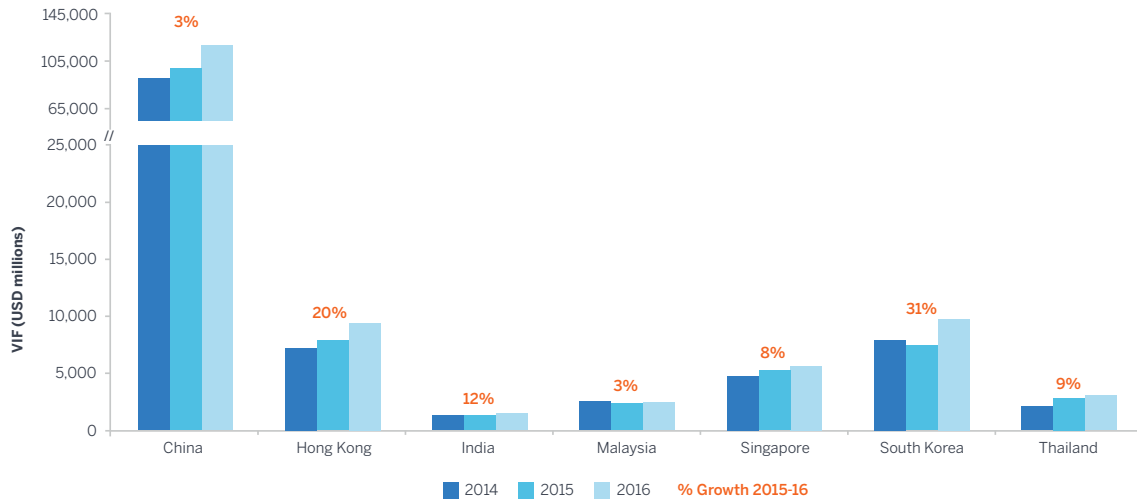
**FIGURE 19: COMPARABLE ASIAN LIFE INSURANCE COVERED ANW, 2014 TO 2016**



40 The insurers that have not yet published their FY2016 results as at the data cut-off date (3 May 2017) include: Bajaj Allianz, Birla Sun Life, Exide Life, HDFC Life, Max Life, Reliance Life, SBI Life, Cathay Life, China Life TW, Fubon, Mercuries Life, Shin Kong, Taiwan Life and Dai-ichi Life Vietnam.



**FIGURE 20: COMPARABLE ASIAN LIFE INSURANCE COVERED VIF, 2014 TO 2016**



Interestingly, there were falls in total ANW in three markets during 2016, although the overall EV growth for all countries remained positive. For China, the change in capital requirements from a Solvency I basis to the C-ROSS basis has generally led to higher ANW but lower VIF being reported. This has resulted in 2016 growth in China EV being largely driven by increases in ANW, although VIF growth remained positive.

VIF growth was positive for all countries, underpinned primarily by strong VNB results and, in some cases, increasing long-term investment return assumptions. South Korea saw the largest VIF growth of 31%, from strong margin-driven growth in VNB across all companies in the market, despite a fall in new business APE. Hong Kong also saw strong VIF growth of 20%, driven mainly from significant VNB growth arising from large volumes of new business sold to mainland Chinese visitors.

**EV BY COMPANY**

**FIGURE 21: ASIAN LIFE INSURANCE COVERED BUSINESS EV BY COMPANY,<sup>41, 42, 43</sup> 2014 TO 2016**



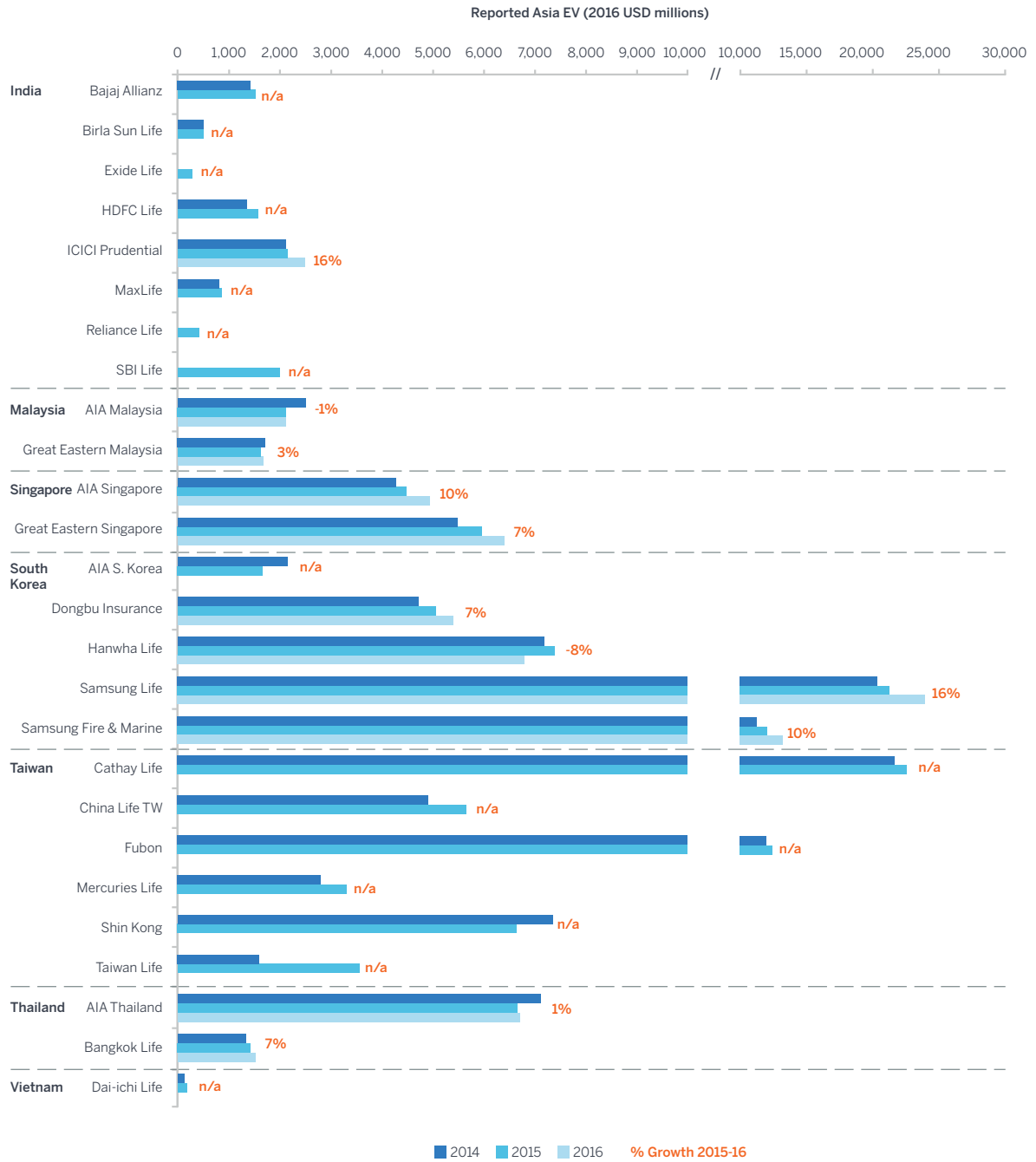
\* Allianz reported a negative EV for its Asia region for 2015, which was USD -341 million. However in 2016, the EV for Asia region grew to USD 1,361 million.

41 The EV figures for each company have been converted to USD at the mid exchange rate prevailing as at their FY2016 reporting dates, to remove the effect of currency fluctuations.

42 Standard Life stopped reporting EV in 2015. Allianz saw negative EV in 2015.

43 Please note that some companies have not yet disclosed their 2016 EV results as at the data cut-off date of this report. The 2016 results for these companies have been left blank as a consequence. The insurers that have not yet published their FY2016 results as at the data cut-off date (3 May 2017) include: Bajaj Allianz, Birla Sun Life, Exide Life, HDFC Life, Max Life, Reliance Life, SBI Life, Cathay Life, China Life TW, Fubon, Mercuries Life, Shin Kong, Taiwan Life and Dai-ichi Life Vietnam.

**FIGURE 21: ASIAN LIFE INSURANCE COVERED BUSINESS EV BY COMPANY, 2014 TO 2016 (CONTINUED)**



**FIGURE 22: SPLIT OF 2016 ASIAN LIFE INSURANCE EV BETWEEN VIF AND ANW BY COMPANY**

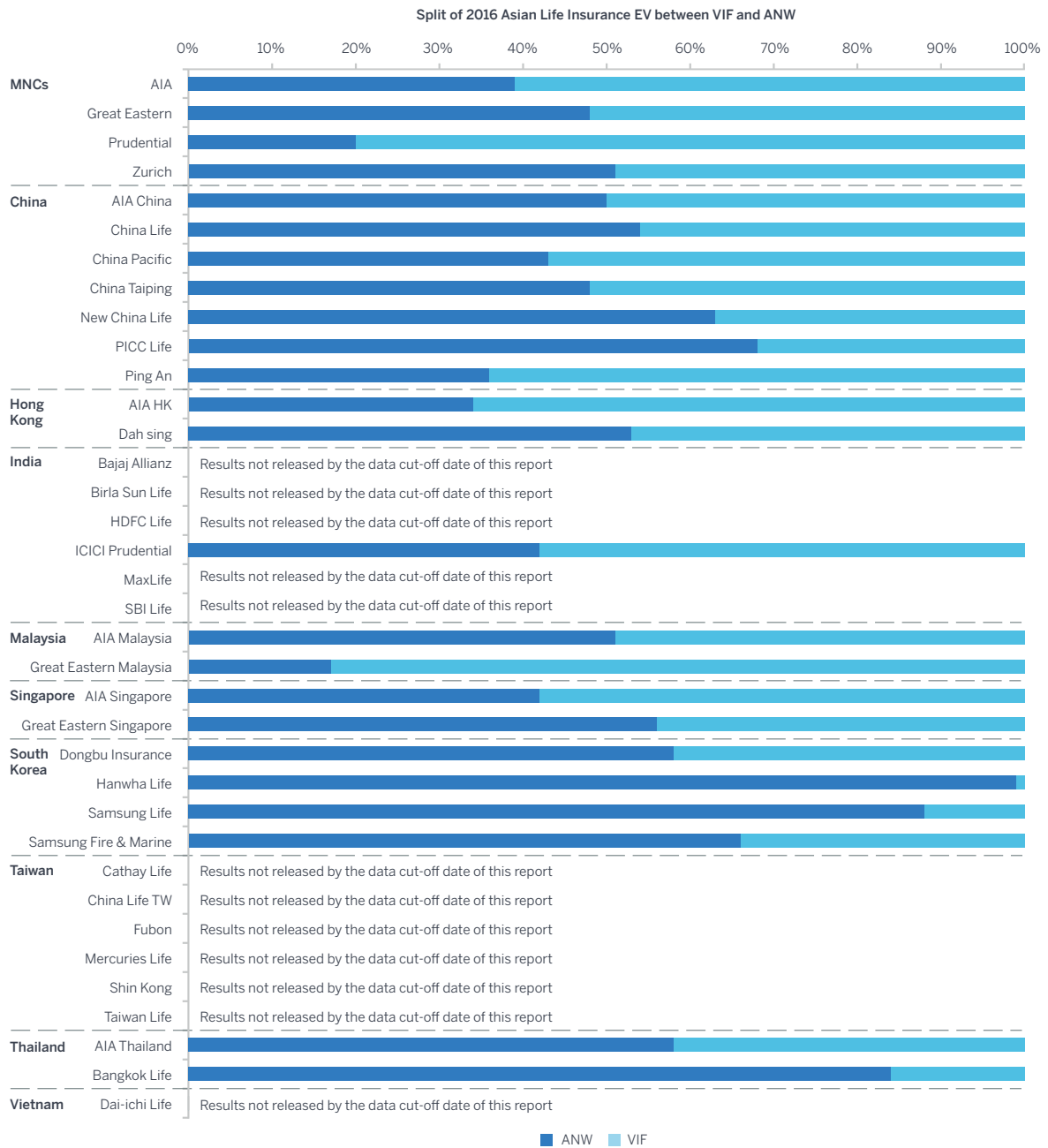


Figure 21 above shows the growth in EV by individual company. Amongst the companies included in this report, Zurich reported the largest annual increase in EV (36%), followed by Prudential (35%) and New China Life (25%). Zurich’s Asia EV growth was driven by favourable operating assumption changes and capital injections. Prudential’s significant EV growth came from strong growth in VNB, especially in Hong Kong, as well as favourable exchange rate movements in 2016 that were due to the depreciation of sterling.

The Chinese life insurers once again reported high growth in EV in 2016, which was mainly due to significant new business sales, improved VNB margins and investment-related gains, as well as a one-off change (generally an increase) from the adoption of new rules for compulsory EV reporting issued by the China Association of Actuaries in November 2016.

Allianz returned to a positive MCEV in 2016 after divesting its South Korea business, which had a large in-force portfolio of high-guarantee traditional policies that was struggling to perform under the sustained low interest rate environment. The sale of the business to China’s Anbang Group Holdings was completed at the end of 2016. Meanwhile, Hanwha Life saw an 8% decrease in its EV (before stock repurchases and dividends) in 2016, with the fall mainly driven by economic assumption changes, model changes and adjustment for stock repurchases and dividends.

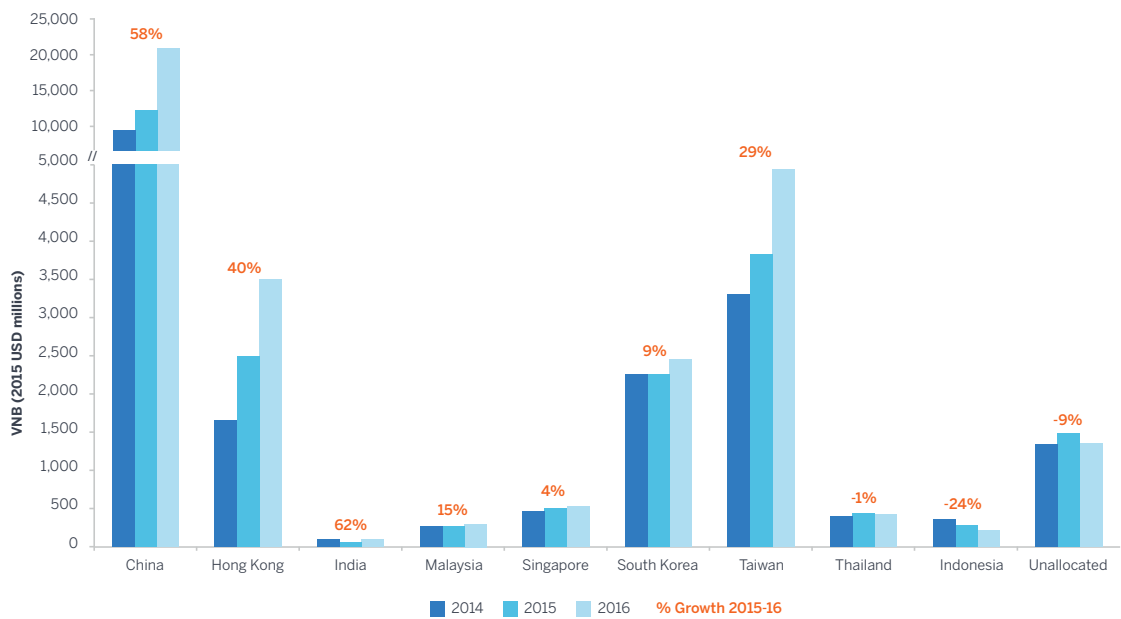
Figure 22 breaks down reported EV for 2016 into its VIF and ANW components for each market. In general, South Korean and Thai insurers show a higher proportion of their EV coming from ANW, compared with insurers from other countries.

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 Thailand and Korea.

**VNB IN ASIA**

Total reported VNB for Asia stood at USD 35.0 billion in 2016, compared with USD 25.0 billion in 2015, representing growth of 40.0%<sup>44</sup> on a comparable basis. Figure 23 provides a country-by-country comparison of growth in VNB through the disclosures made.

**FIGURE 23: REPORTED VNB OF ASIAN OPERATIONS ON A COMPARABLE BASIS,<sup>45</sup> 2014 TO 2016**



44 This percentage has been calculated on a comparable basis, i.e., only companies that have disclosed a full set of FY2014, FY2015 and FY2016 numbers have been included here.

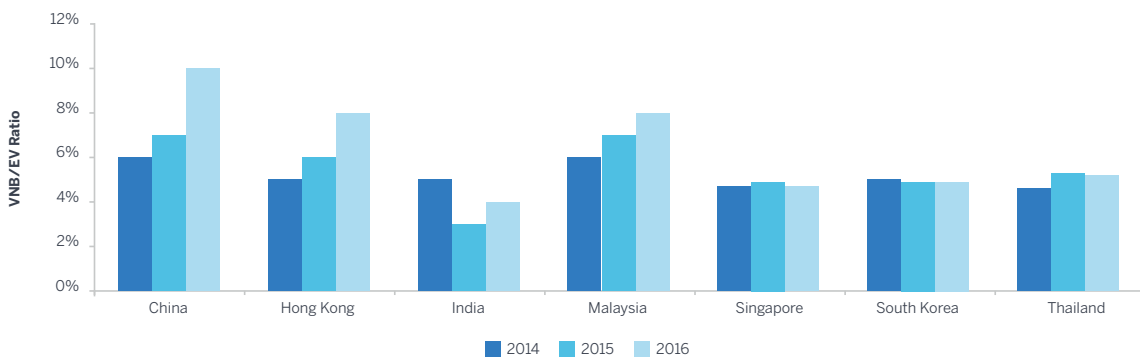
45 As at the data cut-off date (3 May 2017), some insurers have not yet disclosed their FY2016 EV figures. Hence, this chart and subsequent commentary only includes insurers that have a complete set of FY2014, FY2015 and FY2016 EV figures. The performance of the remaining companies will be included in our mid-year EV update report. The missing companies include: Bajaj Allianz, Birla Sun Life, Exide Life, HDFC Life, Max Life, Reliance Life, SBI Life, Cathay Life, China Life TW, Fubon, Mercuries Life, Shin Kong, Taiwan Life and Dai-ichi Life Vietnam.

By market, Hong Kong and China reported the highest growth in VNB on a constant currency basis, largely driven by significantly higher new business premiums. India’s 62% VNB growth is purely based on ICICI Prudential, which was the only company to disclose FY2016-17 EV results by our data cut-off date.

Both Indonesia and Thailand reported reductions in VNB. The former was mainly due to Prudential Indonesia experiencing reduced new business sales because of ‘systemic challenges in the economy’.<sup>46</sup> The latter was mainly driven by AIA Thailand seeing ‘lower new business volumes including reduced activity... during the mourning period following the passing of the Thai king’.<sup>47</sup>

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

**FIGURE 24: VNB/EV RATIO,<sup>48</sup> 2014 TO 2016**



Several markets have exhibited a relatively stable ratio over the last three years. The developing countries tend to show higher VNB/EV ratios compared with developed countries. Unfortunately, Taiwan comparable ratios were unavailable at our data cut-off date, which is due to their later EV disclosure cycles, although it was noted in last year’s report that those companies had a high VNB/EV ratio because of large volumes of ‘negative spread’ in-force business.

China, Hong Kong and Malaysia’s ratios increased significantly in 2016, which was primarily due to strong new business sales. As discussed more extensively in our China section below, the strong growth in VNB was mainly driven by large volumes of new business and increased margins associated with a shift away from savings towards protection products. Half the growth of Hong Kong can be attributed to the new business sales made to mainland China visitors; this result reflects the AIA Hong Kong growth in VNB. The Malaysian results reflect increasing new business sales for both conventional and Takaful business (see the Malaysia section below for further details).

