

MILLIMAN RESEARCH REPORT

2015 Embedded Value Results: Asia (excl. Japan)

Growth amid volatility

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Opening remarks

Welcome, and thank you for taking the time to read the second edition of Milliman's Asian embedded value (EV) report.

Asia's economic growth in 2015 has helped fuel double-digit percentage rises in life insurance premiums in several emerging markets. Growth in EV in most markets has also been positive, although generally lower than in 2014. The further falls in certain Asian yield curves have been putting pressure on EV results, causing economic assumptions to be 'stretched' in some cases.

The objective of our report is to help compare and contrast the various different approaches taken to EV reporting across Asian markets and insurers. A report on 2016 Mid-Year Embedded Value results for Asia (excluding Japan) will be produced later in the year, containing commentary on the reported mid-year 2016 EV results, as well as any 2015 year-end reporting not disclosed in time for this report. We have also published a report on 2015 Embedded Value Results results for Europe, containing commentary on the reported EV results of European companies.

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

Best regards,

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Executive summary

BACKGROUND

Asia's economic growth continues to lead the world, with gross domestic product (GDP¹) rising by 5.4%² during 2015, compared with overall global GDP growth of 3.6%. India, China, and Vietnam posted the highest GDP growth rates in 2015 of 7.3%, 6.9%, and 6.7% respectively.

Life insurance sales continued to grow strongly in the region during 2015, with gross written premium (GWP) estimated to have risen by 23.7%,³ driven largely by China's explosive 43% growth.

Regulations in China have been evolving at their usual fast pace, with the China Insurance Regulatory Commission (CIRC) having announced full implementation of its new China Risk Oriented Solvency System (C-ROSS) early in 2016. After some delays, Singapore and Thailand are moving ahead with enhancements to their existing risk-based capital (RBC) frameworks, although moves to modernise the reserving and solvency regime in the Philippines have recently been postponed.

Digital insurance sales regulations are emerging in China and Thailand, while Singapore has required insurers catering to the retail market to introduce compulsory direct-to-consumer commission-free pure protection products, in addition to launching an online web aggregator. Malaysia plans to follow Singapore with the introduction of direct-to-consumer offerings via a web aggregator.

While the raising of the foreign shareholding cap in India has prompted several overseas investors to increase their stakes, and ICICI Prudential to move forward with its initial public offering (IPO), press reports in Indonesia suggest there could be moves by the government to reduce foreign ownership within the insurance sector.

The number of companies reporting EV in Asia remains mostly unchanged from 2014 to 2015, with Standard Life being the only insurer that has stopped disclosing EV results, choosing instead to rely on 'IFRS reporting and other non-GAAP measures.' EV methodologies used in the region remain varied, including Traditional Embedded Value (TEV), European Embedded Value (EEV), Market-Consistent Embedded Value (MCEV⁴) and Indian Embedded Value (IEV).

EV RESULTS

This report examines the EV results published by various multinational corporations (MNCs) and domestic insurers within Asia,⁵ excluding Japan. As MCEV reporting is much more prevalent in Japan, we have grouped the Japanese insurers with the European insurers for comparison purposes. Please refer to our 2015 Embedded Value Results – Europe report for information regarding European results, and to our report 2016 Embedded Value Results Update – Europe and Japan, which incorporates Japanese EV results, along with the 2016 Mid-Year Embedded Value Results Update – Asia (excl. Japan) report; the latter two 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.