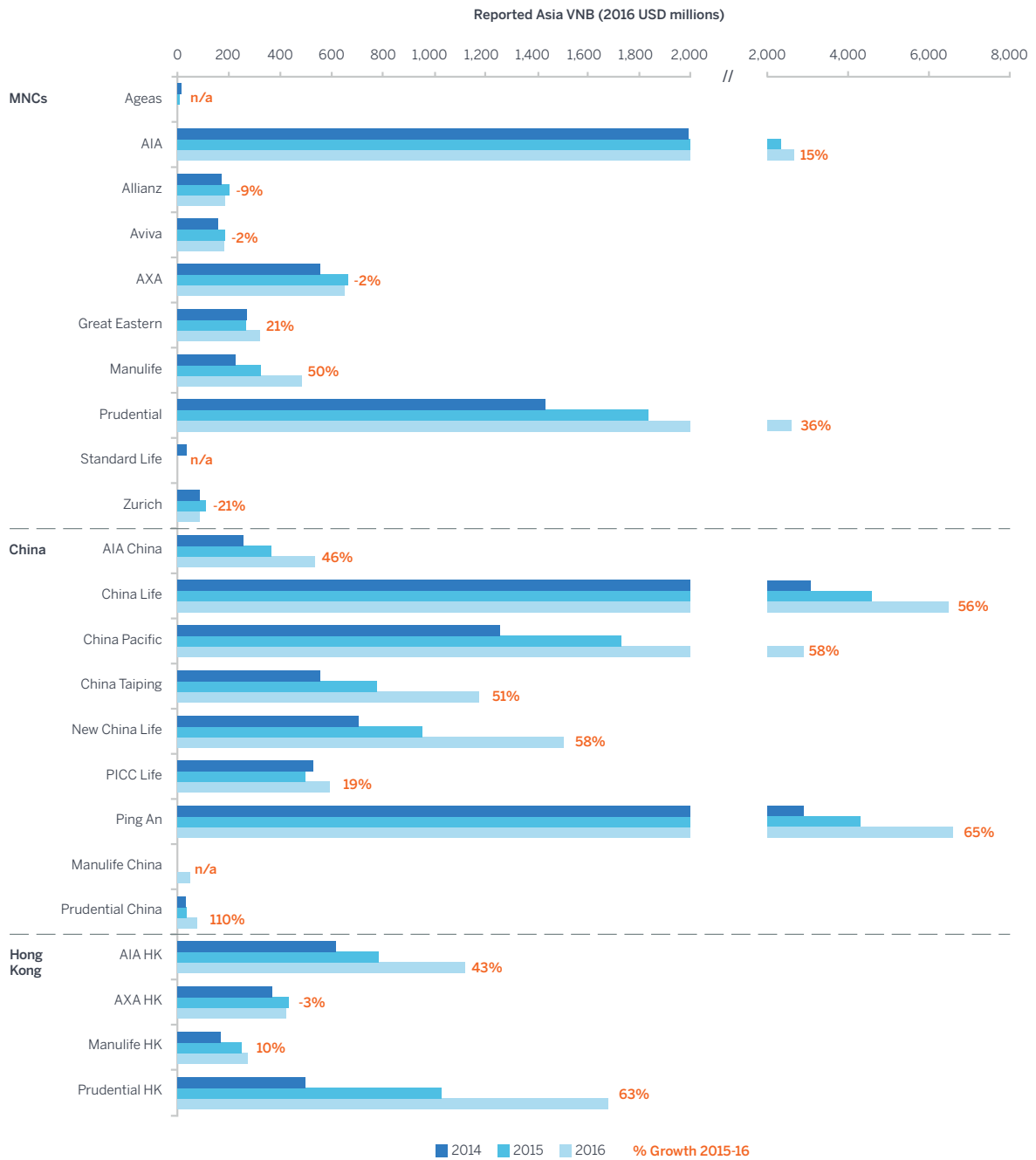
46 Source: Prudential 2016 Annual Report.

47 Source: AIA 2016 Annual Report.

48 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: ASIAN VNB BY COMPANY, 2014 TO 2016**



**FIGURE 25: ASIAN VNB BY COMPANY, 2014 TO 2016 (CONTINUED)**

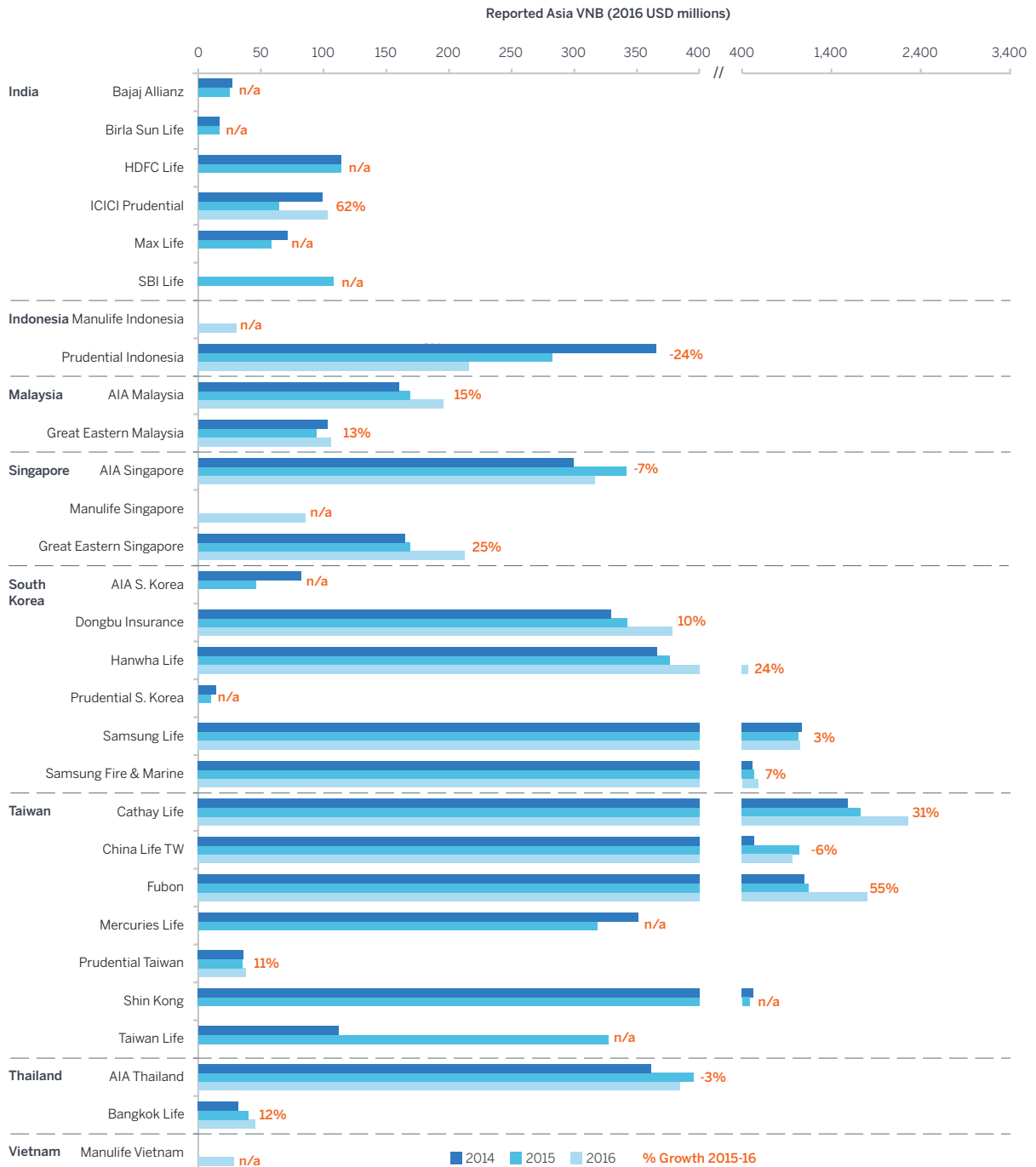


Figure 25 presents each individual company’s VNB from 2014 to 2016.

Ping An at 65.0% and ICICI Prudential at 61.7% reported the largest increases in 2016 VNB:

- Ping An posted strong VNB growth, driven by increased new business sales as well as the change in capital requirements from Solvency I to C-ROSS.
- ICICI Prudential’s large increase in VNB was due to increased APE sales (including for higher-margin protection business) and improvements in persistency.

Most of the Chinese domestic insurers recorded strong VNB growth, as a result of large volumes of new business and, for some, increased margins associated with more 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).

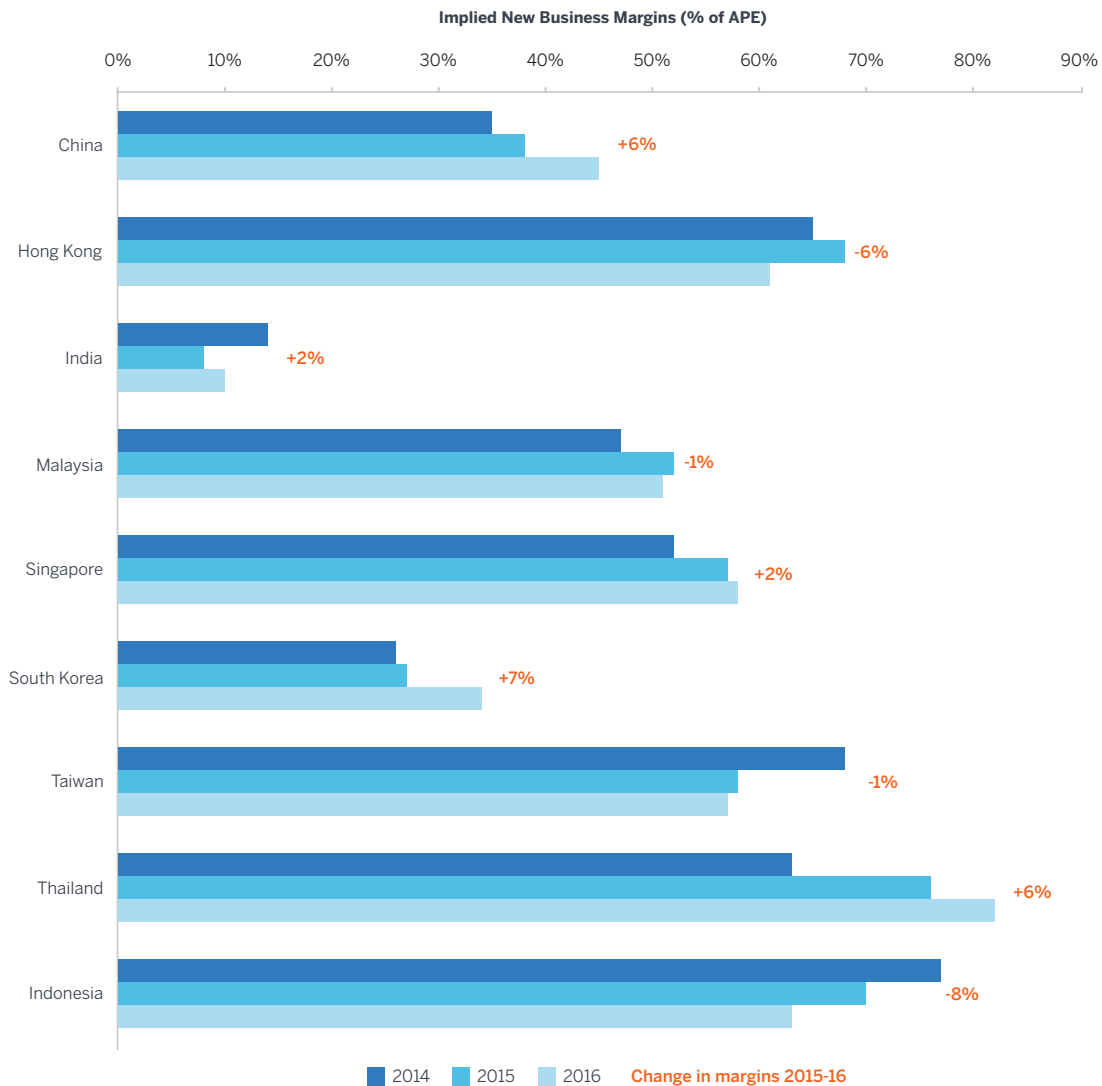


Prudential posted strong VNB growth across various Asian countries, led by their subsidiaries in China (110.0%) and Hong Kong (63.0%). Part of this is due to favourable exchange rates, with the devaluation of the sterling in 2016. However, Prudential Indonesia reported a fall in VNB of 24.0% in 2016, which was due to ‘systemic challenges in the economy’,<sup>49</sup>

Manulife’s Asia (excluding Japan) VNB also increased substantially, contributing approximately 81.0% of Manulife’s global new business value in 2016, driven by strong new business sales in its ‘Other Asia’ markets (defined as its operations in mainland China, Indonesia, Malaysia, the Philippines, Singapore and Vietnam). Part of the reason for this growth was the bancassurance partnership with DBS effective 1 January 2016, covering Singapore, Hong Kong, China and Indonesia. Manulife’s APE sales in China, Hong Kong, Indonesia, the Philippines, Singapore and Vietnam have increased to more than USD 100 million in each market in 2016, helping the VNB to rise by around 50.0%. Meanwhile, Zurich saw a fall of 21.0% in its 2016 Asia VNB.

**NEW BUSINESS MARGINS<sup>50</sup> IN ASIA**

**FIGURE 26: IMPLIED NEW BUSINESS MARGINS<sup>51</sup> BY COUNTRY, 2014 TO 2016**



49 Source: Prudential plc 2016 Annual Report.

50 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.

51 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, India, 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, Indonesia and Hong Kong appear to have 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 based on two data points, namely the reported margin for Prudential Indonesia and Manulife Indonesia.

Thailand's increased margin is surprising in the context of the very low yield curve over the last year but it does reflect AIA Thailand's success in refocusing sales efforts into higher-margin long-term protection business and capital-efficient unit-linked products. Meanwhile, Indonesia and Hong Kong saw lower margins than in 2015, reflecting lower reported profitability of new business for Prudential Indonesia, and the large fall in margin for AIA Hong Kong and Manulife Hong Kong.

It is also worth noting that many Taiwanese and Chinese insurers assume increasing investment returns for future years, which may have contributed to higher implied new business margins.

#### **DETAILED COUNTRY ANALYSIS**

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

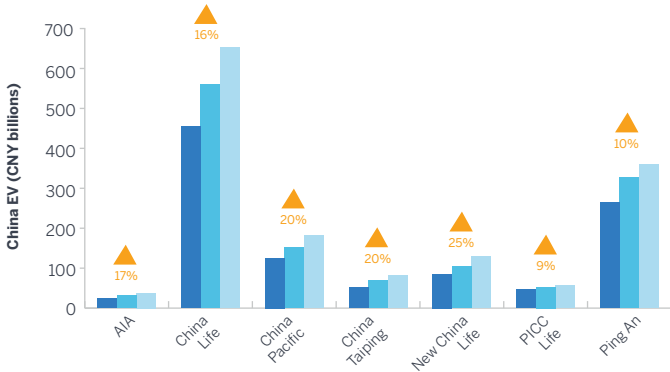
In order to provide a clearer picture of each market's performance, all EV and VNB results in this section have been converted to local currency using the prevailing exchange rate as at each insurers' reporting dates for each year (FY2014, FY2015 and FY2016<sup>52</sup>). This is in contrast to the previous figures, where the EV and VNB results were converted to USD using the prevailing exchange rate at each insurer's reporting date for FY2016. As a result, the 2016 growth rates for each MNC's subsidiary may not be the same as those presented in the previous sections, because of currency differences.

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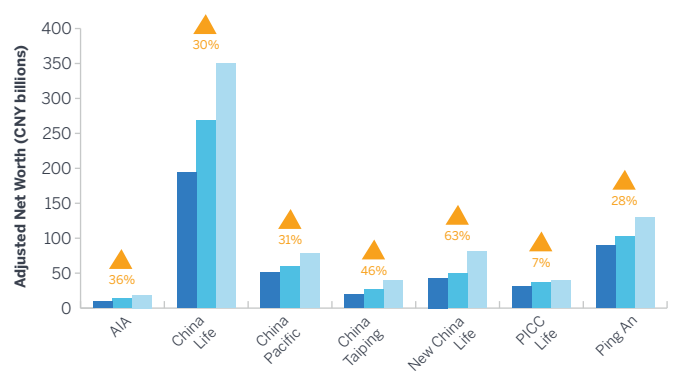
52 Please note that that not all insurers have their financial years coincide with calendar years. In this report, we have defined FY2016 results to be the financial year results which contain the majority of 2016 calendar year results. For example, the FY2016 results for Indian insurers that have a March financial year-end date correspond to the financial results for the year ending 31 March 2017. In this report, companies with non-coinciding financial years include Indian insurers (March year-end) and AIA (November year-end).

**CHINA**

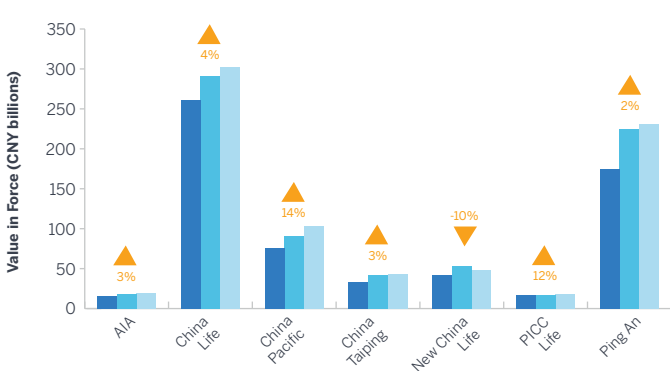
**FIGURE 27: REPORTED EV OF CHINESE INSURANCE OPERATIONS, 2014-2016**



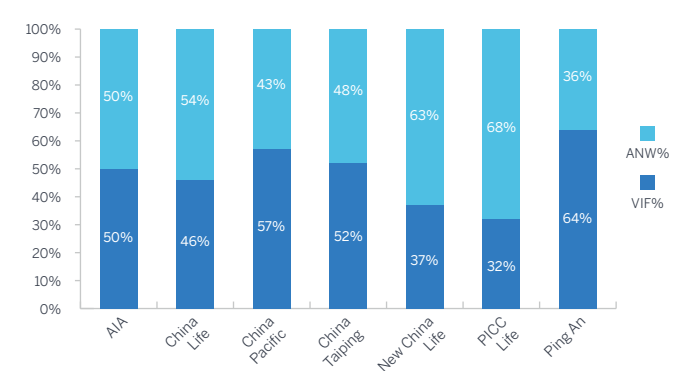
**FIGURE 28: REPORTED ANW OF CHINESE INSURANCE OPERATIONS, 2014-2016**



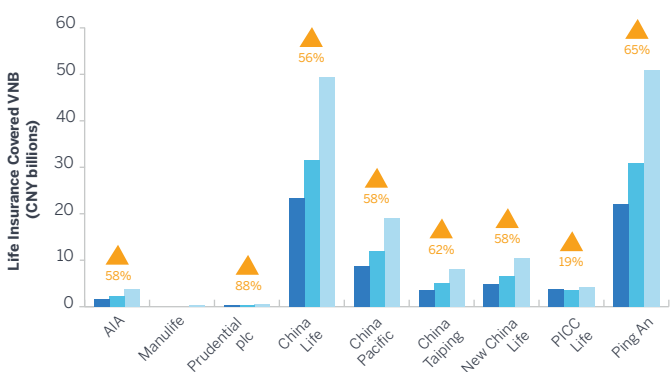
**FIGURE 29: REPORTED VIF OF CHINESE INSURANCE OPERATIONS, 2014-2016**



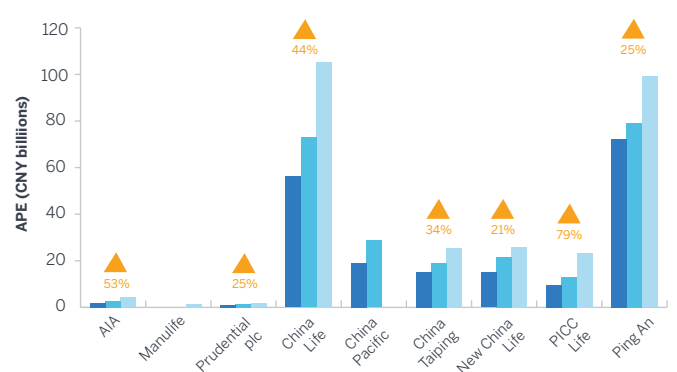
**FIGURE 30: REPORTED VIF/ANW SPLIT OF CHINESE INSURANCE OPERATIONS, 2016**



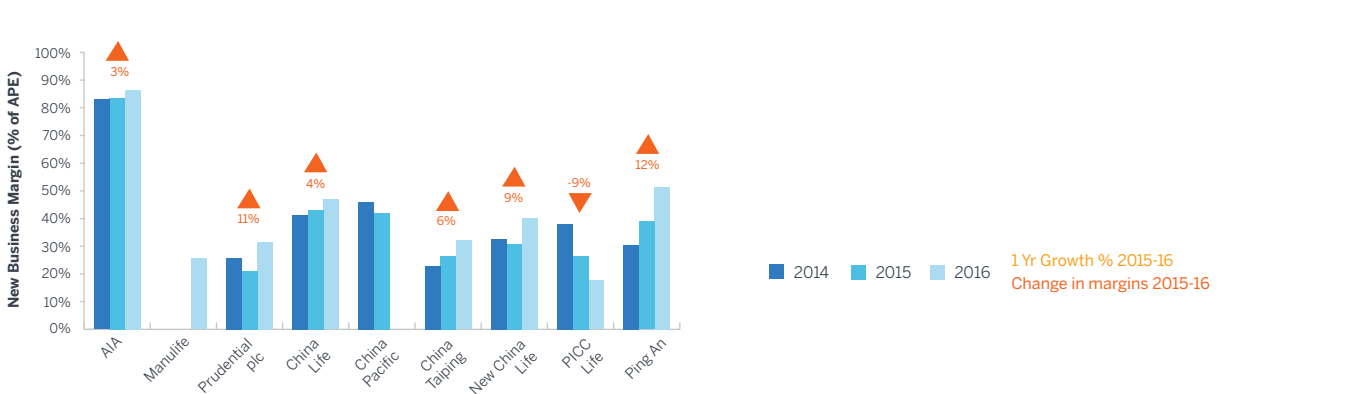
**FIGURE 31: REPORTED VNB OF CHINESE INSURANCE OPERATIONS, 2014-2016**



**FIGURE 32: REPORTED APE<sup>53, 54</sup> OF CHINESE INSURANCE OPERATIONS, 2014-2016**



**FIGURE 33: REPORTED NEW BUSINESS MARGINS<sup>55</sup> OF CHINESE INSURANCE OPERATIONS, 2014-2016**



53 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.  
 54 For China Pacific, the 2016 EV disclosures did not provide sufficient information to calculate APE.  
 55 Note that the margins are calculated as the disclosed VNB divided by the calculated APE in Figure 32, and may not represent actual margins of the respective companies.

Seven companies reported 2016 EV results in China, almost all of which managed double-digit EV growth for the year, with the only exception being PICC Life. New China Life reported the largest growth at 25%, followed by China Pacific and China Taiping at 20% and AIA China at 17%. Prudential only discloses 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). Manulife has disclosed its VNB results separately for China for the first time in 2016.

The increase in EV for the companies was largely attributable to increases in ANW in 2016, which grew by 32% in aggregate, compared with VIF which only increased by 4%. This situation is further highlighted in Figures 28 and 29 above. The main reason for this is the change in capital requirements in 2016 from a Solvency I basis to the C-ROSS basis, leading to generally higher ANW but lower VIF being reported.

Another contributing factor was that all life insurers reduced their investment return assumptions in 2016. The full set of economic assumptions disclosed in the market is set out in Figure 93 below. The domestic life insurers typically assume investment returns rising from around 4.5% to 5.0% over a two-year period with the exception of PICC Life, as it employed a flat rate of 5.25% (2015 assumptions rose from around 5.0% to 5.5% over the same period), with risk discount rates of around 11%.

The majority of insurers have kept their discount rate assumptions unchanged from 2015. China Life and AIA reduced their discount rates by 100 bps and 20 bps to 10.00% and 9.55%, respectively, while Prudential China has increased its EEV discount rate by 20 bps to 9.60%.

Another important factor in the increase of EV is the growth in VNB, which has been mainly driven by very large volumes of new business and increased margins associated with an industry shift away from short-term savings products with high pricing/crediting interest rates towards products with longer terms and more protection components. Although several companies have made 'value creating' shifts in product strategy, it is important to recognise that the more protection-oriented products still typically have material embedded investment guarantees and that the morbidity-related risk environment (e.g., critical illness and health claims) is quite uncertain in China. While the reinsurers involved with morbidity-related pricing have learnt hard lessons from experience elsewhere in the world and are applying these lessons to predict possible future claims deterioration, there is very little precedent for the levels of food, air and water-related pollution faced by much of the Chinese population on a day-to-day basis. Morbidity claims assumptions based on relatively benign current experience (which typically contribute positively to VNB results) will need to be tracked carefully as future claims experience unfolds and the insured population ages.

All life insurers reported significant growth in VNB in 2016, with Prudential China topping the list with a growth of 88% in VNB, which cited as being due to 'regular premium business driven by increased scale in the agency channel'<sup>56</sup> and relatively small base number in 2015 compared with the other main players.

The full implementation of China's new capital regime, C-ROSS, began in 2016. As at Q4 2016, the officially reported solvency adequacy ratio of the life insurers covered in this report is summarised as below.

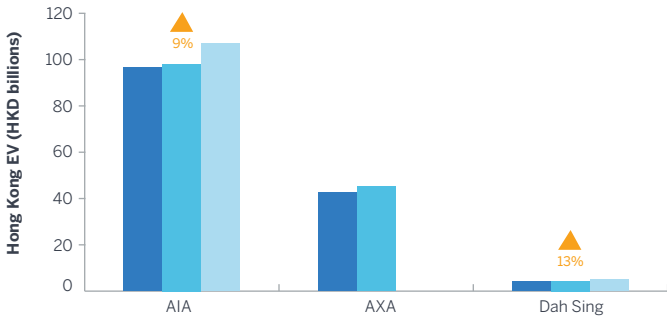
	CORE SOLVENCY ADEQUACY RATIO	COMPREHENSIVE SOLVENCY ADEQUACY RATIO
CHINA LIFE	280%	297%
NEW CHINA LIFE	260%	281%
PING AN LIFE	212%	226%
CPIC LIFE	255%	257%
CHINA TAIPING LIFE	242%	251%
PICC LIFE	149%	177%
AIA CHINA	451%	451%
CITIC-PRUDENTIAL	281%	290%
MANULIFE CHINA	267%	267%

56 Source: Prudential 2016 Annual Report.

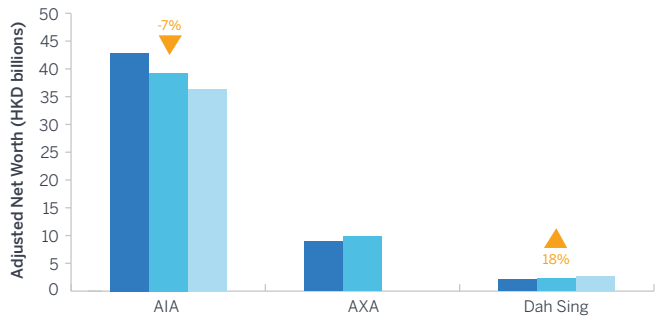
On 11 May 2017, the China Insurance Regulatory Commission (CIRC) issued a circular reiterating insurance products' risk protection fundamentals. Annuity or endowment products can only provide living benefits after five years with annual living benefit payments less than 20% of paid premiums. Lastly, long-term care and disability insurance should not provide living benefits ahead of maturity, unless the insured is impaired in daily living activity or is disabled, prohibiting excessive investment features being built into a health policy. The new regulations will apply to new products immediately but allow a grace period until 1 October 2017 for existing products.

**HONG KONG**

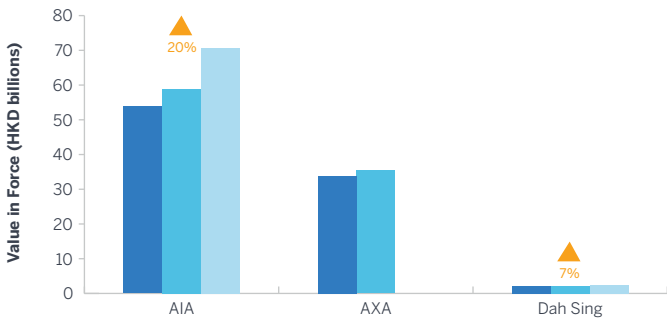
**FIGURE 34: REPORTED EV OF HONG KONG INSURANCE OPERATIONS,<sup>57</sup> 2014-2016**



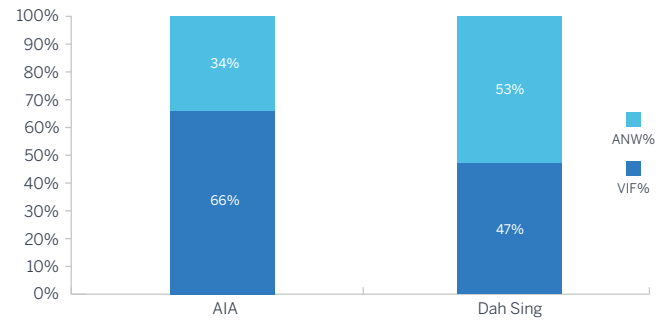
**FIGURE 35: REPORTED ANW OF HONG KONG INSURANCE OPERATIONS, 2014-2016**



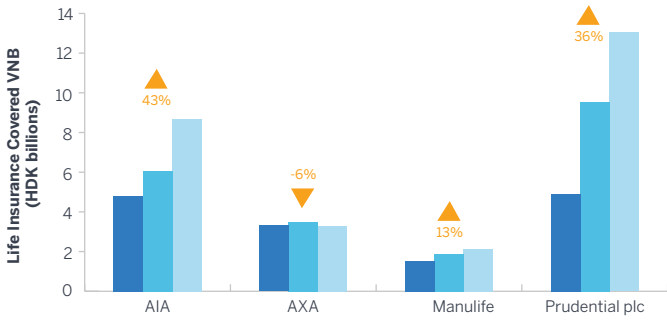
**FIGURE 36: REPORTED VIF OF HONG KONG INSURANCE OPERATIONS, 2014-2016**



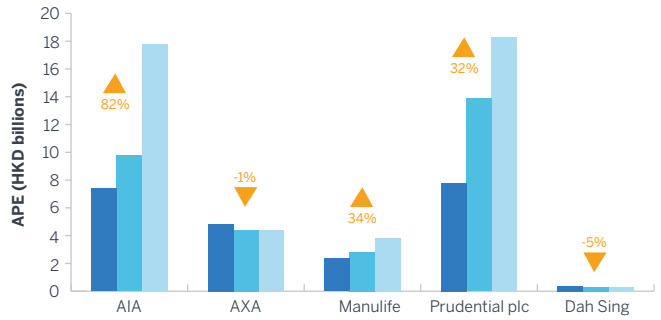
**FIGURE 37: REPORTED VIF/ANW SPLIT OF HONG KONG INSURANCE OPERATIONS, 2016**



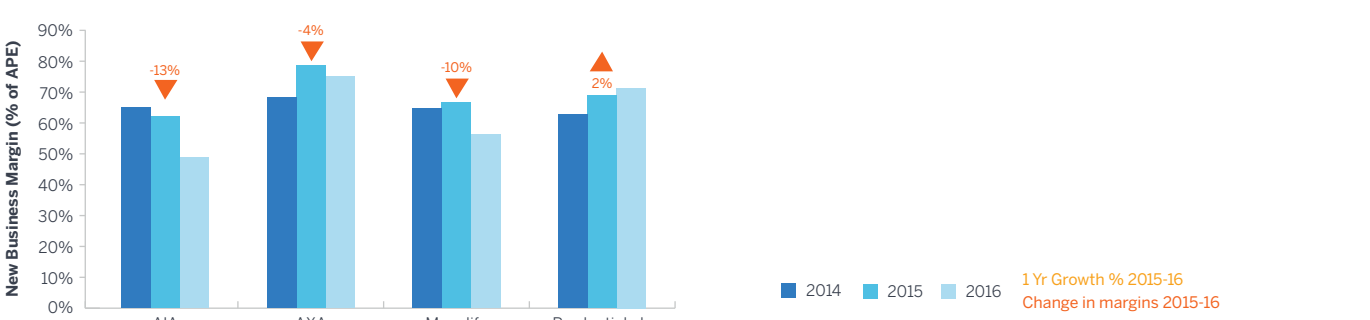
**FIGURE 38: REPORTED VNB OF HONG KONG INSURANCE OPERATIONS, 2014-2016**



**FIGURE 39: APE OF HONG KONG INSURANCE OPERATIONS, 2014-2016**



**FIGURE 40: REPORTED NEW BUSINESS MARGIN(% OF APE) OF HONG KONG INSURANCE OPERATIONS, 2014-2016**



57 Dah Sing's public EV disclosures include its subsidiary Macau Life, which is not separately disclosed.

Only two insurers currently disclose EV results for their Hong Kong operations separately, namely AIA and Dah Sing. AXA previously disclosed its Hong Kong EV results up to FY2015, but stopped this for FY2016, opting to only provide VNB results instead. Prudential and Manulife also disclose Hong Kong VNB and new business margins.

AIA reported a 20.0% increase in its VIF, whereas Dah Sing reported a 7.0% increase. For insurers with sufficient scale or those operating successfully in profitable niches, new business margins in Hong Kong have been amongst the highest in Asia (as can be seen by Figure 40 above). The picture has been complicated somewhat in recent years by the prevalence of 'guarantee lite', high illustrative return participating product sales in the market. The high illustrative returns are typically predicated on historical mean reverting bond yield and aggressive equity return assumptions. If this positive investment environment does indeed return, then the published margins are likely to be proven broadly right. If it does not return then life insurers will undoubtedly look to cut policyholder dividends and bonuses and, as a result, ultimate profitability will be determined by the extent to which this is allowed, considering the illustrations and advice provided at point of sale. This is a situation that has played out in many markets around the world in the past; not always to the benefit of the life insurance industry.

VNB results among the insurers were mixed, with AIA posting the highest figure of 43.0%. In contrast, AXA disclosed a decrease in its market-consistent VNB, which was mainly due to lower sales of certain unit-linked products, higher costs in the agency distribution channel and higher operating expenses, as well as higher interest rate volatility resulting in an increase in the time value of options and guarantees.

The life insurance sector benefitted from increased domestic demand and continued robust sales to mainland Chinese visitors to Hong Kong. According to the OCI, unweighted<sup>58</sup> mainland China new business premiums in the first nine months of 2016 stood at HKD 48.9 billion, accounting for 37.0% of the total unweighted insurance premiums for Q3 2016. By comparison, unweighted mainland China new business premiums were HKD 21.1 billion for the first nine months of 2015, and HKD 31.6 billion for the full year 2015. The OCI has opted not to reveal mainland China visitor new business premiums for the full year 2016.

The Chinese authorities increased restrictions on such sales by banning all customers from using UnionPay to buy investment-related insurance products in Hong Kong from October 2016. Additionally, since January 2017 Chinese banks are required to restrict customers from purchasing foreign currency for certain transactions, including purchasing insurance products.

There has been an overall rise in APE for 2016, with AIA reporting the highest increase of 82.0%, followed by Manulife and Prudential with increases of 34.0% and 32.0% respectively. On the other hand, AXA and Dah Sing reported slight decreases in APE over 2015 of 1.0% and 5.0% respectively. According to the OCI, Hong Kong revenue premiums of individual life and annuity (non-linked) business increased by 36.2% to HKD 344.9 billion, whereas individual life and annuity (linked) business decreased by 28.9% to HKD 28.6 billion.

In the previous full-year report, we noted that the 2015 new business margins were very similar among the four life insurers reporting separate results for Hong Kong, despite their reporting on a range of different TEV/EEV/MCEV bases across different product and distribution strategies. In 2016, AIA and Manulife both recorded falls in new business margin by more than 10.0% to 49.0% and 56.0%, respectively; the lowest since 2014. AIA explained that the lower margins are due to 'increased sales of long-term participating products',<sup>59</sup> while Manulife attributed it to 'a less favourable business mix and the unfavourable impact of interest rate movements'.<sup>60</sup>

58 Unweighted new business premium refers to the sum of all first-year premiums and single premiums of new insurance policies sold during the period.

59 Source: AIA 2016 Annual Report.

60 Source: Manulife 2016 Embedded Value Report.

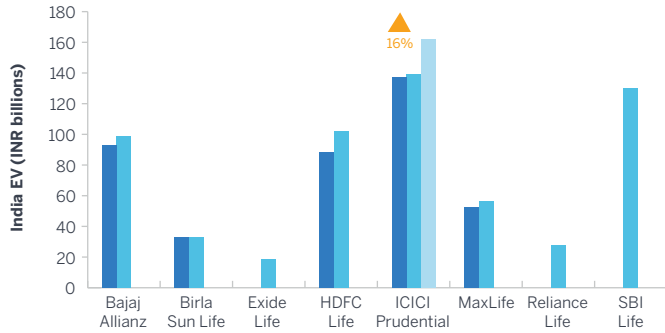
On the regulatory front, as part of phase 2 of the development of the RBC regime, the OCI rolled out its QIS in the first quarter of 2017, after hiring consulting support. Detailed rules will be drafted and another round of consultation will be conducted after the QIS. Whilst it is premature to speculate on 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 new rules are not expected to be introduced before 2020, however.

Hong Kong's new insurance regulator, the Independent Insurance Authority (IIA), officially took over from the OCI by starting operations on 26 June 2017. One of the first tasks of the IIA is to work closely with the CIRC on the regulation of sales of insurance products to mainland Chinese visitors.

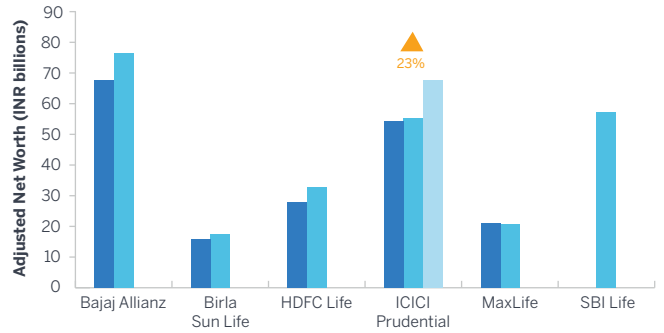


**INDIA**

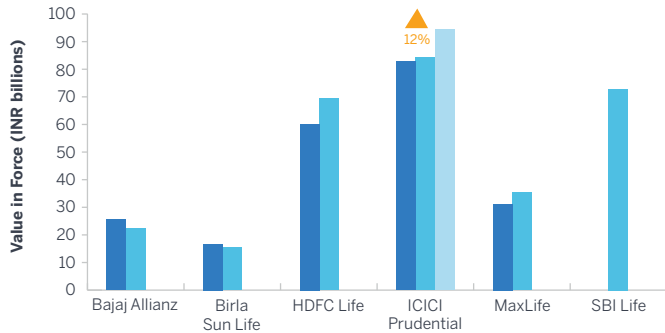
**FIGURE 41: REPORTED EV OF INDIAN INSURANCE OPERATIONS, 2014-2016**



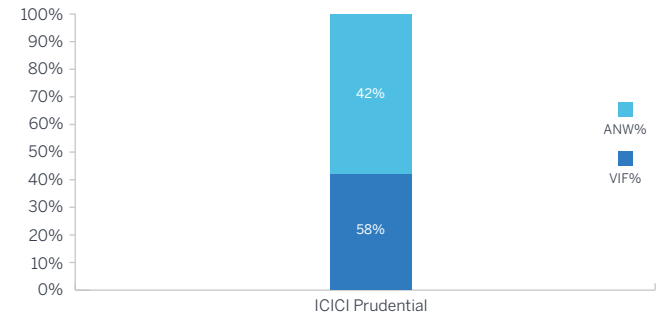
**FIGURE 42: REPORTED ANW OF INDIAN INSURANCE OPERATIONS, 2014-2016**



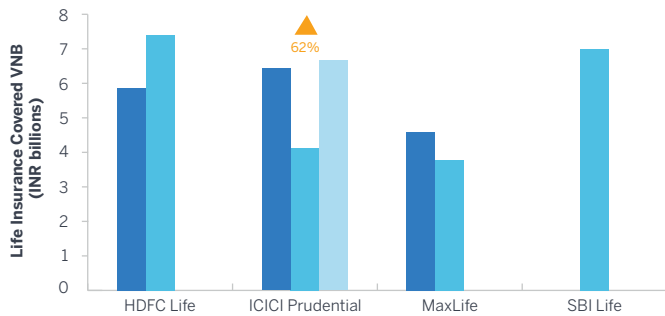
**FIGURE 43: REPORTED VIF OF INDIAN INSURANCE OPERATIONS, 2014-2016**



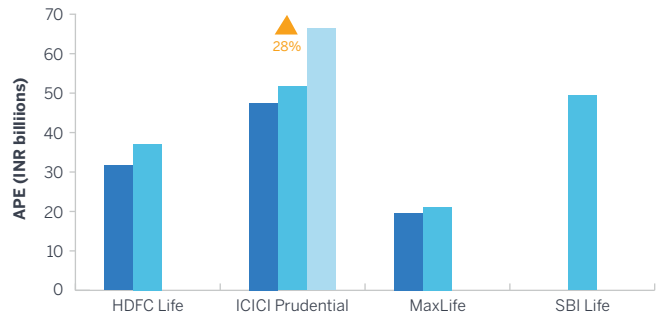
**FIGURE 44: REPORTED VIF/ANW SPLIT OF INDIAN INSURANCE OPERATIONS, 2014-2016**



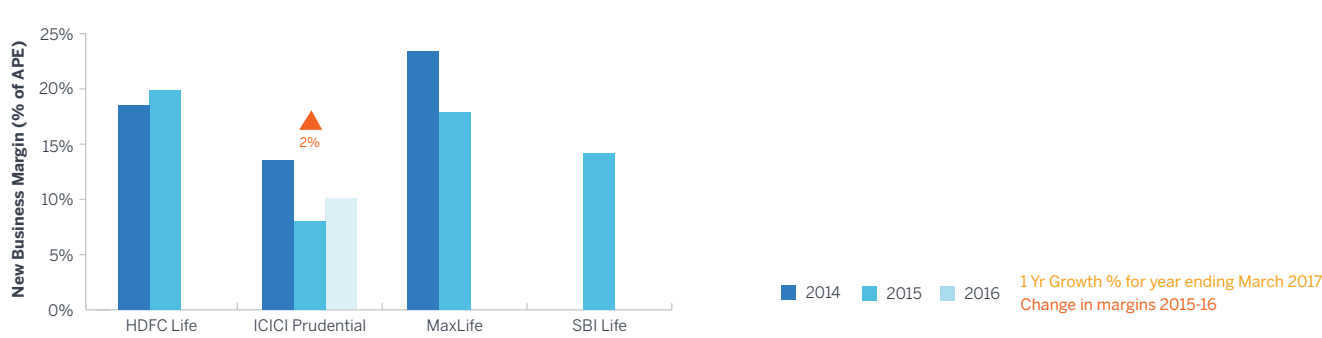
**FIGURE 45: REPORTED VNB<sup>61</sup> OF INDIAN INSURANCE OPERATIONS, 2014-2016**



**FIGURE 46: REPORTED APE OF INDIAN INSURANCE OPERATIONS, 2014-2016**



**FIGURE 47: REPORTED NEW BUSINESS MARGIN<sup>62</sup> OF INDIAN INSURANCE OPERATIONS, 2014-2016**



61 For comparability, the VNB and NB margins for India in the charts are after the impact of expense overruns. Because Bajaj Allianz and Birla Sun Life do not disclose post-expense overrun results, their VNB disclosures were excluded from the charts. Further information can be found in the commentary.