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

2 Inclusive of Japan.

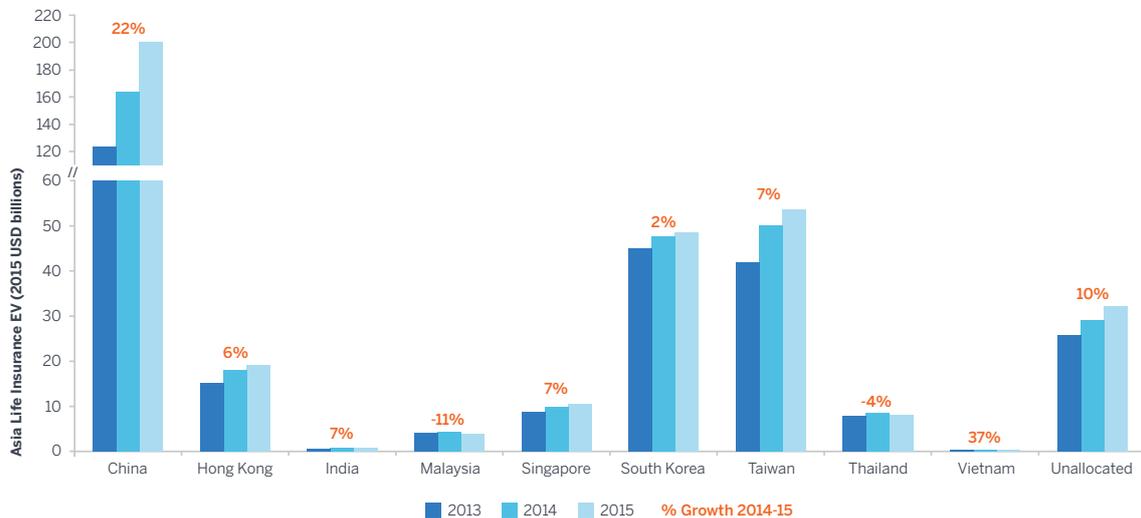
3 As not all Asian economies have reported their 2015 Insurance premiums as at the date of publication of this report, market growth rates have been estimated by Milliman. A more precise update will be presented in our report 2016 Mid-Year Embedded Value Results – Asia (excl. Japan).

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

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

In 2015, total reported Asian EV grew by 13.6% on a comparable basis⁶ to USD 376 billion from USD 331 billion. The companies reporting the largest Asian⁷ EV at the 2015 year-end were China Life, Ping An Life, and AIA, at USD 86 billion, USD 50 billion, and USD 38 billion, respectively.

FIGURE 1: COMPARABLE ASIAN LIFE INSURANCE COVERED EV BY MARKET,^{8,9} 2013 TO 2015



China reported the highest comparable EV growth in 2015 of 22% (Vietnam's 37% EV growth is purely based on Dai-ichi Life Vietnam, which is the only company to separately disclose EV results in the market). The strong EV growth in China was mainly due to very high new business sales and investment-related gains; with market value gains from falling bond yields being a major contributor to the latter. There were generally no consequent falls in the value of in-force business (VIF), however, as investment return and risk discount rate assumptions for most life insurers in China reporting EV results have been completely unchanged for the last two years. This is despite the long-term government bond yield curve decreasing by around 80 basis points (bps) and 100 bps during 2014 and 2015, respectively (this is discussed further in the China section below).

Although the situation in China is somewhat extreme, the theme of EV bond yield or portfolio-level investment return assumptions diverging further from valuation date 'spot' bond yields is repeated across the region, as yield curves continued to fall in several Asian markets during 2015. Some companies have been sensibly trying to remove some of the subjectivity from the choice of long-term yield assumptions by aligning assumed future increases to capital market forward rates to some extent, while also recognising the inherent volatility of these rates.

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.

6 Comparable basis = comparing only companies that have reported 2013, 2014, and 2015 EV results for Asia. For example, Manulife, which has reported Asian EV results separately for the first time in 2014, is not included in this comparison. The Indian insurers that have not yet published their fiscal year (FY) 2015 results as at the data cutoff date (31 May 2016) include: Bajaj Allianz, Birla Sun Life, HDFC Life, and ICICI Prudential. 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 FY2015 reporting date.

7 Excluding Japan.

8 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 FY2015 reporting date.

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

We expect more scrutiny of the TEV methodology associated with increasing yield assumptions in the near future, as analysts and investors grapple with recent results, which, paradoxically, suggest falling yields are positive for EV, and long-term investment assumptions continue to diverge from spot bond yields.