62 For comparability, the VNB and new business margins for India in the charts are after the impact of expense overruns. Because Bajaj Allianz and Birla Sun Life do not disclose post-expense overrun results, their VNB disclosures were excluded from the charts. Further information can be found in the commentary.

Indian life insurer EV results for FY2016-17<sup>63</sup> apart from ICICI Prudential, have not been released in time for this report. Therefore, this analysis has been based on the FY2015-16 results. The revised Figures 41 to 47 containing the FY2016-17 results will be included in the upcoming '2017 Mid-Year Embedded Value Results – Asia (excl. Japan)' report to be published later in the year. Notably, three Indian insurers, Exide Life, Reliance Life and SBI Life, publicly disclosed their EV results for the first time for FY2015-16.

EV/VNB reporting in India has the most divergence in methodologies adopted of any market in the region. Some companies, such as Birla Sun Life and Reliance Life, have chosen to prepare disclosures using TEV methodology. Other insurers such as Bajaj Allianz, Exide Life, HDFC Standard Life, ICICI Prudential, Max Life and SBI Life use market-consistent approaches. ICICI Prudential's latest disclosures were in accordance with the Actuarial Practice Standard 10 (APS10), using IEV methodology. Max Life uses a market-consistent approach, but with a clear statement that it was 'not intended to be compliant with the MCEV Principles ... or the APS10'.

New business margins have typically been reported in the range of 8% to 20% using the various methodologies and after allowing for the impact of acquisition expense overruns. Interestingly, most companies now disclose VNB and new business margins after expense overruns, in contrast to a few years ago, where it was common for companies to only disclose VNB and new business margins before expense overruns. On the other hand, Bajaj Allianz and Birla Sun Life have not disclosed overrun information. We have therefore revised the VNB and new business margin charts above to show post-overrun figures only.

The main changes to disclosed VNB and new business margins were as follows:

- HDFC Life disclosed a post-overrun VNB of INR 7.4 billion and new business margin of 19.9% in FY2015-16, which was an improvement from the post-overrun VNB of INR 5.84 billion and margin of 18.5% in FY2014-15.
- Max Life's VNB reduced from INR 4.23 billion in FY2014-15 to INR 3.78 billion in FY2015-16, with the new business margin decreasing from 21.5% to 17.9%.
- Having disclosed its EV results early, ICICI Prudential Life stated FY2016-17 post-overrun VNB of INR 6.66 billion and margin of 10.1%. The corresponding FY2015-16 post-overrun VNB and margin were INR 4.12 billion and 8.0%, respectively.
- Bajaj Allianz disclosed its FY2015-16 pre-overrun VNB of INR 1.6 billion and new business margin of 16.6%, which was slightly lower than the FY2014-15 pre-overrun VNB of 1.78 billion and new business margin of 18.1%.
- Birla Sun Life disclosed a VNB of INR 1.10 billion and new business margin of 15.2% for FY2015-16, compared with an FY2014-15 VNB of INR 1.09 billion and new business margin of 14.1%, but there is no statement as to whether the results reflect the impact of expense overruns.
- In its first EV disclosure, SBI Life disclosed a post-overrun VNB of INR 6.99 billion and a new business margin of 14.2% for FY2015-16.

In September 2016, ICICI Prudential Life became the first Indian life insurance company to be listed on the Indian stock exchanges through an IPO process. The IPO itself was over-subscribed by 10 times and the company's stock performance is being closely monitored by industry participants. Interestingly, the "price/EV" ratio of ICICI Prudential has been between 3.1 and 3.4, the highest among listed life insurers in Asia (refer to the 'Other measures of value: Market capitalisation' section of this report for more discussion on this ratio). As of March 2017, the implied new business multiplier for ICICI Prudential was approximately 58; lower than the 75 at time of listing mainly as a result of increases in VNB for the full FY2016-17. The actuarial disclosures by ICICI Prudential within the IPO process, which were prepared in accordance with APS10, are expected to set a new benchmark in EV reporting in the market and several insurers have already started taking steps to align their EV results to be consistent with APS10.

63 For the purposes of this report, FY2016-17 for India insurers represents the financial year ending 31 March 2017.

In early June 2017, the IRDAI announced its rejection of the proposed merger between HDFC Life and Max Life (a transaction involving Max Life's parent, which is already listed), because of a regulation that prevents the merger of an insurance company with a non-insurance company. Reports suggest one of the options now being considered by HDFC Life is to revert to its original IPO plans, which would then open up the possibility of a subsequent merger with Max Life.

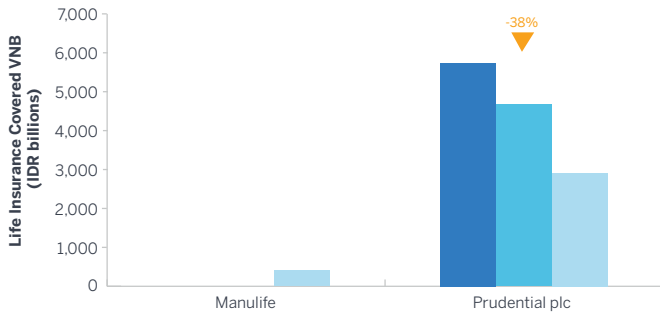
The IRDAI has suspended its proposal to make the listing of life insurers mandatory for the next two years. Following the passing of the Insurance Laws (Amendment) Act, IRDAI has released a number of new regulations exercising its new powers under the above-mentioned Act, including the following:

- IRDAI tightened its equity investment restrictions; insurers can now only invest in shares of listed companies that have paid no less than 10% dividends for last two years, instead of the earlier 4% in the last eight out of nine years.
- A new regulation regarding maximum commission/remuneration on single/regular premium payable to insurance agent/insurance intermediary was issued in December 2016. It came into force on 1 April 2017.

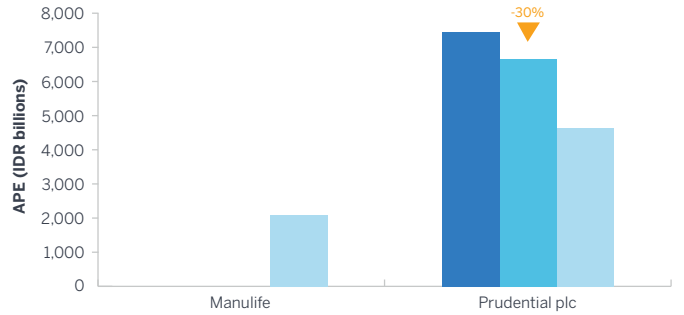
There has been a steady decline in the government yield curve over the past few years. In a surprise move, on 8 November 2016 the Indian government announced a demonetisation scheme, withdrawing the legal tender status of the Indian rupee notes denominated in 500 and 1,000. This was followed by a further reduction in interest rates in year-end 2016, although there has been some rebound in 2017. For more in-depth information on the impact of low interest rates on insurers in India, please refer to our e-Alert, available at: <http://in.milliman.com/uploadedFiles/insight/Periodicals/asia-ealert/asia-e-alert-falling-interest-rates-india.pdf>.

**INDONESIA**

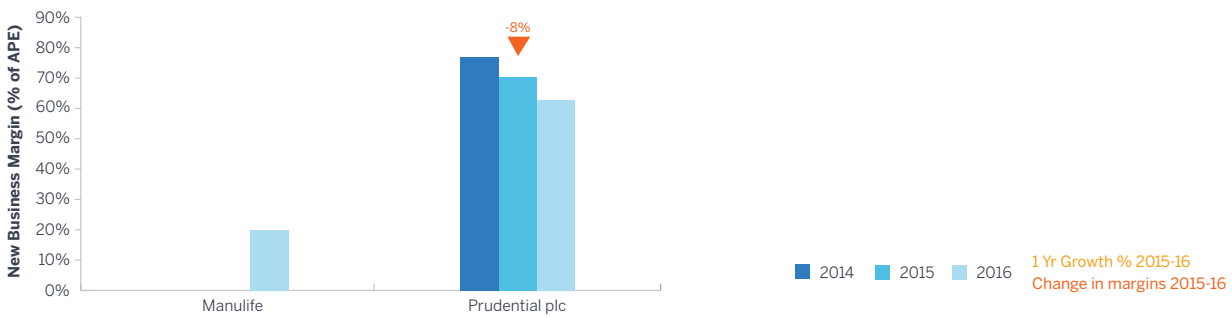
**FIGURE 48: REPORTED VNB<sup>64</sup> OF INDONESIAN INSURANCE OPERATIONS, 2014-2016**



**FIGURE 49: REPORTED APE<sup>65</sup> OF INDONESIAN INSURANCE OPERATIONS, 2014-2016**



**FIGURE 50: REPORTED NEW BUSINESS MARGIN OF INDONESIAN INSURANCE OPERATIONS, 2014-2016**



64 The values shown in Figure 48 have been determined based on VNB reported in EV disclosures converted to local currency using the prevailing exchange rate applicable at each reporting date (FY2014, FY2015 and FY2016). These figures are different from the disclosed VNB for Prudential in local currency terms, which is due to exchange rate differences, as VNB presented in EV disclosures have been converted based on average exchange rates rather than the prevailing exchange rate applicable at the reporting date.

65 The values shown in Figure 49 have been determined based on APE reported in EV disclosures converted to local currency using the prevailing exchange rate applicable at each reporting date (FY2014, FY2015 and FY2016). These figures are different from the disclosed APE for Prudential in local currency terms, which is 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.

It is still the case that no insurers publicly disclose EV figures for their Indonesian operations. Until 2015, Prudential had been the only insurer to report its VNB and new business margins for Indonesia, but Manulife also disclosed its 2016 VNB results for Indonesia this year.

For 2016, Prudential posted a marked decline in APE and VNB, in local currency terms,<sup>66</sup> of 25% and 33%, respectively. Prudential has attributed the results to ‘systemic challenges in the economy’.<sup>67</sup> Manulife’s total Indonesia APE sales for 2016 stood at USD 151 million, which included a 196% increase in its DBS APE sales from 2015 by moving from being part of a panel in an open architecture arrangement to being the bank’s exclusive life insurance partner. Manulife’s 2016 new business margin (20%) is substantially lower than Prudential’s (63%).

According to the life insurance industry association (the AAJI), the growth in total premium income was 29.8%, from IDR 128.7 trillion to IDR 167.0 trillion. This was broken down into a 48.3% increase in new business premium and a 7.5% increase in renewal premium.

The most significant piece of regulation in recent times remains the Insurance Law passed in September 2014, which mandates the spin-off of Shariah windows by 2024 and requires foreign companies to comply with the single presence policy, mandating that a single company can only become the controlling shareholder of one company of each type of insurance business (life, general, Shariah and reinsurance) by 2017. In 2016 Sun Life merged its two entities, CIMB Sun Life and Sun Life Indonesia, with the outcome that Sun Life is now compliant with the requirement. Press reports<sup>68</sup> suggest that AXA Indonesia, another entity affected by this rule, has been engaging in talks with the Indonesia regulator (the OJK) regarding this topic, although no further detail has been disclosed.

In December 2016, the OJK issued regulation no. 67/POJK.05/2016, which formalised deadlines for the implementation and submission of business plans for 1) the divestment of Shariah units, 2) the compliance of single presence policy requirements and 3) the compliance of a minimum local Indonesian shareholding requirement of 20%. This regulation also sets out increased capital requirements for newly established entities and existing companies upon a change in shareholdings (via takeover or addition of new shareholders), For life insurance companies, the minimum paid-up capital upon such events would be increased from IDR 100 billion to IDR 150 billion.

A further regulation, POJK no. 71/POJK.05/2016, introduces an internal target solvency level of at least 120% of RBC for insurers. POJK no. 69/POJK.05/2016 introduced rules around how an insurance company can expand its business scope by selling other financial services institutions’ non-insurance products.

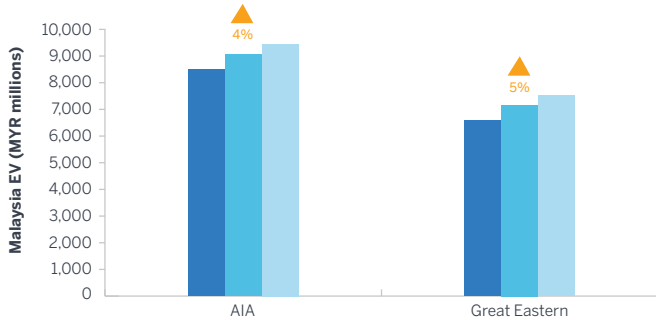
66 The disclosed 2016 APE and VNB growth for Prudential in IDR terms are different from the values shown in Figures 48 and 49. Please refer to note 62 on page 41 for further explanation

67 Source: Prudential plc 2016 Annual Report.

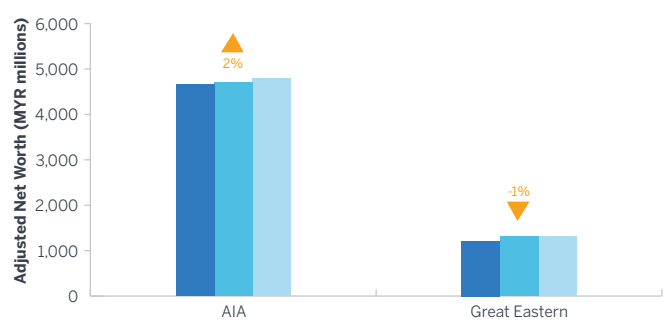
68 Source: <http://keuangan.kontan.co.id/news/axa-siapkan-opsi-kepemilikan-tunggal>.

**MALAYSIA**

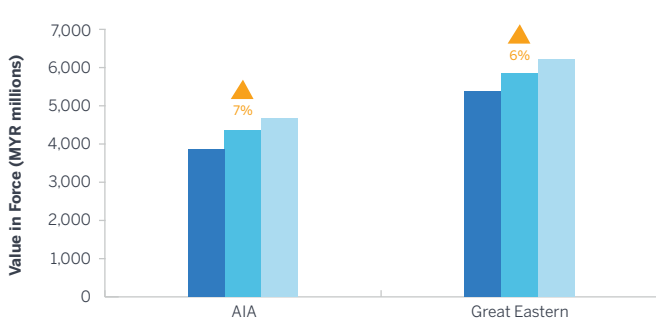
**FIGURE 51: REPORTED EV OF MALAYSIAN INSURANCE OPERATIONS, 2014-2016**



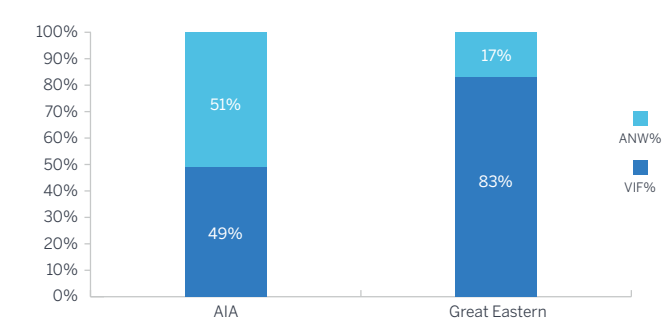
**FIGURE 52: REPORTED ANW OF MALAYSIAN INSURANCE OPERATIONS, 2014-2016**



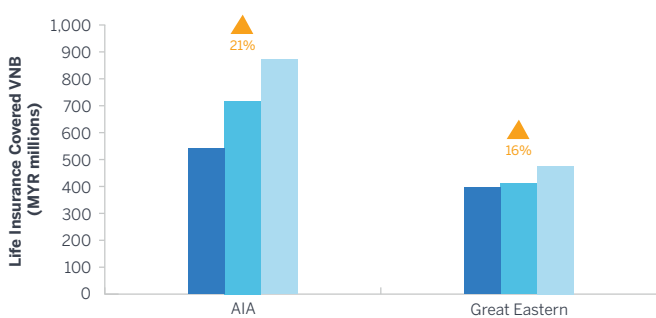
**FIGURE 53: REPORTED VIF OF MALAYSIAN INSURANCE OPERATIONS, 2014-2016**



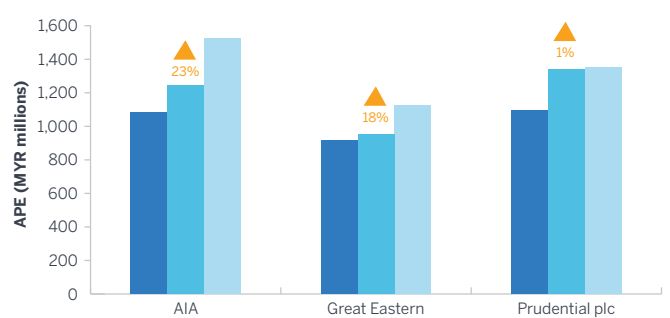
**FIGURE 54: REPORTED VIF/ANW SPLIT OF MALAYSIAN INSURANCE OPERATIONS, 2016**



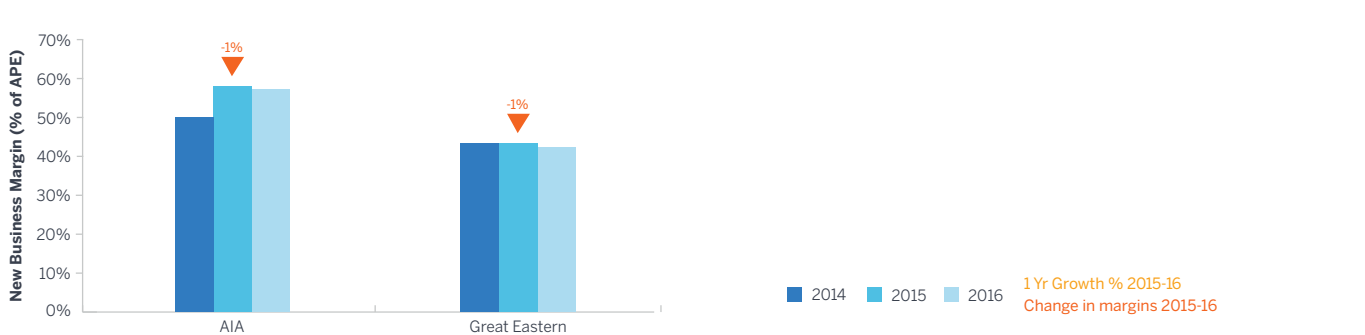
**FIGURE 55: REPORTED VNB<sup>69,70</sup> OF MALAYSIAN INSURANCE OPERATIONS, 2014-2016**



**FIGURE 56: REPORTED APE<sup>71</sup> OF MALAYSIAN INSURANCE OPERATIONS, 2014-2016**



**FIGURE 57: REPORTED NEW BUSINESS MARGIN OF MALAYSIAN INSURANCE OPERATIONS, 2014-2016**



69 Great Eastern Malaysia's VNB figure includes Great Eastern Takaful Berhad.

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

71 The values shown in Figure 56 have been determined based on APE reported in EV disclosures converted to local currency using the prevailing exchange rate applicable at each reporting date (FY2014, FY2015 and FY2016). These figures are different from the disclosed APE for AIA and Great Eastern Malaysia in local currency terms, which is 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 separately for Malaysia. Prudential Malaysia's results are not disclosed (they are part of an aggregated classification), although some of the underlying EV assumptions are provided. Great Eastern's risk discount rate was left unchanged for 2015 and 2016 at 9.0%, whereas investment return assumptions have been reduced to 5.6% from 6.0% for participating contracts, and to 4.8% from 5.0% for nonparticipating contracts. On the other hand, the investment assumption for investment-linked contracts remained unchanged at 7.0%. Prudential increased its risk discount rate assumptions marginally for new business and in-force business from 6.6% to 6.8% and from 6.7% to 6.9%, respectively. The 10-year bond yield assumption was increased to 4.3%, reflecting a similar increase in the 10-year government bond yield at the year-end (2015 Prudential assumption was 4.2%).

According to AIA and Great Eastern's disclosures, APE in MYR terms grew by 25.0%<sup>72</sup> and 18.0%, respectively, in 2016, while new business margins dropped slightly by 1% for both companies. The Life Insurance Association of Malaysia (LIAM) statistics showed the life insurance industry recorded healthy growth in 2016. In terms of new business APE, the industry grew by 16.2% in 2016, partly driven by the sale of products with shorter premium payment terms. However, the industry experienced a decline of 4.8% in group business.

Takaful, or Islamic insurance, continues to expand in Malaysia; according to Fitch Ratings the family Takaful industry grew by 9.8% in the first half of 2016 compared with 8.2% for conventional life insurance (unfortunately the measure used to calculate the growth rate was not defined). Family Takaful represents around two-thirds of the country's Takaful segment, and contributes around 30% of the overall life insurance market (conventional plus family Takaful), based on new business premiums in the first half of 2016. The industry is expecting further restructuring, as by the end of 2018 existing composite Takaful licenses are required to be separated into two capitalised legal entities (for family Takaful and general Takaful), in order to comply with the 'Financial Services Act 2013' and 'Islamic Financial Services Act 2013'.

Investment-linked business in Malaysia is typically packaged with protection riders. According to AIA's disclosures, much of its increase in VNB was due to growth in their agency distribution and combining protection cover and regular premium unit-linked savings with the addition of health and wellness solutions.

Participating fund management has been under close scrutiny by the regulator. Following the introduction of the new guidelines on the 'Management of Participating Life Business' which came into effect from 1 July 2016, companies in Malaysia have focused on aligning their practices with the new guidelines. This includes the definition of cohorts, the calculation of asset shares, the treatment of expense overruns in the participating fund, the use of the estate and the sustainability of bonus rates. We understand that the regulator has also asked companies to conduct an independent review of the asset share calculations in 2017.

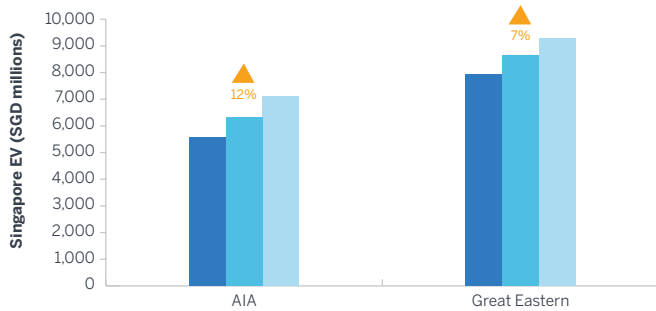
There are several news reports<sup>73</sup> suggesting that the Malaysia regulator is considering an enforcement of a strict 70% foreign ownership cap on insurers. If so this may impact several companies that were granted exemptions to this regulation in the past and that have structures where foreign insurers hold in excess of a 70% shareholding, with several holding 100%. This news has not been officially confirmed by the regulators but is a source of widespread discussion in the industry.

72 The disclosed 2016 APE growth for AIA and Great Eastern Malaysia in MYR terms are different from the values shown in Figure 56. Please refer to note 70 on page 44 for further explanation.

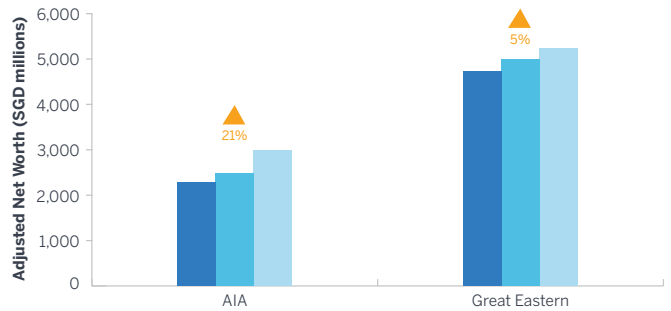
73 See, for example, <https://www.bloomberg.com/news/articles/2017-04-13-malaysia-said-to-mull-enforcing-cap-on-foreign-insurer-ownership>.

**SINGAPORE**

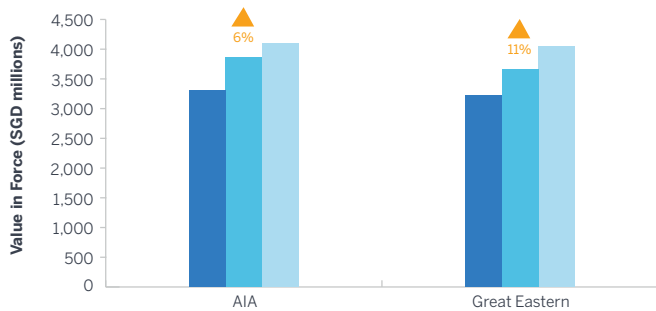
**FIGURE 58: REPORTED EV OF SINGAPOREAN INSURANCE OPERATIONS, 2014-2016<sup>74</sup>**



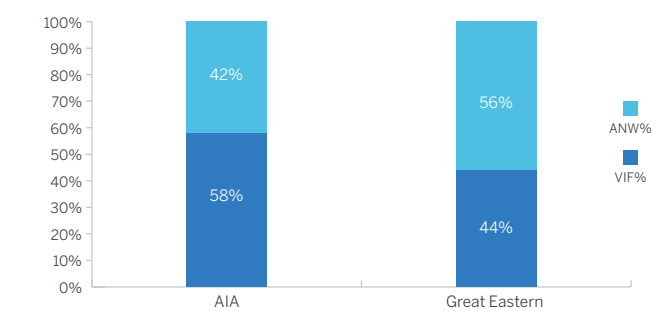
**FIGURE 59: REPORTED ANW OF SINGAPOREAN INSURANCE OPERATIONS, 2014-2016**



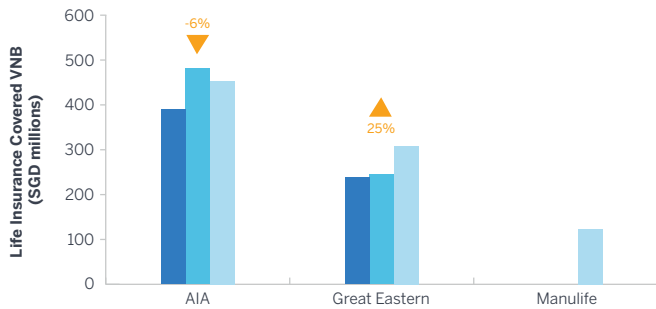
**FIGURE 60: REPORTED VIF OF SINGAPOREAN INSURANCE OPERATIONS, 2014-2016**



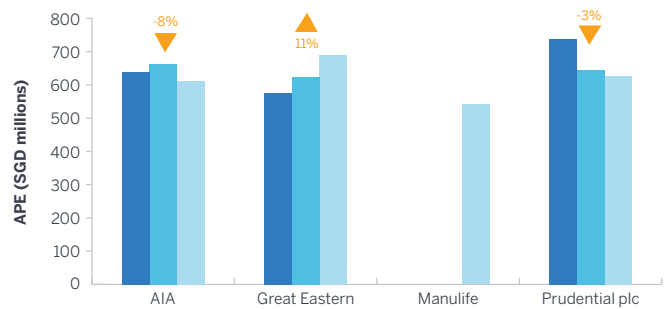
**FIGURE 61: REPORTED VIF/ANW SPLIT OF SINGAPOREAN INSURANCE OPERATIONS, 2016**



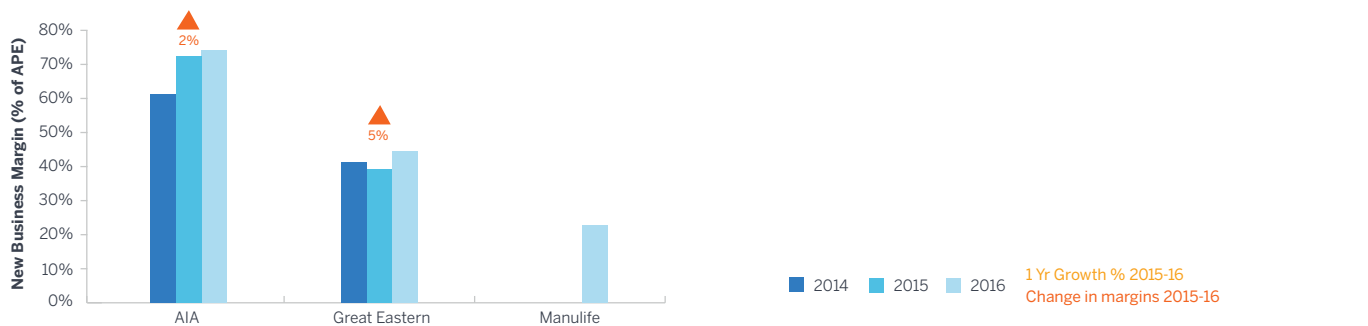
**FIGURE 62: REPORTED VNB OF SINGAPOREAN INSURANCE OPERATIONS, 2014-2016**



**FIGURE 63: REPORTED APE<sup>75</sup> OF SINGAPOREAN INSURANCE OPERATIONS, 2014-2016**



**FIGURE 64: REPORTED NEW BUSINESS MARGIN OF SINGAPOREAN INSURANCE OPERATIONS, 2014-2016**



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

75 The values shown in Figure 63 have been determined based on APE reported in EV disclosures converted to local currency using the prevailing exchange rate applicable at each reporting date (FY2014, FY2015 and FY2016). These figures are different from the disclosed APE for Prudential and AIA Singapore in local currency terms, which is 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.



Great Eastern and AIA were the only two insurers that reported their EV and VNB results separately for Singapore until last year. Manulife has also disclosed separate VNB figures for Singapore for the first time this year. The risk discount rates for AIA and Great Eastern have remained unchanged at 6.90% and 7.25%, respectively, while the risk discount rates of Prudential have decreased from 5.1% to 5.0% for in-force business and from 4.3% to 4.2% for new business. The investment return assumptions for Great Eastern (5.25% for participating, 4.00% for nonparticipating and 6.00% for investment-linked business) and AIA (7.0% for equity, 2.5% for 10-year government bond yields) were left unchanged. Prudential decreased its equity yield assumption and 10-year government bond yield assumption from 8.6% to 8.5% and 2.6% to 2.5%, respectively.

Great Eastern, which reports results in SGD, saw its Singapore APE increase by 11% in 2016. Meanwhile, Prudential disclosed a 1% increase in its SGD APE,<sup>76</sup> driven by 'increased agent activations and a recovery in bancassurance sales', while AIA disclosed a 9% fall in SGD APE which was due to lower single premium sales through the financial adviser channel. Manulife's APE has increased by more than 400% since 2014, mainly due to its new bancassurance partnership with DBS.

The difference in new business margin between AIA, Great Eastern and Manulife can likely be attributed to differences in product mix, with AIA writing a greater proportion of investment-linked and protection business (including riders), and Manulife writing greater volumes of participating and universal life business. Another factor is probably the higher unit expenses incurred by Manulife compared to the two larger, more established players in the market.

On the regulatory front, 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. This has the potential to spur additional innovation in product development in Singapore. For more information on these guidelines, please refer to our e-Alert at <http://www.milliman.com/uploadedFiles/insight/Periodicals/asia-ealert/singapore-online-distribution-life-policies.pdf>. Following the issue of the new guidelines, FWD and Etiqa have expanded their suites of online life insurance products.

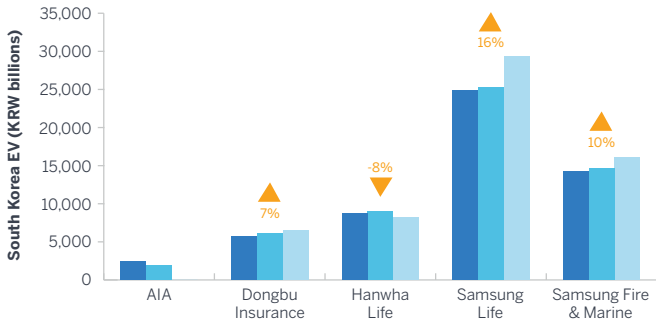
In July 2016, the regulator released the third consultation paper for RBC 2 and conducted its second QIS 2 to evaluate the impact of the RBC 2 proposals. The proposed changes within QIS 2 have been accepted within the industry given the less stringent risk charges compared with the previous QIS 1, which was performed in 2014. The main changes relate to a greater allowance for diversification and the relaxation of the matching adjustment (MA) criteria. MAS has since indicated that it will be working with the industry to fine-tune some of the components prior to finalisation of the framework although no additional QIS is expected in 2017.

For more information on RBC 2, please refer to our e-Alert at [http://sg.milliman.com/uploadedFiles/insight/Periodicals/asia-ealert/20160914\\_asia-e-alert-singapore-rbc2-review-third-consultation.pdf](http://sg.milliman.com/uploadedFiles/insight/Periodicals/asia-ealert/20160914_asia-e-alert-singapore-rbc2-review-third-consultation.pdf).

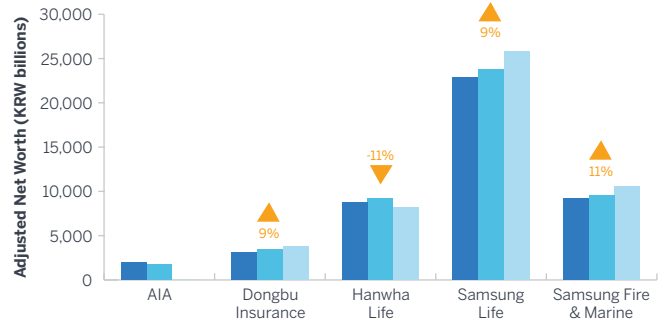
<sup>76</sup> The disclosed 2016 APE growth for Prudential and AIA Singapore in SGD terms are different from the values shown in Figure 63. Please refer to note 74 on page 46 for further explanation.

**SOUTH KOREA**

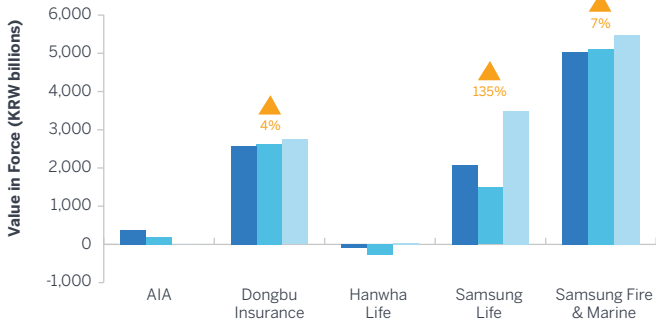
**FIGURE 65: REPORTED EV OF SOUTH KOREAN INSURANCE OPERATIONS, 2014-2016<sup>77</sup>**



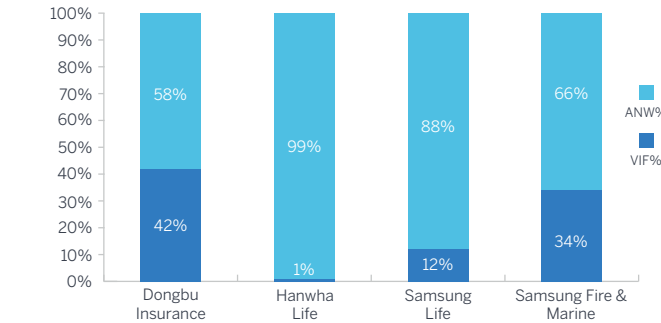
**FIGURE 66: REPORTED ANW OF SOUTH KOREAN INSURANCE OPERATIONS, 2014-2016**



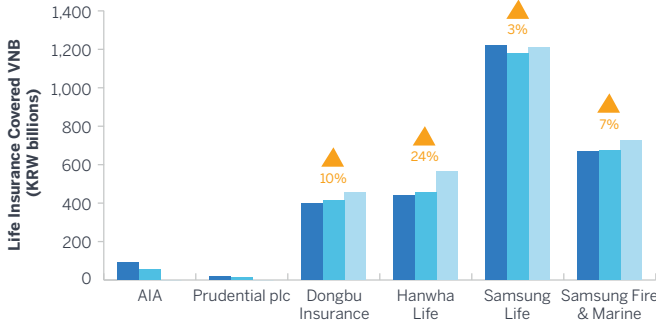
**FIGURE 67: REPORTED VIF OF SOUTH KOREAN INSURANCE OPERATIONS, 2014-2016<sup>78</sup>**



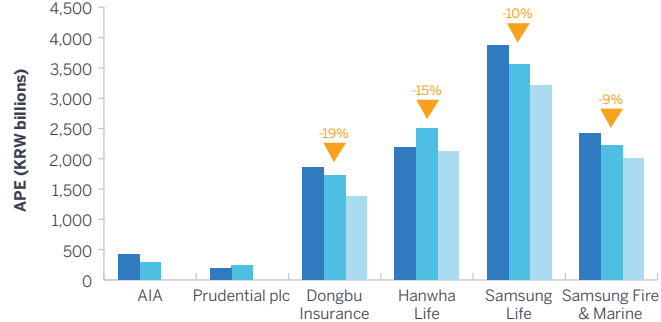
**FIGURE 68: REPORTED VIF/ANW SPLIT OF SOUTH KOREAN INSURANCE OPERATIONS, 2016**



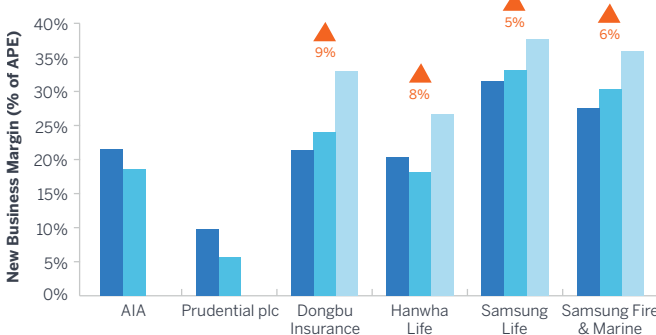
**FIGURE 69: REPORTED VNB OF SOUTH KOREAN INSURANCE OPERATIONS, 2014-2016**



**FIGURE 70: REPORTED APE OF SOUTH KOREAN INSURANCE OPERATIONS, 2014-2016**



**FIGURE 71: REPORTED NEW BUSINESS MARGIN OF SOUTH KOREAN INSURANCE OPERATIONS, 2014-2016**



■ 2014 ■ 2015 ■ 2016 1 Yr Growth % 2015-16  
Change in margins 2015-16

77 Hanwha Life did not disclose the EV following dividends and share repurchases in 2016. As such, the values in Hanwha Life's EV are all prior to dividends and share repurchases in order to provide comparability year on year.  
78 Hanwha Life has negative VIF in year 2014 and year 2015.

Our South Korea analysis has been based on the EV and VNB results of Dongbu Insurance, Hanwha Life, Samsung Life and Samsung Fire & Marine. AIA and Prudential have not reported their EV and VNB results for South Korea separately for FY2016, with Prudential having sold its South Korea business in November 2016, although its previous results are shown here for reference. All of these companies have reduced their risk discount rates and investment return assumptions during 2016. It is important to note that Dongbu 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.

All Korean insurers except Hanwha Life reported an increase in their ANW, while VIF results have stayed roughly the same, with the only exception being Samsung Life, which posted a significant increase of 135% in VIF, driven by favourable operating variance, changes in actuarial assumptions and strong VNB growth. The latter was despite the material fall in APE in 2016, reflecting an increased focus on selling higher margin protection products.