FIGURE 2: COMPARABLE ASIAN LIFE INSURANCE COVERED ANW, 2013 TO 2015

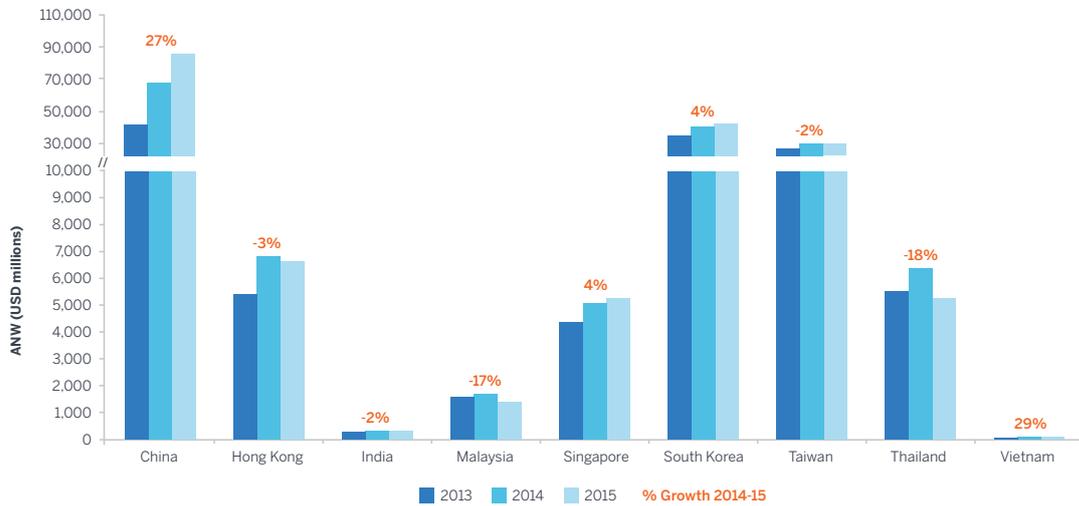
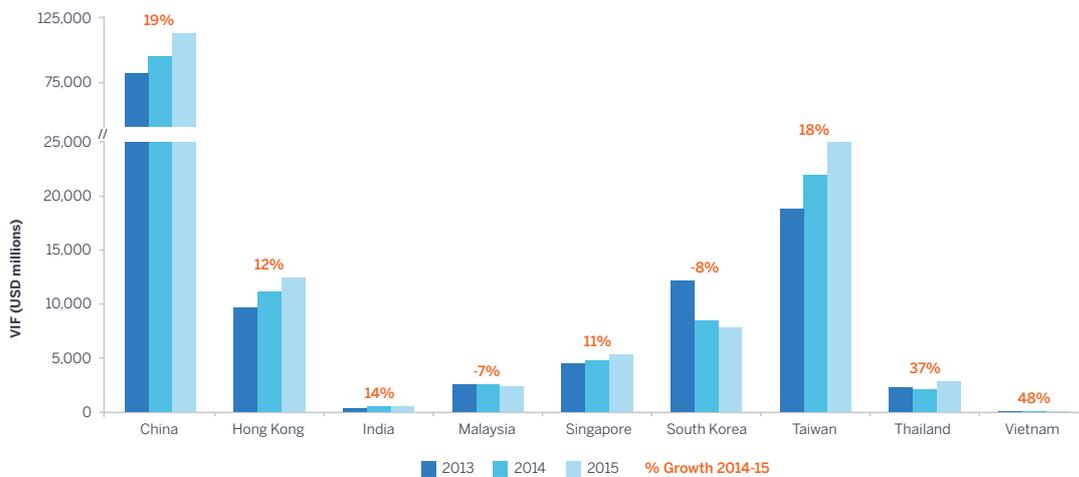


FIGURE 3: COMPARABLE ASIAN LIFE INSURANCE COVERED VIF, 2013 TO 2015



For most markets, the growth in EV has been largely driven by increases in VIF, with only China and South Korea reporting greater adjusted net worth (ANW) growth than VIF growth. The falls in ANW and VIF for some countries highlight the challenge that insurers face in remaining profitable in market conditions of low interest rates and weak equity returns.

VIF growth remains positive for most countries, with the exception of Malaysia and South Korea, driven primarily by strong value of new business (VNB) results and, in some cases, long-term investment return assumptions not reducing with yield curve falls. For Malaysia, a steep devaluation of the currency, following the highly publicised 1MDB scandal, has affected the reported results of a growing market in U.S. dollar terms, while a decrease in the already low South Korean interest rates has adversely affected the value of the large in-force portfolios of savings and investment type products in the market. In Thailand, depressed fixed interest yields resulted in increases in statutory reserves for many players, reducing ANW but increasing VIF (as the impact of materially higher starting reserves outweighed increases in fair value adjustments to assets within the ANW, and outweighed the impact of reductions in economic assumptions within the VIF).

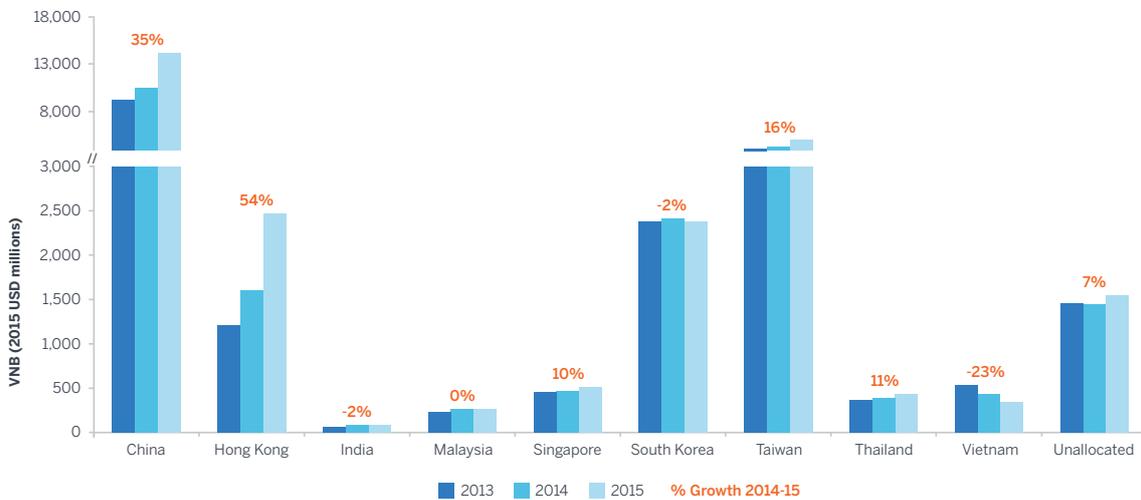
By insurer, Taiwan Life, Aviva, and Dai-ichi Life Vietnam reported the largest growth in EV during 2015, with increases of 123%, 48%, and 37% respectively. In both Taiwan Life and Aviva’s cases, much of the increase in EV was due to acquisition activity. Taiwan Life was acquired by CTBC Financial and merged with CTBC Life, while Aviva added Friends Provident International to its regional portfolio, as part of its acquisition of the Friends Life Group.

NEW BUSINESS RESULTS

Total reported value of new business (VNB) for Asia stood at USD 24.0 billion in 2015, compared with USD 19.2 billion in 2014,¹⁰ representing growth of 24.2%.

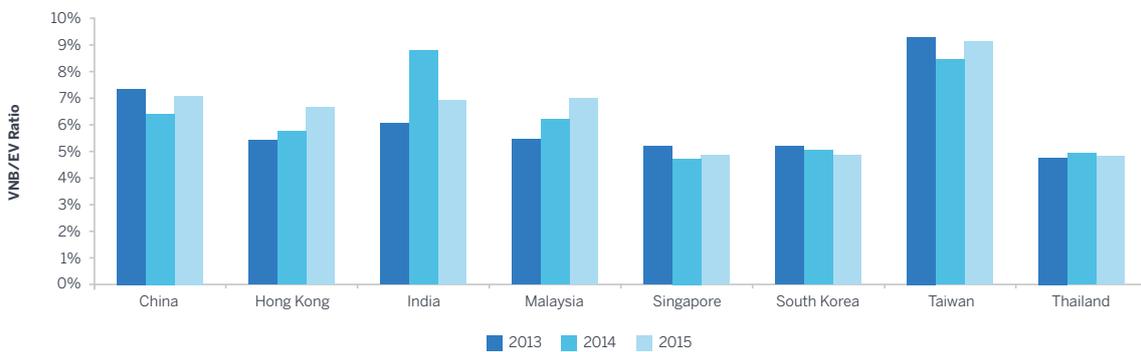
By market, Hong Kong and China reported the highest growth in VNB on a constant currency basis, largely driven by significantly higher new business premiums. Indonesia and South Korea reported reductions in VNB; the former was mainly due to a reduction in new business sales for Prudential¹¹ Indonesia, and the latter was mainly due to the low interest rate environment.

FIGURE 4: COMPARABLE ASIAN LIFE INSURANCE COVERED VNB BY MARKET, 2013 TO 2015



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

FIGURE 5: VNB/EV RATIO,¹² 2013 TO 2015



The majority of 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, with Taiwan a notable outlier because of its large volumes of ‘negative spread’ in-force business.