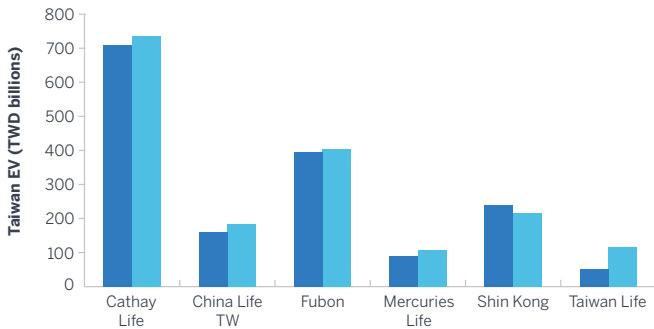
South Korean insurers, similar to those in other more developed economies around the world, are finding the sustained low interest rate environment particularly challenging. Insurers, which have large portfolios of savings and investment type products, continue to be adversely affected by the low interest rates, with 2016 representing another year where the interest margins (the difference between actual investment returns achieved and those assumed for pricing) were negative.

In April 2016, Financial Services Commission (FSC) relaxed measures on asset management, which expands the boundary of investment in foreign securities. Previously, local insurers could invest only in foreign securities with credit ratings set by international credit rating agencies such as S&P. Following this, foreign securities that are approved and qualified by other credit rating agencies could be purchased as well.

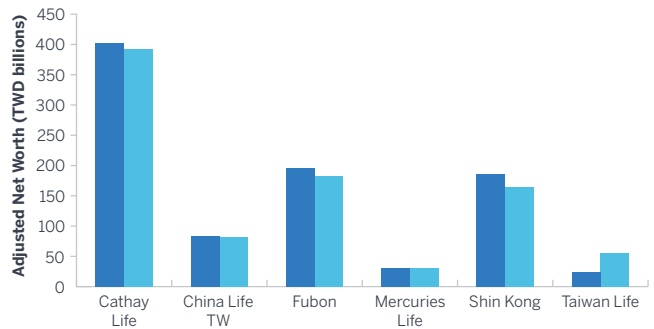
In 2011, the South Korean regulator published 'Roadmap for the Advancement of Solvency Regulation', which sets the planned solvency regime changes up to 2018. As reported last year, Korean insurers will continue to follow the plan to meet the solvency requirements and reserve requirements of IFRS 17.

**TAIWAN**

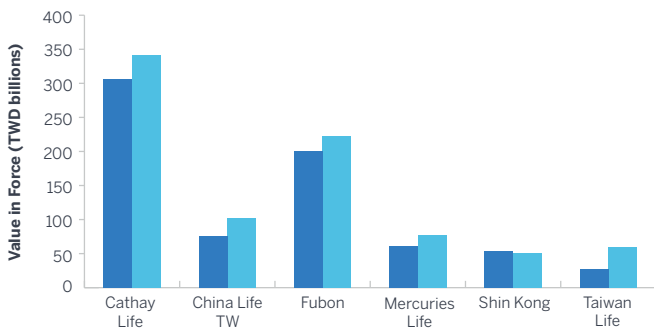
**FIGURE 72: REPORTED EV OF TAIWANESE INSURANCE OPERATIONS, 2014-2015**



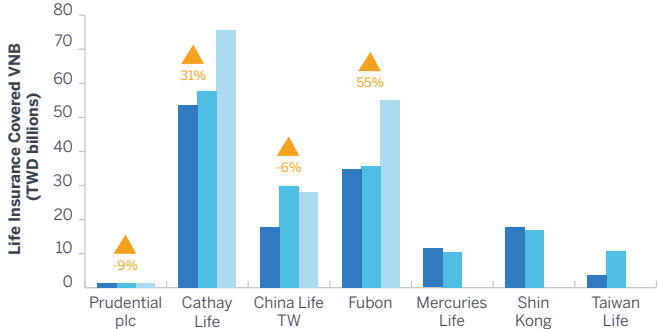
**FIGURE 73: REPORTED ANW OF TAIWANESE INSURANCE OPERATIONS, 2014-2015**



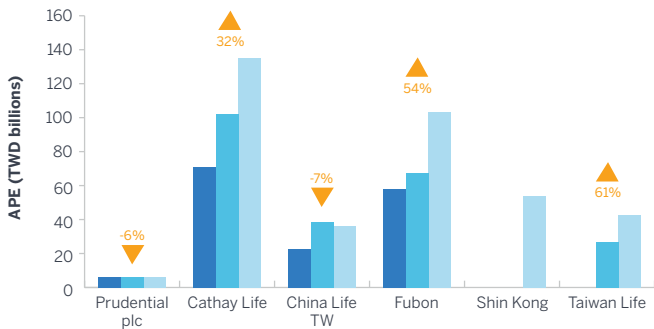
**FIGURE 74: REPORTED VIF OF TAIWANESE INSURANCE OPERATIONS, 2014-2015**



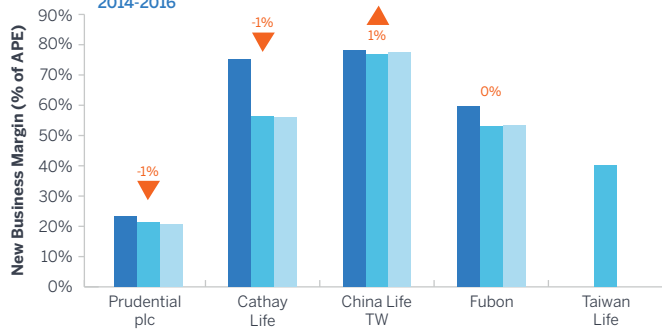
**FIGURE 75: REPORTED VNB OF TAIWANESE INSURANCE OPERATIONS, 2014-2016**



**FIGURE 76: REPORTED APE<sup>79</sup> OF TAIWANESE INSURANCE OPERATIONS, 2014-2016**



**FIGURE 77: REPORTED NEW BUSINESS MARGIN OF TAIWANESE INSURANCE OPERATIONS, 2014-2016**



■ 2014 ■ 2015 ■ 2016  
 ▲ 1 Yr Growth % 2015-16  
 ▼ Change in margins 2015-16

79 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.

Domestic life insurance companies in Taiwan did not disclose their 2016 EV results before our data cut-off date of 3 May 2017, although several companies did disclose their 2016 VNBs.<sup>80</sup> Full 2016 Taiwan results will be presented in the mid-year EV report to be published at the end of this year.

Prudential only disclosed its VNB and APE results for Taiwan, while AIA Taiwan's results are not disclosed separately (they are part of an aggregated classification). In October 2015, CTBC Financial completed its acquisition of Taiwan Life, merging the company with its existing subsidiary CTBC Life (keeping the 'Taiwan Life' name).

The 2016 VNB results for Fubon Life and China Life TW were based on 2015 EV assumptions but using updated new business sales figures. Prudential and China Life TW reported a fall in VNB, whereas Cathay Life and Fubon Life reported an increase. Fubon's VNB increased by 55% for the year ending 2016.

Prudential has slightly increased its risk discount rate assumption for in-force business from 3.9% to 4.0% and its 10-year government bond yield assumption from 1.0% to 1.2%. The domestic life insurers in 2015 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 1.21% at the end of 2016, up from 1.02% at the end of 2015. 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 wide 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 93 on page 59.

Taiwan's life insurance market for years has been characterised by in-force blocks of business with high investment guarantees and low domestic fixed interest yields. Most life insurers have large foreign investment holdings to try to enhance investment yield. Overseas investments accounted for over 60% of life insurers' invested assets as of end of March 2017. The recent strong appreciation of the Taiwan dollar against the US dollar (by about 7.0% in Q1 2017) has put pressure on Taiwan insurers, however. Although life insurers have managed their currency risks with tools such as currency swaps and proxy hedging, they have also been releasing foreign-exchange volatility reserves to offset the impact of currency loss to their financial statements. We understand many insurers have practically exhausted these reserves leaving little buffer for the future.

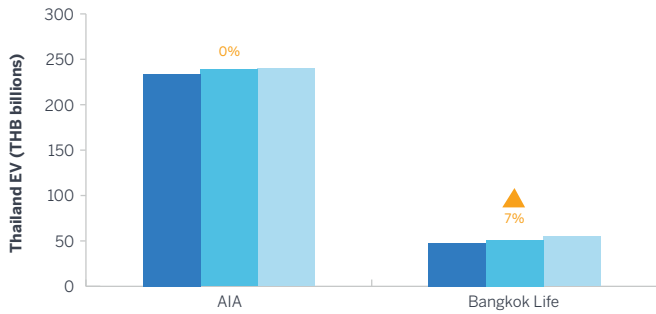
The Taiwan regulator is developing a new RBC framework. There is a QIS being undertaken which all insurance companies are required to complete by the end of June 2017. There will be subsequent studies in the next couple of years before the new RBC 2 framework is finalised.

As the International Accounting Standards Board (IASB) published its new IFRS 17 standard on 18 May 2017, Taiwan insurance companies are also starting to prepare for the implementation of IFRS 17 given the expected adoption date of 1 January 2021.

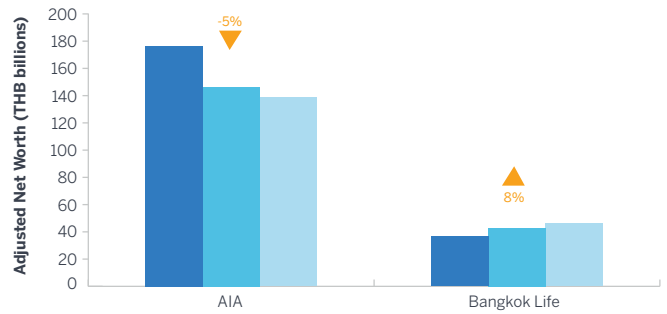
80 Note: Fubon Life and China Life TW have disclosed their VNBs for 2016 based on 2015 EV assumptions.

**THAILAND**

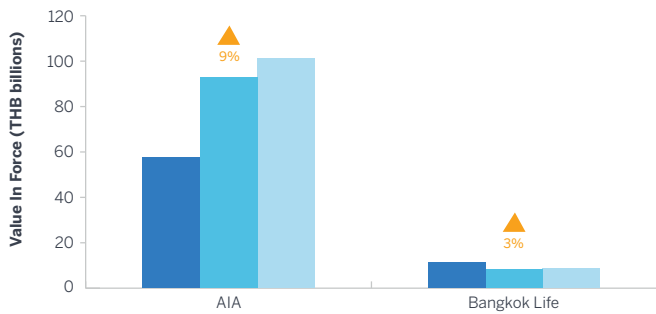
**FIGURE 78: REPORTED EV OF THAILAND INSURANCE OPERATIONS, 2014-2016**



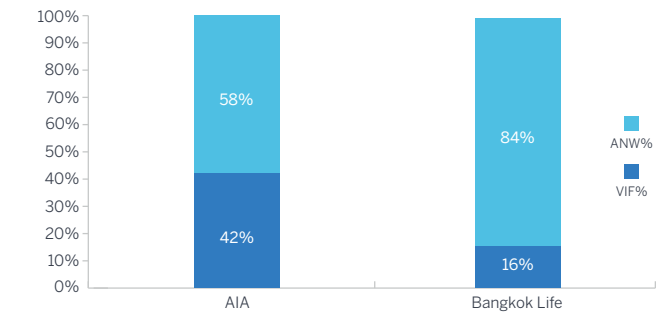
**FIGURE 79: REPORTED ANW OF THAILAND INSURANCE OPERATIONS, 2014-2016**



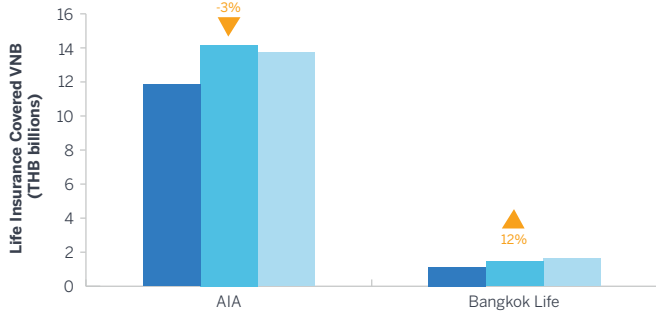
**FIGURE 80: REPORTED VIF OF THAILAND INSURANCE OPERATIONS, 2014-2016**



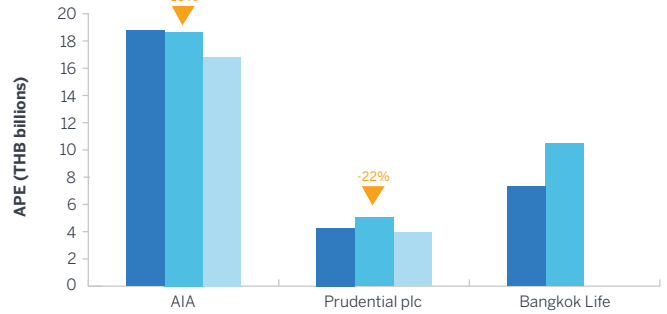
**FIGURE 81: REPORTED VIF/ANW SPLIT OF THAILAND INSURANCE OPERATIONS, 2016**



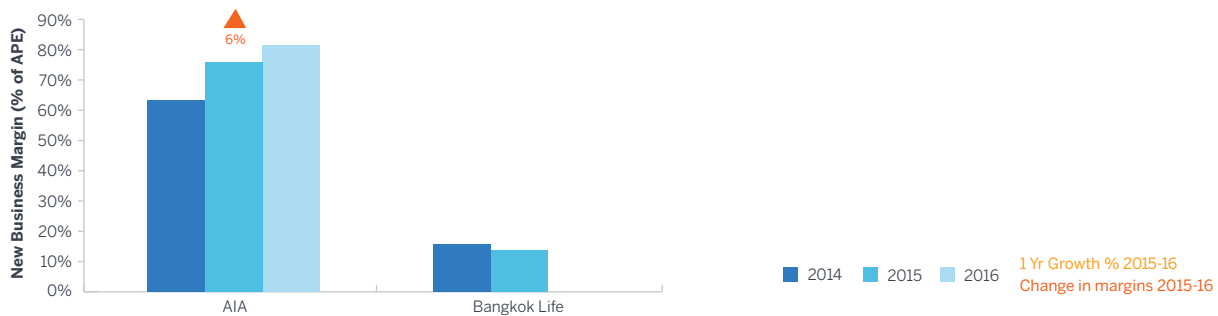
**FIGURE 82: REPORTED VNB OF THAILAND INSURANCE OPERATIONS, 2014-2016**



**FIGURE 83: REPORTED APE OF THAILAND INSURANCE OPERATIONS, 2014-2016<sup>81</sup>**



**FIGURE 84: REPORTED NEW BUSINESS MARGIN OF THAILAND INSURANCE OPERATIONS, 2014-2016<sup>82</sup>**



81 Bangkok Life 2016 APE has not been disclosed.  
82 Ibid.

AIA and Bangkok Life are the only companies to have disclosed EV and VNB results in recent years in Thailand. The 2016 EV results for Prudential are not disclosed (they are part of an aggregated classification), but there is some disclosure of the underlying EV assumptions. Bangkok Life did not disclose its new business APE for 2016.

Fluctuations in fixed interest yields seriously impacted life insurance companies in Thailand during 2016. The market experienced sharp declines in medium and longer-dated government bond yields in the early part of the year to very low levels, before a recovery in yields in the latter part of 2016, particularly following the US election results, as evidenced by Figure 85. The low fixed interest yield environment in the first half of 2016 resulted in increases in gross premium valuation reserves and interest rate risk charges for several players. Whilst there has been some yield pick-up, bond yields remain at historically low levels.

**FIGURE 85: HISTORICAL 10-YEAR THAILAND GOVERNMENT BOND YIELDS**



Source: The Thai Bond Market Association.

AIA cut its long-term equity return assumption, long-term 10-year government bond yield assumption and risk discount rate by 20 bps to 9.00%, 3.20% and 8.60%, respectively. Bangkok Life's investment return assumption and risk discount rate were unchanged at 4.25% and 9%, respectively. In contrast, Prudential Thailand increased its long-term 10-year government bond yield assumption by 20 bps to 2.7% and its risk discount rate from 9.3% to 9.4%. AIA's VNB margin rose from 75.8% for 2015 to 81.5% for 2016, citing continuing success in selling higher-margin protection products and capital-efficient unit-linked products.

AIA's ANW fell by 5% in 2016, whilst VIF increased by 9% in 2016, leading to an FY2016 EV at a broadly similar level to FY2015. The increase in VNB margin was offset by lower new business volumes, which were due to a period of reduced activity at the end of the financial year during the mourning period following the passing away of King Bhumibol Adulyadej. This resulted in a slight fall in VNB. AIA has achieved some success in selling unit-linked products through its agency force, with its market share of unit-linked business around 90% based on reported premiums in 2016, accounting for over 15% of 2016 VNB.<sup>83</sup>

In contrast, Bangkok Life reported an increase of 8.0% and 3.0% in ANW and VIF, respectively, in 2016, resulting in an increase in EV of 7.0% during 2016. The company's sensitivity analyses show, not surprisingly, that its VIF is especially sensitive to the investment return assumptions, with a 25 bps fall leading to a 39.0% drop in VIF. Bangkok Life did not change its risk discount rate and investment return assumptions in 2016.

83 Source: AIA 2016 Annual Report.

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 in Thailand 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 the directors of the company. In order to be eligible to apply for permission, a foreign entity or shareholder must satisfy a number of conditions, including:

- Be either an insurance company, or one that supports, or is very clearly related to the insurance sector.
- Have at least 10 years of experience in the insurance sector.
- Be financially stable with a credit rating of at least 'A', issued by a respected international agency. If the foreign shareholding company does not have such a rating, its parent must have the ability to ensure a clear, well-structured and systematic method by which business operations are handled, and must have clear plans to transfer technology for the development of its insurance business in Thailand.
- Be sufficiently financially capable to help support, stabilise and develop its Thai insurance company and the insurance industry.

If the Finance Minister grants an application to a foreign entity or shareholder, the insurance company will be required to maintain an available capital of at least THB 1 billion (non-life insurer) or at least THB 4 billion (life insurer). Foreign entities or shareholders that fulfil the criteria may send their applications and associated documents to the Office of Insurance Commission (OIC) for consideration. The OIC will evaluate the documents received and may make further information requests. Within 90 days after deeming the submissions complete, the OIC will make a recommendation on whether the Finance Minister should grant the application. Within 90 days of receiving the OIC's recommendation, the Finance Minister will either grant or deny the application.

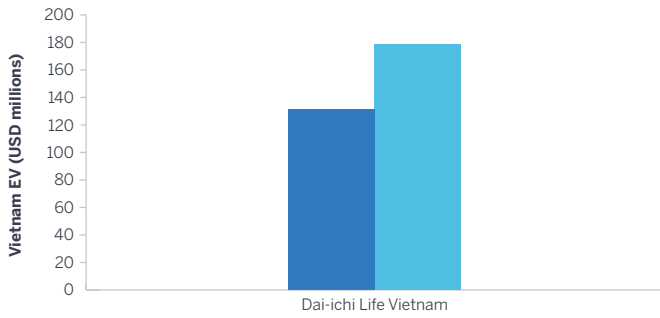
At the end of 2016, the OIC released the findings of the first QIS 1 for the revised RBC framework, RBC 2. The QIS 1 findings showed that the proposed RBC 2 regime would have resulted in significantly more onerous capital requirements for the industry, with market risk charges and credit risk charges being the major determinants of capital adequacy. A subsequent QIS 2, is being carried out in the second quarter of 2017, with some changes proposed to the QIS 1 framework based on the study findings and industry feedback. For debt securities, in addition to the existing default risk charge, the proposed QIS 2 framework introduces specific risk; a risk that can be diversified, unlike systematic risk. The operational risk charge, a new risk charge category that was introduced during QIS 1, is quantified as 1% of gross premium and, unlike in QIS 1, does not take into account the gross policy liability. The effect of diversification for market risk, which is present in the current RBC rules, was reintroduced in QIS 2. For insurance risk charge, some shock parameters have been revised in QIS 2. For the short-term premium liability risk charge, as in the existing RBC framework, credit is given for the excess of unearned premium reserves over the fair value of unexpired risk reserves. As in QIS 1, three confidence levels, namely 95.0%, 97.5% and 99.5%, are being tested in QIS 2. The results of the QIS 2 exercise are due to be released by the end of 2017.

The OIC has issued new notification, which will be effective from August 2017 covering the procedures for offering insurance policies through electronic channels and paying compensation for claims through such channels. These changes will help in reducing the time spent between acceptance of a proposal and issuance of the policy.