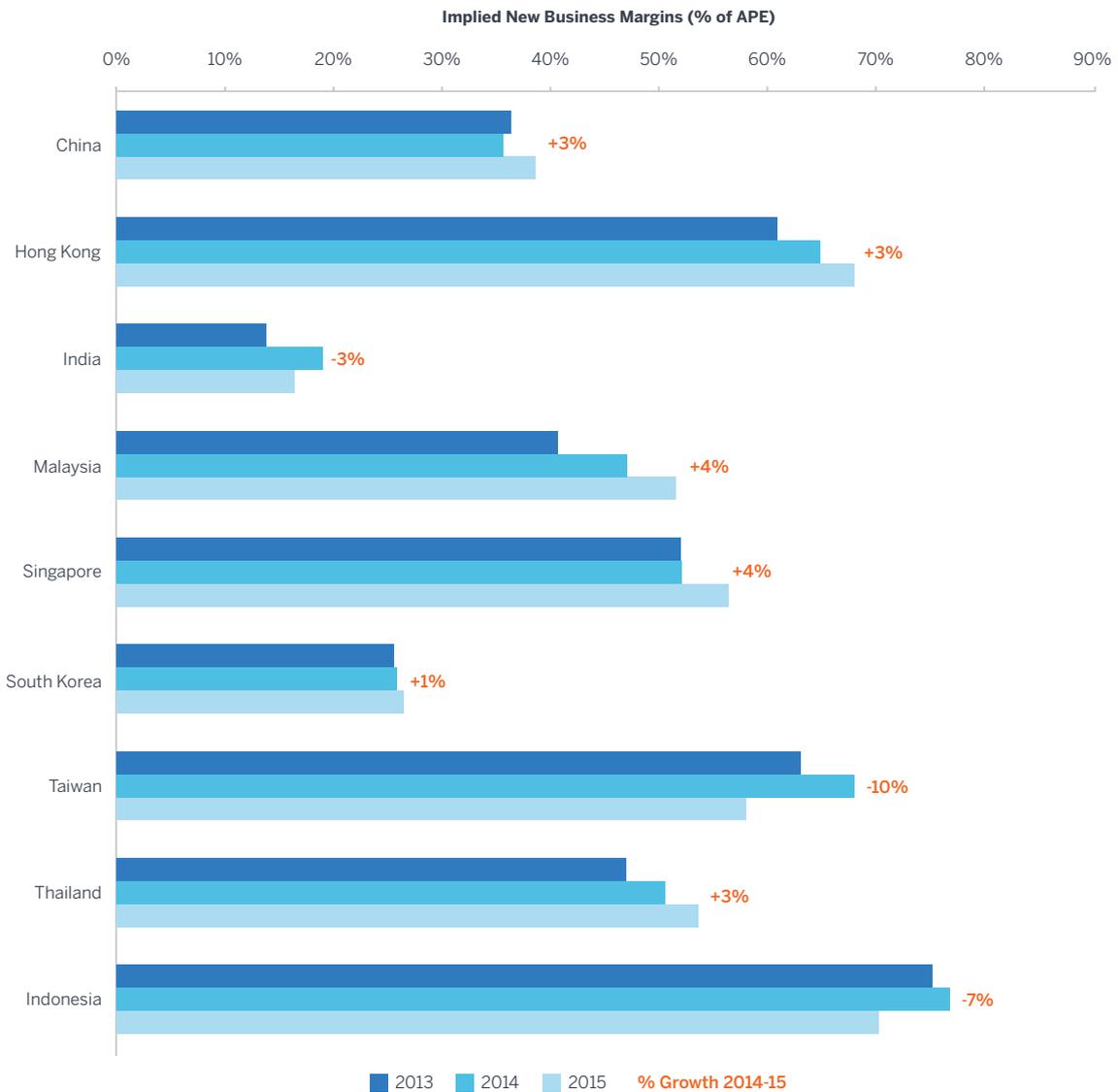
10 On a comparable basis.
 11 Within the report, ‘Prudential’ refers to Prudential plc, the global insurer domiciled in the United Kingdom.
 12 This ratio has been calculated on a constant currency basis, using the EV and VNB figures of insurers that have reported both EV and VNB during those periods. Companies that only report EV or VNB have been excluded from this analysis.

Hong Kong’s and Malaysia’s ratios both increased in 2015, primarily due to strong new business sales. As discussed more extensively in our Hong Kong section, insurance sales to mainland Chinese visitors have been the main driver of new business for many Hong Kong insurers recently. The Malaysian results reflect a rise in profit margins, on top of positive new business growth (see the Malaysia section for further details).

Within the region (excluding Taiwan Life, which saw a VNB growth of 193% because of its merger), China Life (Taiwan), at 67%, and Manulife, at 44%, reported the largest growth in VNB. These results were driven by product mix changes for China Life (Taiwan) and increased new business volumes, as measured by annualised equivalent premium¹³ (APE), for Manulife.

NEW BUSINESS MARGINS

FIGURE 6: IMPLIED NEW BUSINESS MARGINS¹⁴ BY COUNTRY, 2013-2015



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

14 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.

Based on the various EV disclosures, the most profitable life insurance new business appears to be sold in Indonesia, Taiwan, and Hong Kong. Although still high, the former two countries' margins decreased from 2014, reflecting lower reported profitability of new business for Prudential Indonesia and the Taiwanese domestic insurers. In contrast, the margins for Hong Kong increased slightly. It is important to note that many Taiwanese and Chinese insurers assume increasing investment returns for future years, with assumptions significantly higher than bond yields at the relevant valuation dates, which contribute to higher reported new business margins.

EV METHODOLOGY HOT TOPICS

Most aspects of EV calculations are based on established industry practise 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.

FIGURE 7: SUMMARY OF EV METHODOLOGY HOT TOPICS

HOT TOPIC	COMMENT
Risk discount rate	Aside from IEV, MCEV, and the market-consistent EEV reporting insurers, TEV and some EEV reporting firms typically use a risk-free rate plus risk margins to derive their discount rates. A key area of judgement involves the setting of the risk margin. The majority of companies operating within markets usually 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 as wide as 500 bps to 700 bps.
Investment return assumptions	<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 seem to 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>
Cost of guarantees	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.
Expense overruns	The disclosure of expense overruns is critical to communicate the current and expected future situation for the company concerned. However, the disclosure practices of some insurers can be improved to provide greater clarity to investors.
Cost of capital	<p>Insurers need to make assumptions on the future level of required solvency margin when projecting distributable earnings. This will typically be 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, which is due to clear communication from the regulator or industry precedent. Notable exceptions include Singapore and Malaysia.</p> <p>In most markets, the solvency ratio is assumed to be above the minimum regulatory level, but most Chinese companies assume 100% of the minimum regulatory level when calculating EV.</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 or upcoming regulatory changes in the region.

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

JURISDICTION	REGULATION	DESCRIPTION
China	China Risk Oriented Solvency System (C-ROSS)	<p>Risk-based capital framework based on three pillars encompassing quantitative capital requirement, qualitative supervisory requirement, and market discipline mechanism. C-ROSS field tests were carried out in 2015, with insurers reporting results under both the Solvency I and C-ROSS regimes. The new framework became effective on 1 January 2016.</p> <p>The regulator released the rules on pricing rate liberalisation for universal life and participating life insurance in February 2015 and October 2015, respectively.</p> <p>For more in-depth information and analysis on C-ROSS, please refer to our detailed analysis located at http://www.milliman.com/insight/2015/Analysis-of-Chinas-new-C-ROSS-solvency-capital-regime/.</p>
Hong Kong	Risk-based capital solvency regime	<p>Implementation is not expected before 2018, as a second round of consultation is yet to be rolled out. After the second round of consultation, the Office of the Commissioner of Insurance (OCI) has estimated it will take another two to three years before the appropriate legislation is passed.</p> <p>Hong Kong's new insurance regulator, the Independent Insurance Authority (IIA), will be established by the end of 2016; the appointment of its directors were announced in December 2015. The proposed body will take over from the current government regulator, the OCI, and from the three self-regulatory bodies currently overseeing insurance intermediaries. Up to now, there has been no announcement of the appointment of the IIA's Chief Executive, however.</p> <p>For more information on the new risk-based capital framework in Hong Kong, please refer to the Milliman e-Alert published in October 2014 at http://www.milliman.com/insight/Periodicals/asia-ealert/Risk-based-capital-framework-for-the-insurance-industry-of-Hong-Kong/.</p>
India	New life insurance regulations	<p>The Insurance Regulatory and Development Authority of India (IRDAI) has recently released the following:</p> <ul style="list-style-type: none"> • New rules around the allocation of life insurance operating expenses, which are expected to impact most companies and their participating business in particular. • Proposal to change the distributor commission structures for various products, which could increase sales of protection business. • Proposal for the alignment of Indian insurance accounting with International Financial Reporting Standards (IFRS). <p>For more in-depth information and analysis on the new regulations, please refer to our analysis, available at http://www.milliman.com/insight/Periodicals/asia-ealert/New-life-insurance-regulations-in-India-January-2016/.</p>
Indonesia	Potential new Insurance Law changes	<p>Following the 2014 Insurance Law, which introduced requirements for single presence and a spin-off for Shariah (Islamic insurance) businesses, potential future regulatory actions impacting Indonesia include the following:</p> <ul style="list-style-type: none"> • There is a proposal to cap foreign shareholding at 80%, but details are unclear, in particular whether existing companies' shareholder structures will be 'grandfathered.' The regulator, Otoritas Jasa Keuangan (OJK), has yet to officially clarify the situation, but press reports suggest a preference for foreign-owned insurers to 'float' shares in excess of the 80% cap via an IPO. • The status of bancassurance regulations, which purportedly will restrict the ability of banks to enter into exclusive distribution relationships with insurers, is also uncertain. Regulatory clarification is expected in the latter part of 2016. • Similarly, the OJK is currently undergoing industry consultation on refinements to the existing reserving and capital regulations. <p>For updates on the Indonesia life insurance industry, please refer to our latest Indonesia Life Insurance Newsletter (published May 2016) at http://sg.milliman.com/insight/Periodicals/indonesia-life-newsletter/Indonesia-Life-Insurance-Newsletter--June-2016/.</p>