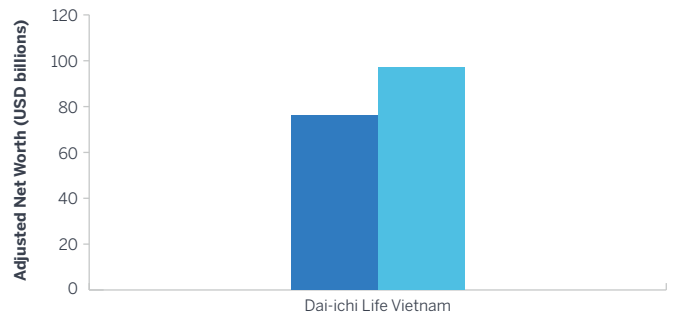


**VIETNAM**

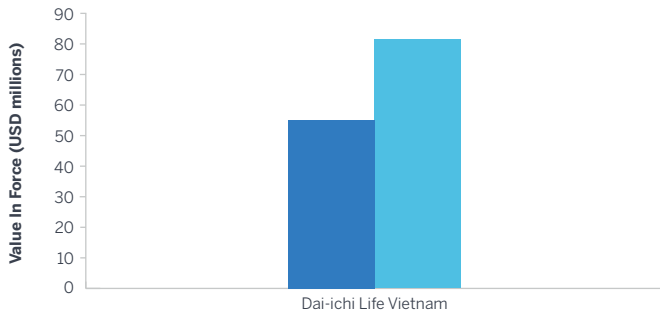
**FIGURE 86: REPORTED EV OF VIETNAM INSURANCE OPERATIONS, 2014-2015**



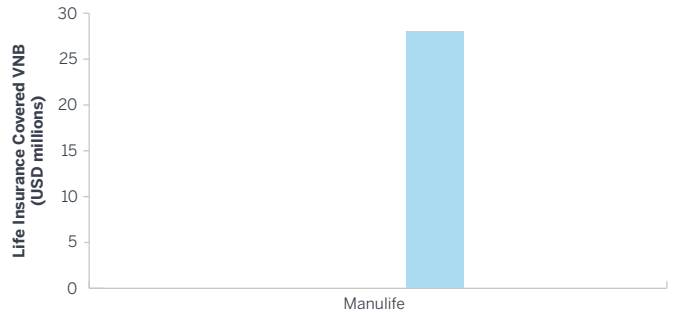
**FIGURE 87: REPORTED ANW OF VIETNAM INSURANCE OPERATIONS, 2014-2016**



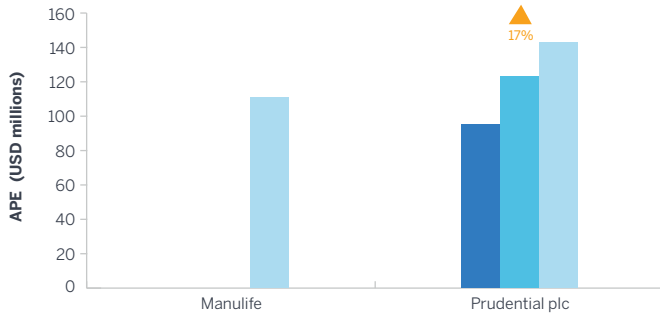
**FIGURE 88: REPORTED VIF OF VIETNAM INSURANCE OPERATIONS, 2014-2016**



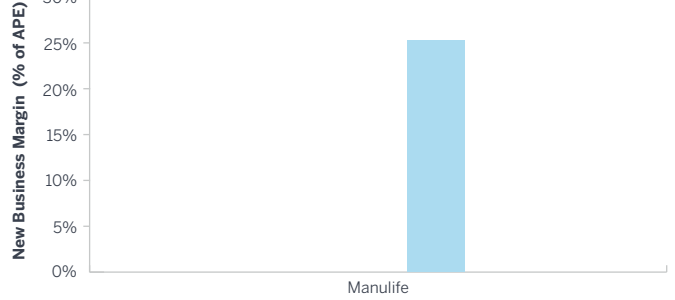
**FIGURE 89: REPORTED VNB OF VIETNAM INSURANCE OPERATIONS, 2014-2016**



**FIGURE 90: REPORTED APE OF VIETNAM INSURANCE OPERATIONS, 2014-2016**



**FIGURE 91: REPORTED NEW BUSINESS MARGIN OF VIETNAM INSURANCE OPERATIONS, 2014-2016**



■ 2014 ■ 2015 ■ 2016 ▲ 1 Yr Growth % 2015-16

Dai-ichi Life is the only company that discloses separate EV results for Vietnam, although interestingly it uses a TEV methodology, as opposed to the EEV methodology adopted at group level. The company did not disclose its FY2016 results before our data cut-off date of 3 May 2017.

Dai-ichi Life Vietnam does not disclose its risk discount rate and investment return assumptions. The 2016 EV results for AIA and Prudential are not disclosed (they are part of an aggregated classification), but there is some disclosure of the underlying EV assumptions for both companies. AIA Vietnam reduced its risk discount rate and long-term 10-year government bond yield assumption by 100 bps for its FY2016 EV, to 12.8% and 7.0%, respectively. Prudential Vietnam cut its risk discount rate and 10-year government bond yield assumption in 2016 by 80 bps to 13.0% and 6.3%, respectively. These moves are a response to the fall in the 10-year government bond yield to 6.09% at year-end 2016 from 7.05% at year-end 2015.

The Vietnam life insurance market continued to grow strongly in FY2016, with total gross written premium increasing by 32% to VND 50 trillion and new business premium rising by 34% to VND 18 trillion. The five largest companies by 2016 total premiums are Prudential, Bao Viet Life, Manulife, Dai-ichi Life and AIA. Dai-ichi Life saw the highest growth in new business premiums in 2016 of 66%.

Manulife disclosed its VNB and APE figures for Vietnam for the first time this year. Its APE stood at over USD 111 million (approximately VND 2,526 million), mainly through the bancassurance channel, whereas VNB grew to USD 28 million (approximately VND 637 million), thereby generating a new business margin of approximately 25%.

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

In July 2016, the government issued decree 73/2016/ND-CP, which provides guidelines for implementation of the law on insurance business. This decree tightens restrictions on investment of capital where insurance enterprises are not permitted to borrow for purposes of direct investment in securities, real estate or capital contribution to other enterprises. It also restricts the companies from investing more than 30% of their investment capital in companies within one group or reinvesting in a company's own shareholders.

## 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 92 summarises the risk discount rate and investment return assumptions by the MNCs (both foreign and Asian MNCs). Figure 93 summarises the assumptions by market.

**FIGURE 92: RISK DISCOUNT RATE AND INVESTMENT RETURN ASSUMPTIONS OF MNCs**

TYPE	COMPANY	EV PRINCIPLE	RISK DISCOUNT RATE	INVESTMENT RETURNS <sup>84</sup>
	AIA	TEV	China: 9.55% Hong Kong: 7.00% Indonesia: 13.50% Korea: 8.60% Malaysia: 8.75% Philippines (Philam Life): 11.00% Singapore: 6.90% Sri Lanka: 15.70% Taiwan: 7.85% Thailand: 8.60 % Vietnam: 12.80%	China: Equities 9.30%, 10Y Gov't Bonds 3.50% Hong Kong: Equities 7.60%, 10Y Gov't Bonds 2.50% Indonesia: Equities 12.50%, 10Y Gov't Bonds 8.00% Korea: Equities 7.20%, 10Y Gov't Bonds 2.70% Malaysia: Equities 8.80%, 10Y Gov't Bonds 4.20% Philam Life: Equities 9.70%, 10Y Gov't Bonds 4.50% Singapore: Equities 7.00%, 10Y Gov't Bonds 2.50% 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 12.30%, 10Y Gov't Bonds 7.00%
	Allianz	MCEV	Swap rates - credit risk adjustment + volatility adjustment	Taiwan: Equities 6.29%, 10Y Swap Rate 1.29%
	Aviva	MCEV	Swap rates + liquidity premium	Swap rates plus a risk premium for equity and property.
	AXA	EEV	Swap rates + volatility adjustment - credit adjustment	Risk-neutral projection in line with Solvency II principles.
	Great Eastern	TEV	Singapore: 7.25% Malaysia: 9.00%	Singapore: 5.25% (participating), 4.0% (nonparticipating), 6.0% (linked). Malaysia: 5.6% (participating), 4.8% (nonparticipating), 7.0% (linked).
	Manulife	TEV	Hong Kong: 10.0%	Hong Kong: 11.0% Equity, 10Y Gov't Bonds graded from 1.86% to 3.25% Asia excl. Hong Kong and Japan: 9.0%-11.0% Equity
	Prudential plc	EEV	China: 9.6% (NB), 9.6% (IF) Hong Kong: 3.9% (NB), 3.9% (IF) Indonesia: 12.0% (NB), 12.0% (IF) Malaysia: 6.8% (NB), 6.9% (IF) Philippines: 11.6% (NB), 11.6% (IF) Singapore: 4.2% (NB), 5.0% (IF) Taiwan: 4.0% (NB), 4.0% (IF) Thailand: 9.4% (NB), 9.4% (IF) Vietnam: 13.0% (NB), 13.0% (IF)	China: 10Y Gov't Bonds 3.1% Hong Kong: 10Y Gov't Bonds 2.5%, Equities 6.5% Indonesia: 10Y Gov't Bonds 8.1% Malaysia: 10Y Gov't Bonds 4.3%, Equities 10.2% Philippines: 10Y Gov't Bonds 4.8% Singapore: 10Y Gov't Bonds 2.5%, Equities 8.5% Taiwan: 10Y Gov't Bonds 1.2% Thailand: 10Y Gov't Bonds 2.7% Vietnam: 10Y Gov't Bonds 6.3%
	Zurich	MCEV	Swap rates + liquidity premium	Risk-neutral projection in line with MCEV principles.

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., Hong Kong, Indonesia, Malaysia and Singapore) but diverge sharply for other markets (e.g., China, Philippines, Taiwan, Thailand and Vietnam).

84 Note that for AIA and Prudential, investment return assumptions in Figure 92 are long-term assumptions.

**FIGURE 93: RISK DISCOUNT RATE AND INVESTMENT ASSUMPTIONS OF INSURERS BY MARKET**

COUNTRY	COMPANY	EV PRINCIPLE	RISK DISCOUNT RATE	INVESTMENT RETURNS
<b>China</b>	<b>Chinese 10-year government bond yield at 31 Dec 2016: 3.066%</b>			
	AIA	TEV	9.55%	China: Equities 9.30%, 10Y Gov't Bonds 3.50%
	China Life	TEV	10.00%	Assumed to be 4.6% with an increase of 0.2% annually up to 5%
	China Pacific	TEV	11.00%	Long-term business: 4.85% in year 1, 4.90% in year 2, and 5.00% thereafter Short-term business: based on the latest 1-year bank deposit rate
	China Taiping	TEV	11.00%	Assumed to be 4.8% with an increase of 0.05% annually up to 5.0%
	New China Life	TEV	11.5%	Year 1: 4.50% (non-linked), 7.60% (linked) Year 2: 4.60% (non-linked), 4.70% (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, increasing by 0.25% every year until 5.0% Investment-linked: slightly higher than non-investment-linked
	Prudential	EEV	9.60%	10Y Gov't Bonds 3.1%
<b>Hong Kong</b>	<b>Hong Kong 10-year government bond yield at 31 December 2016: 1.901%</b>			
	AIA	TEV	7.00%	Equities 7.60%, 10Y Gov't Bonds 2.50%
	AXA	MCEV	Swap rates + volatility adjustment	Risk-neutral projection in line with Solvency II principles
	Dah Sing	TEV	8.25%	3.10% to 5.40% based on investment portfolios
	Manulife	TEV	10.00%	Equities 11.0%, 10Y Gov't Bonds graded from 1.86% to 3.25%
	Prudential	EEV	3.90%	Equities 6.5%, 10Y Gov't Bonds 2.5%
<b>India</b>	<b>Indian 10-year government bond yield at 31 December 2016: 6.516%</b>			
	Bajaj Allianz	MCEV	Risk-free yield curve	Risk-neutral projection in line with IEV principles
	Birla Sun Life	TEV	Not disclosed	Not disclosed
	Exide Life	MCEV	Not disclosed	Not disclosed
	HDFC Life	MCEV	Risk-free gov't bond yield curve	Risk-free gov't bond yield curve
	ICICI Prudential	IEV	Risk-free yield curve	Risk-neutral projection in line with IEV principles
	Max Life	MCEV	Risk-free gov't bond yield curve	Risk-free gov't bond yield curve
	Reliance Life	TEV	Not disclosed	Not disclosed
	SBI Life	MCEV	Risk-free gov't bond yield curve	Risk-free gov't bond yield curve
<b>Indonesia</b>	<b>Indonesian 10-year government bond yield at 31 December 2016: 7.941%</b>			
	AIA	TEV	13.50%	Equities 12.50%, 10Y Gov't Bonds 8.00%
	Prudential	EEV	12.00%	10Y Gov't Bonds 8.1%
<b>Malaysia</b>	<b>Malaysian 10-year government bond yield at 31 December 2016: 4.235%</b>			
	AIA	TEV	8.75%	Equities 8.80%, 10Y Gov't Bonds 4.20%
	Great Eastern	TEV	9.00%	5.6% (participating), 4.8% (nonparticipating), 7.0% (linked)
	Prudential	EEV	6.8% (NB), 6.9% (IF)	Equities 10.2%, 10Y Gov't Bonds 4.3%
<b>Philippines</b>	<b>Philippines 10-year government bond yield at 31 December 2016: 4.628%</b>			
	AIA	TEV	11.00%	Equities 9.70%, 10Y Gov't Bonds 4.00%
	Prudential	EEV	11.60%	10Y Gov't Bonds 4.8%
<b>Singapore</b>	<b>Singaporean 10-year government bond yield at 31 December 2016: 2.478%</b>			
	AIA	TEV	6.90%	Equities 7.00%, 10Y Gov't Bonds 2.50%
	Great Eastern	TEV	7.25%	Singapore: 5.25% (participating), 4.0% (nonparticipating), 6.0% (linked)
	Prudential	EEV	4.2% (NB), 5.0% (IF)	Equities: 8.5%, 10Y Gov't Bonds 2.5%

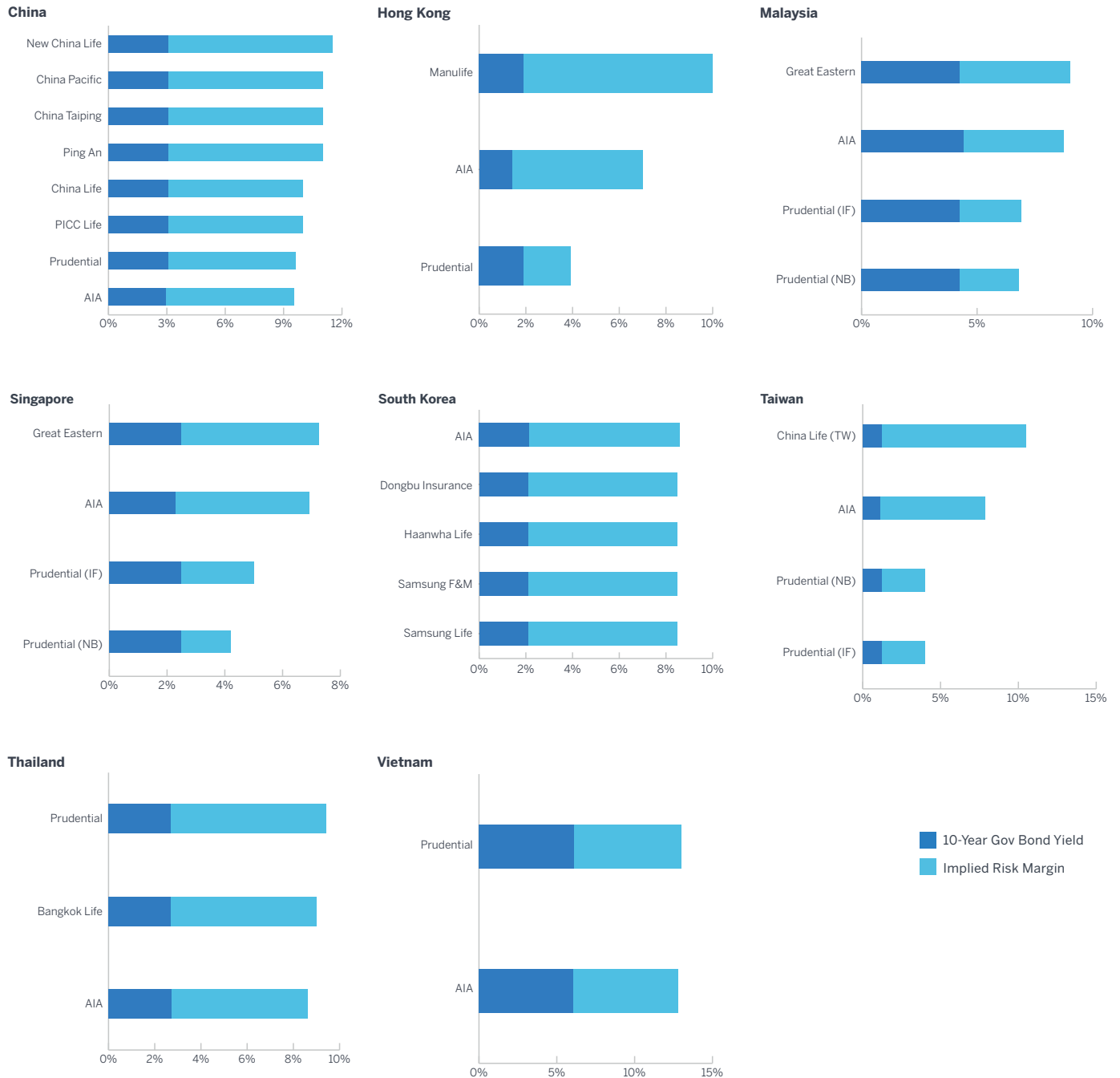
**FIGURE 93: RISK DISCOUNT RATE AND INVESTMENT ASSUMPTIONS OF INSURERS BY MARKET (CONTINUED)**

COUNTRY	COMPANY	EV PRINCIPLE	RISK DISCOUNT RATE	INVESTMENT RETURNS
<b>South Korea</b>	<b>Korean 10-year government bond yield at 31 December 2016: 2.092%</b>			
	AIA	TEV	8.60%	Equities 7.20%, 10Y Gov't Bonds 2.70%
	Dongbu Insurance	TEV	8.50%	3.20%
	Hanwha Life	TEV	8.50%	3.45%
	Prudential	EEV	8.50%	3.50%
	Samsung Life	TEV	8.50%	3.00%
	Samsung Fire & Marine	TEV	8.60%	Equities 7.20%, 10Y Gov't Bonds 3.00%
<b>Taiwan</b>	<b>Taiwan 10-year government bond yield at 31 December 2016: 1.210%</b>			
	AIA	TEV	7.85%	Equities 6.60%, 10Y Gov't Bonds 1.60%
	Cathay Life	TEV	10.0%	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	11.0% (VIF), 10.5% (VNB)	NTD: 3.86%-5.57% (IF), 3.46%-5.55% (NB) USD: 5.15%-5.96% (IF), 4.37%-5.96% (NB) ISA: Average retained spread of around 50 bps to 100 bps
	Mercuries Life	TEV	10.50%	NTD: 3.45%-5.00% (IF), 3.40%-5.00% (NB) USD: 4.40%-6.00% (IF), 3.70%-6.00% (NB)
	Prudential	EEV	4.0%	10Y Gov't Bonds 1.2%
	Shin Kong	TEV	10.50%	TWD: 4.05%-5.10% (IF), 4.06%-5.10% (NB) USD: 4.32%-6.09% (IF), 4.25%-5.68% (NB)
	Taiwan Life	TEV	10.0%	NTD: 3.70%-4.39% USD: 4.55%-5.27%
<b>Thailand</b>	<b>Thailand 10-year government bond yield at 31 December 2016: 2.70%</b>			
	AIA	TEV	8.60%	Equities 9.00%, 10Y Gov't Bonds 3.20%
	Bangkok Life	TEV	9.00%	4.25%
	Prudential	EEV	9.40%	10Y Gov't Bonds 2.7%
<b>Vietnam</b>	<b>Vietnamese 10-year government bond yield at 31 December 2016: 6.095%</b>			
	AIA	TEV	12.80%	Equities 12.30%, 10Y Gov't Bonds 7.00%
	Dai-ichi Life Vietnam	TEV	Not disclosed	Not disclosed
	Prudential	EEV	13.00%	10Y Gov't Bonds 6.3%

**Note:** Blue-shaded entries indicate that the FY 2016 EV results have not yet been disclosed, and that the assessment has been based on FY 2015 disclosures instead.

The charts in Figure 94 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 94: FY 2015 PROXY RISK-FREE RATES AND IMPLIED RISK MARGINS<sup>85, 86</sup> BY COMPANY<sup>87</sup> FOR EACH MARKET**



85 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 FY2016 reporting date.

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

87 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<sup>88</sup> 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 92 and Figure 93 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. Figure 95 summarises the reported overruns in Asia.