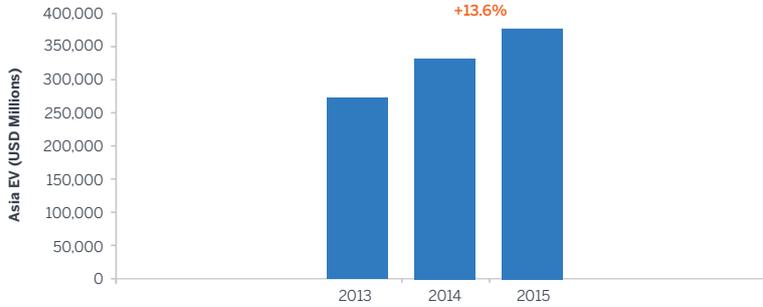
FIGURE 8: SUMMARY OF RECENT AND UPCOMING MAJOR REGULATIONS BY JURISDICTION (CONTINUED)

JURISDICTION	REGULATION	DESCRIPTION
Malaysia	Life Insurance and Family Takaful Framework (LIFE Framework), Guidelines on the 'Management of Participating Life Business'	<p>The LIFE Framework outlines a series of measures to further liberalise the insurance industry in Malaysia, which includes the removal of the commission caps on investment-linked and protection products, diversification of distribution channels by incentivising the growth of financial advisers, and encouraging direct marketing via an online aggregator website service, which allows customers to compare prices between insurers.</p> <p>For further in-depth information and analysis on the Bank Negara Malaysia (BNM) LIFE Framework, please refer to our discussion paper at http://www.milliman.com/insight/Periodicals/asia-ealert/Malaysia-Life-Insurance-Family-Takaful-Framework-concept-paper/.</p> <p>With the introduction of the new guidelines on the 'Management of Participating Life Business,' 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.</p>
Philippines	New Financial Reporting, Valuation Standards/Policy Reserves and Risk-based Capital Frameworks	<p>According to Circular Letter 2015-31 issued by the Insurance Commission, the full implementation of the new reserving and solvency capital framework was to be on 30 June 2016. This would have changed the old net premium valuation (NPV) basis to gross premium valuation (GPV), as well as introducing a new risk-based capital framework (RBC 2).</p> <p>However, in June 2016, the Insurance Commission issued an advisory deferring the implementation date in Circular Letter 2015-31 until further notice, in light of issues that arose during the implementation process. We expect that discussions with the industry will continue and that the new regulations will be implemented in the medium term.</p>
Singapore	Risk-based Capital 2 (RBC 2)	<p>Singapore's existing RBC regime is being enhanced, increasing alignment with other jurisdictions and introducing more risk management concepts. In July 2016, the regulator released the third consultation paper for RBC 2. A second RBC 2 Quantitative Impact Study (QIS 2), to evaluate the impact of the revised RBC 2 proposals, is required, with results to be submitted in October 2016. The changes could lead to more onerous capital requirements, particularly for participating business, which accounted for over 50% of new business APE in 2015, although this could potentially be reduced, depending on the matching adjustment (MA) and illiquidity premium (IP) components, the details of which are yet to be communicated.</p> <p>For more information on the previous RBC 2 consultation in 2014, please see our e-Alert at http://sg.milliman.com/uploadedFiles/insight/Periodicals/asia-ealert/singapore-rbc-2.pdf.</p> <p>Please also look for a new e-Alert on the 2016 consultation paper, which we expect to release shortly after the QIS 2 scenarios for MA and IP have been announced in August 2016.</p>
South Korea	Risk-based Capital	<p>The South Korean regulator recently enhanced its RBC requirements by increasing the required capital factors for asset default risks. Plans to strengthen the liability adequacy test (LAT) have also been announced, in preparation for expected increases in reserve levels that are due to IFRS 4 Phase II implementation.</p> <p>In October 2015, the regulator introduced the 'Road-map to Strengthen Competitiveness of Insurance Business,' detailing its future plans, including reducing product and pricing regulations, improving protection of policyholders, and enhancing prudential regulations.</p>
Taiwan	Evaluation of 'expense loss' situation	<p>In May 2016, the Financial Supervisory Commission (FSC) sent a request to all insurance companies to evaluate whether the expense loadings charged to policyholders are lower than the actual expense payouts for new policies (including the operating expenses and any compensation paid to the distribution channel). This is expected to put downward pressure on commission rates; smaller and medium-sized insurance companies are likely to be more affected than larger firms because of their relative expense efficiencies.</p>
Thailand	Risk-based Capital 2 (RBC 2)	<p>The insurance regulator is continuing industry consultation and field testing of its revised risk-based capital framework, RBC 2. Compared with RBC 1, there have been changes made to parameters and models in RBC 2, as well as the introduction of new operational risk and group risk charges. Other areas, such as the discounting rates for gross premium reserves, the treatment of the surrender risk charge, and the confidence interval requirement of the total capital required, are yet to be determined.</p> <p>For more information on the draft RBC 2 framework in Thailand, please see our e-Alert at http://www.milliman.com/uploadedFiles/insight/Periodicals/asia-ealert/asia-e-alert-thailand-rbc2-framework.pdf.</p>
Vietnam	Law of Protection of Consumer Interests	<p>In 2015, life insurance was added to the list of essential goods and services for which contract forms and general transaction conditions must be registered according to the Law on Protection of Consumer Interests. This has given the Ministry of Industry and Trade (MOIT) responsibilities for the approval of insurance products (understood to be from a consumer protection standpoint), alongside the Ministry of Finance (MOF), from January 2016.</p>