**FIGURE 95: SUMMARY OF EXPENSE OVERRUNS BY COMPANY**

COMPANY CATEGORY	COMPANY	EV METHODOLOGY	TYPE OF OVERRUN	IMPACT ON EV/VNB
India	Bajaj Allianz	MCEV	Unspecified	FY2015-16 EV: Rs 2.8 bn
India	Max Life	MCEV	Acquisition expenses	FY2015-16 VNB: Rs 0.1 bn

As Figure 95 shows, the primary type of overruns relate to acquisition expenses. Note that HDFC Life and ICICI Prudential disclosed acquisition expense overruns for FY2014-15 but not for FY2015-16.

<sup>88</sup> E.g., Bangkok Life cites an investment assumption of 4.25% for its entire business instead of specifying the exact asset class assumptions.



## 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 and frictional costs may arise from investing in assets via an insurance company, such as additional taxation, investment expenses or the fact that investors do not have direct control over their capital (known as agency costs). Cost of capital may also arise in respect of asymmetric non-hedgeable risks that may not have been reflected in the PVFP, and reflects the potential additional cost and risk on shareholders. The split into FCoC and CRNHR is a requirement of the MCEV and IEV reporting principles.

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

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

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

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

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

**FIGURE 96: SUMMARY OF SOLVENCY MARGIN REQUIREMENTS BY COMPANY**

CATEGORY	COMPANY	EV METHODOLOGY	REQUIRED CAPITAL
MNC	AIA	TEV	China: 100% minimum SM Hong Kong: 150% minimum SM Indonesia: 120% RBC Malaysia: 170% RBC New Zealand: 100% regulatory requirement Philippines: 100% RBC Singapore: 180% RBC South Korea: 150% minimum SM Sri Lanka: 120% RBC Taiwan: 250% RBC Thailand: 140% RBC Vietnam: 100% minimum SM
MNC	Allianz	MCEV / SII	Solvency capital requirement (SCR as per Solvency II)
MNC	Aviva	MCEV	Not disclosed
MNC	AXA	EEV	150% for other entities outside European Economic Area (EEA) with limitations on soft capital to half of the target solvency capital
MNC	Great Eastern	TEV	Not disclosed

**FIGURE 96: SUMMARY OF SOLVENCY MARGIN REQUIREMENTS BY COMPANY (CONTINUED)**

CATEGORY	COMPANY	EV METHODOLOGY	REQUIRED CAPITAL
MNC	Manulife	TEV	China: 100% minimum SM Hong Kong: 150% minimum SM Indonesia: 120% RBC Malaysia: 160% RBC Philippines: 125% RBC Singapore: 200% RBC Vietnam: 100% minimum SM
MNC	Prudential	EEV	Higher of local regulatory requirements and internal target
MNC	Zurich	MCEV	At least at the level equal to the regulatory required capital, and in addition an adequate buffer to cover short-term volatilities in solvency due to financial and non-financial risks or to achieve the capital required to maintain the desired credit rating
China	AIA China	TEV	100% minimum SM
China	China Life	TEV	In accordance with CAA EV standard (Nov 2016)
China	China Pacific	TEV	In accordance with CAA EV standard (Nov 2016)
China	China Taiping	TEV	100% minimum SM
China	Manulife China	TEV	100% minimum SM
China	New China Life	TEV	100% minimum SM
China	PICC Life	TEV	In accordance with CAA EV standard (Nov 2016)
China	Ping An	TEV	In accordance with CAA EV standard (Nov 2016)
Hong Kong	AIA Hong Kong	TEV	150% minimum SM
Hong Kong	Dah Sing	TEV	Not disclosed
Hong Kong	Manulife Hong Kong	TEV	150% minimum SM
India	Bajaj Allianz	MCEV	Not disclosed (based on FY2015 disclosures*)
India	Birla Sun Life	TEV	Not disclosed (based on FY2015 disclosures*)
India	Exide Life	MCEV	Not disclosed (based on FY2015 disclosures*)
India	HDFC Life	MCEV	Not disclosed (based on FY2015 disclosures*)
India	ICICI Prudential	IEV	Regulatory requirement of 150% solvency ratio (actual / required)
India	Max Life	MCEV	Not disclosed (based on FY2015 disclosures*)
India	Reliance Life	TEV	Not disclosed (based on FY2015 disclosures*)
India	SBI Life	MCEV	Not disclosed (based on FY2015 disclosures*)
Indonesia	AIA Indonesia	TEV	120% RBC
Indonesia	Manulife Indonesia	TEV	120% RBC
Malaysia	AIA Malaysia	TEV	170% RBC
Malaysia	Great Eastern Malaysia	TEV	Not disclosed
Malaysia	Manulife Malaysia	TEV	160% RBC
Singapore	AIA Singapore	TEV	180% RBC
Singapore	Great Eastern Singapore	TEV	Not disclosed
Singapore	Manulife Singapore	TEV	200% RBC
South Korea	AIA South Korea	TEV	150% RBC
South Korea	Hanwha Life	TEV	150% RBC
South Korea	Samsung Life	TEV	100% RBC
South Korea	Samsung Fire & Marine	TEV	150% RBC
South Korea	Dongbu Insurance	TEV	150% RBC
Taiwan	AIA Taiwan	TEV	250% RBC
Taiwan	Cathay Life	TEV	200% RBC (based on FY2015 disclosures*)
Taiwan	China Life TW	TEV	200% RBC
Taiwan	Fubon	TEV	200% RBC
Taiwan	Mercuries Life	TEV	200% RBC (based on FY2015 disclosures*)
Taiwan	Shin Kong	TEV	200% RBC (based on FY2015 disclosures*)
Taiwan	Taiwan Life	TEV	200% RBC (based on FY2015 disclosures*)
Thailand	AIA Thailand	TEV	140% RBC
Thailand	Bangkok Life	TEV	140% RBC
Vietnam	Manulife Vietnam	TEV	100% minimum SM

\* For some companies, their FY2016 disclosures were not published in time for this report, hence the explanation of their required capital is taken from their FY2015 disclosures.

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 2016)
- In Malaysia, where AIA uses 170% and Manulife uses 160% (Great Eastern did not disclose the minimum regulatory level for 2016)
- 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<sup>89</sup> 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.

<sup>89</sup> In the example of a financial call option, the intrinsic value is the positive difference between the current underlying asset price and the strike price.

Figure 97 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 97: 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	Not disclosed	Not disclosed	Not disclosed	Not disclosed
MNC	AXA	Market-consistent, stochastic	At least 1,000	Yes	Yes (EUR 4 million for VNB)
MNC	Prudential	Stochastic	Not disclosed	Not disclosed	Yes (GBP 87 million)
MNC	Zurich	Market-consistent, stochastic	1,000	Yes	Yes (EUR 13 million)
India	Bajaj Allianz	Not disclosed (based on FY2015-16 disclosures*)	Not disclosed (based on FY2015-16 disclosures*)	Not disclosed (based on FY2015-16 disclosures*)	Yes (based on FY2015-16 disclosures*)
India	Exide Life	Not disclosed (based on FY2015-16 disclosures*)	Not disclosed (based on FY2015-16 disclosures*)	Not disclosed (based on FY2015-16 disclosures*)	Not disclosed (based on FY2015-16 disclosures*)
India	HDFC Life	Not disclosed (based on FY2015-16 disclosures*)	Not disclosed (based on FY2015-16 disclosures*)	Not disclosed (based on FY2015-16 disclosures*)	Yes (INR 0.2 billion, based on FY2015-16 disclosures*)
India	ICICI Prudential	Market-consistent, stochastic	Not disclosed	Not disclosed	Yes (INR 0.52 billion)
India	Max Life	Market-consistent, stochastic (based on FY2015-16 disclosures*)	1,000 (based on FY2015-16 disclosures*)	Not disclosed (based on FY2015-16 disclosures*)	Yes (INR 150 million, based on FY2015-16 disclosures*)
India	SBI Life	Market-consistent, stochastic (based on FY2015-16 disclosures*)	Not disclosed (based on FY2015-16 disclosures*)	Not disclosed (based on FY2015-16 disclosures*)	Yes (INR 1.13 billion, based on FY2015-16 disclosures*)

\*For the Indian insurers except ICICI Prudential, their FY2016-17 disclosures were not published in time for this report, hence the explanation of their required capital is taken from their FY2015-16 disclosures.

Figure 97 discloses the TVOG approaches at a group level. For example, Prudential explicitly identifies its participating portfolios in Hong Kong, Singapore and Malaysia in its TVOG calculations, in addition to the increasing sum-assured whole of life contracts. 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.

Compared with the previous year, Aviva and AXA have reduced their EV disclosures and no longer report their Asia EV and TVOG figures, although AXA still provides the TVOG on its 2016 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 98 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 98: SUMMARY OF DISCLOSURES IN 2016

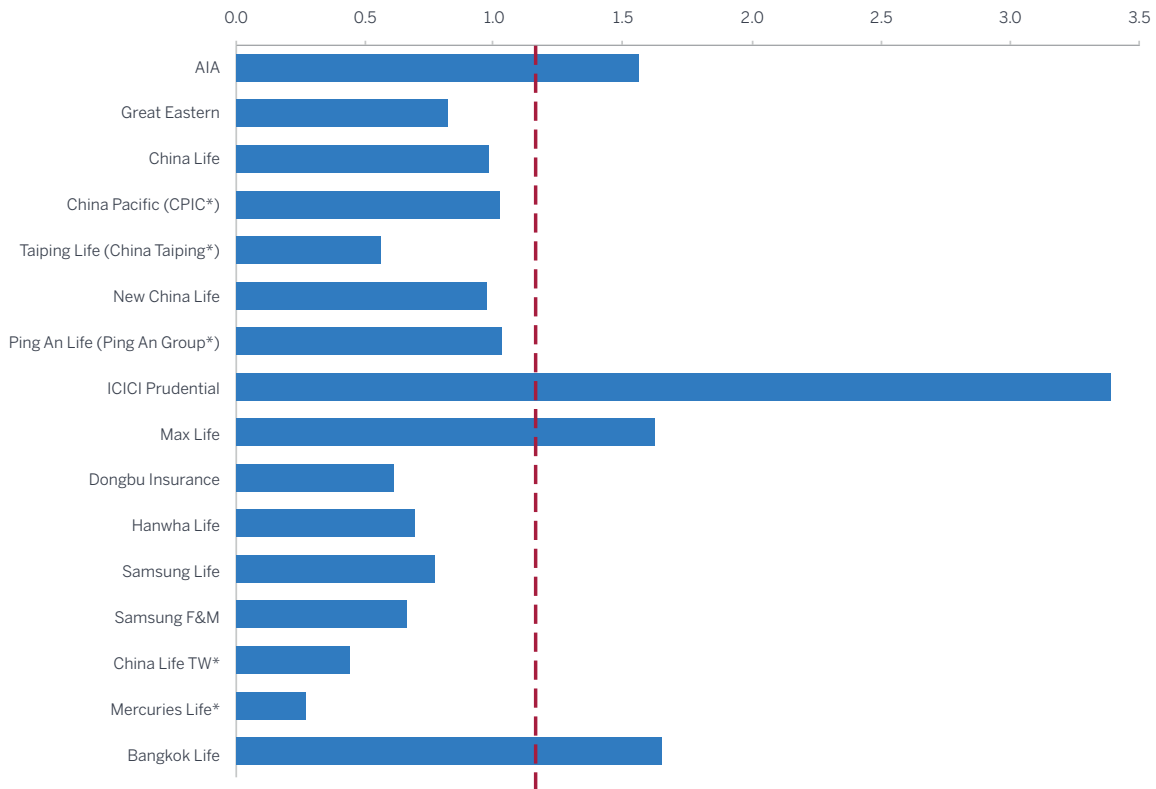
TYPE	COMPANY	EV PRINCIPLE	EVIDENCE OF INDEPENDENT REVIEW OF EV RESULTS	ANALYSIS OF EV MOVEMENT	RECONCILIATION OF ANW TO IFRS NET ASSETS	COST OF CAPITAL & REQUIRED CAPITAL	RISK DISCOUNT RATE ASSUMPTIONS	INVESTMENT RETURN ASSUMPTIONS	"EXPENSE INFLATION ASSUMPTIONS"	NEW BUSINESS MARGIN INFORMATION	EV AND VNB SENSITIVITIES	NEW BUSINESS IMPLIED DISCOUNT RATE AND IRR
MNC	AIA	TEV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Allianz	MCEV / II	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Aviva	MCEV										
	AXA Asia	MC EEV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Great Eastern	TEV	✓	✓								
	Manulife	TEV	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Prudential plc	MC 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	Dah Sing	TEV	✓				✓	✓				
India	Baja Allianz	IEV		✓						✓		
	Birla Sun Life	TEV					✓	✓		✓		
	Exide Life	MCEV				✓						
	HDFC Life	MCEV		✓			✓	✓	✓	✓		
	ICICI Prudential	IEV		✓			✓	✓	✓	✓	✓	
	MaxLife	MCEV		✓		✓	✓	✓			✓	
	Reliance Life	TEV									✓	
	SBI Life	MCEV				✓	✓		✓	✓	✓	
Korea	Hanwha Life	TEV	✓	✓		✓	✓	✓	✓	✓	✓	
	Samsung Life	TEV	✓	✓		✓	✓	✓	✓	✓	✓	
	Samsung Fire & Marine	TEV	✓	✓		✓	✓	✓	✓	✓	✓	
	Dongbu Insurance	TEV	✓	✓		✓	✓	✓	✓	✓	✓	
Taiwan	Cathay Life	TEV				✓	✓	✓		✓	✓	
	China Life TW	TEV	✓	✓	✓	✓	✓	✓			✓	
	Fubon	TEV	✓	✓	✓	✓	✓	✓	✓		✓	
	Mercuries Life	TEV	✓	✓	✓	✓	✓	✓			✓	
	Shin Kong	TEV	✓	✓	✓	✓	✓	✓	✓		✓	
	Taiwan Life	TEV	✓	✓		✓	✓	✓			✓	
Thailand	Bangkok Life	TEV	✓	✓			✓	✓		✓	✓	
Vietnam	Dai-ichi Life Vietnam	TEV										

Note: Blue-shaded entries indicate that the FY16 EV results have not yet been disclosed, and that the assessment has been based on FY15 disclosures instead.

## Other measures of value

### MARKET CAPITALISATION

**FIGURE 99: MARKET CAPITALISATION TO EMBEDDED VALUE RATIOS AS AT FY2016 REPORTING DATES**



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

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.

Figure 99 gives the price/EV (P/EV) ratios for listed insurers.

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.

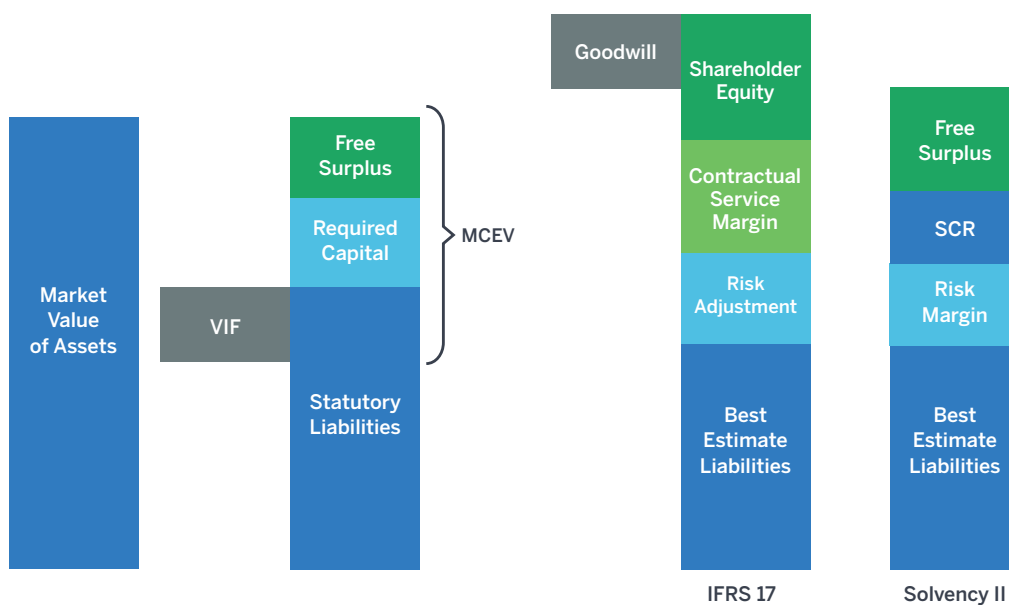
In summary, the principle-based Standard requires an assessment of the profitability of insurance contracts when they are first issued and, if positive, recognition of that value over the lifetime of the contracts in a manner that reflects the timing of the insurance services being provided by the insurer. 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 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 100.

**FIGURE 100: MCEV VS. SOLVENCY II VS. IFRS 17**





Over 2016, EV continued to be viewed as an important metric to showcase insurers' financial performances and their business strategies to investors, analysts and customers. Improvements in overall embedded value results were indicative of a more stable and optimistic market environment; however, recent turbulence in the markets continues to provide challenges for insurers. With Solvency II having gone live on 1 January 2016 and the technical details of IFRS 17 already decided, the CFO Forum decided to amend the EEV and MCEV principles in May 2016 to align EV methodology with Solvency II. The result of such convergence could make the EEV/MCEV balance sheet much closer to the IFRS 17 balance sheet. It remains to be seen whether embedded value can 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 101: TOTAL ASIAN EV BY COMPANY (USD M<sup>90</sup>)

TYPE	COMPANY	EV PRINCIPLE	CHINA	HONG KONG	INDIA	SOUTH KOREA	MALAYSIA	SINGAPORE	TAIWAN	THAILAND	VIETNAM	OTHER ASIA	TOTAL ASIA EV
MNC	AIA	TEV	5,485	13,794	-	-	2,116	4,946	-	6,712	-	9,061	42,114
	Allianz	MCEV	-	-	-	-	-	-	-	-	-	1,361	1,361
	Great Eastern	TEV	-	-	-	-	1,676	6,404	-	-	-	-	8,080
	Prudential plc	EEV	-	-	-	-	-	-	-	-	-	22,780	22,780
	Zurich	MCEV	-	-	-	-	-	-	-	-	-	2,037	2,037
China	China Life	TEV	93,893	-	-	-	-	-	-	-	-	-	93,893
	China Pacific	TEV	26,150	-	-	-	-	-	-	-	-	-	26,150
	China Taiping	TEV	11,870	-	-	-	-	-	-	-	-	-	11,870
	New China Life	TEV	18,640	-	-	-	-	-	-	-	-	-	18,640
	PICC Life	TEV	8,288	-	-	-	-	-	-	-	-	-	8,288
	Ping An	TEV	51,883	-	-	-	-	-	-	-	-	-	51,883
Hong Kong	Dah Sing	TEV	-	639	-	-	-	-	-	-	-	-	639
India	Bajaj Allianz	MCEV	-	-	-	-	-	-	-	-	-	-	-
	Birla Sun Life	TEV	-	-	-	-	-	-	-	-	-	-	-
	Exide Life	MCEV	-	-	-	-	-	-	-	-	-	-	-
	HDFC Life	MCEV	-	-	-	-	-	-	-	-	-	-	-
	ICICI Prudential	IEV	-	-	2,495	-	-	-	-	-	-	-	2,495
	MaxLife	MCEV	-	-	-	-	-	-	-	-	-	-	-
	Reliance Life	TEV	-	-	-	-	-	-	-	-	-	-	-
	SBI Life	EEV	-	-	-	-	-	-	-	-	-	-	-
Korea	Dongbu Insurance	TEV	-	-	-	5,405	-	-	-	-	-	-	5,405
	Hanwha Life	TEV	-	-	-	6,801	-	-	-	-	-	-	6,801
	Samsung Life	TEV	-	-	-	24,310	-	-	-	-	-	-	24,310
	Samsung Fire & Marine	TEV	-	-	-	13,325	-	-	-	-	-	-	13,325
Taiwan	Cathay Life	TEV	-	-	-	-	-	-	-	-	-	-	-
	China Life TW	TEV	-	-	-	-	-	-	-	-	-	-	-
	Fubon	TEV	-	-	-	-	-	-	-	-	-	-	-
	Mercuries Life	TEV	-	-	-	-	-	-	-	-	-	-	-
	Shin Kong	TEV	-	-	-	-	-	-	-	-	-	-	-
	Taiwan Life	TEV	-	-	-	-	-	-	-	-	-	-	-
Thailand	Bangkok Life	TEV	-	-	-	-	-	-	1,529	-	-	1,529	
Vietnam	Dai-ichi Life Vietnam	TEV	-	-	-	-	-	-	-	-	-	-	

Note: Blue-shaded entries indicate that the FY2016 EV results have not yet been disclosed as at the data cut-off date of this report (3 May 2017).

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





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