Introduction and background

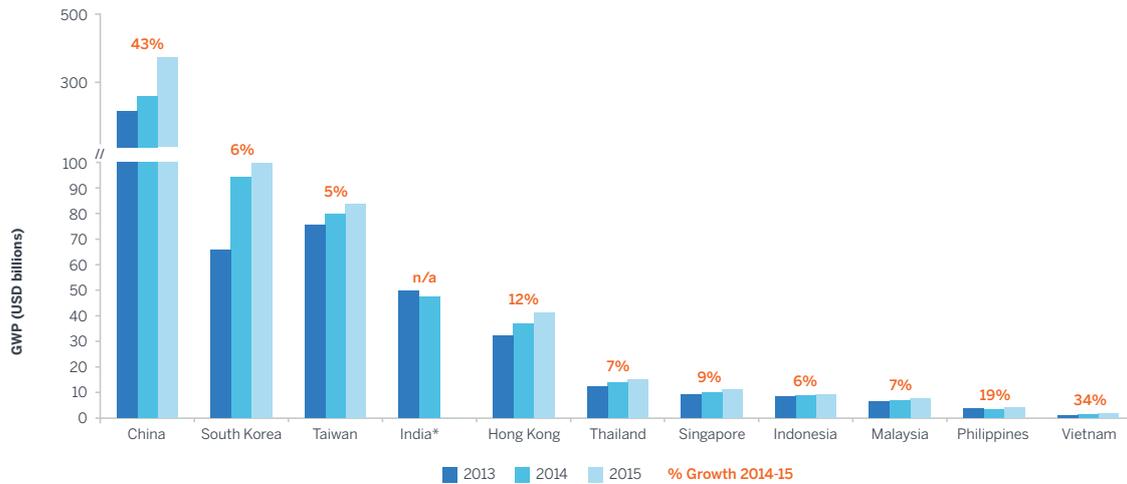
The Asian EV story in 2015 shows continuing growth amid global volatility. Comparing only insurers that have reported fiscal year (FY¹⁵) 2013 to FY2015 EV figures,¹⁶ Asian Life Insurance EV¹⁷ grew by 13.6% in 2015.

FIGURE 9: REPORTED COMPARABLE ASIA LIFE INSURANCE COVERED EV, 2013-2015



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, despite decreasing in USD terms in some countries (see Figure 12), while many equity markets experienced higher volatility in 2015 (see Figure 13).

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



* Note that the 2015 GWP for India was unavailable as at the date of this report.

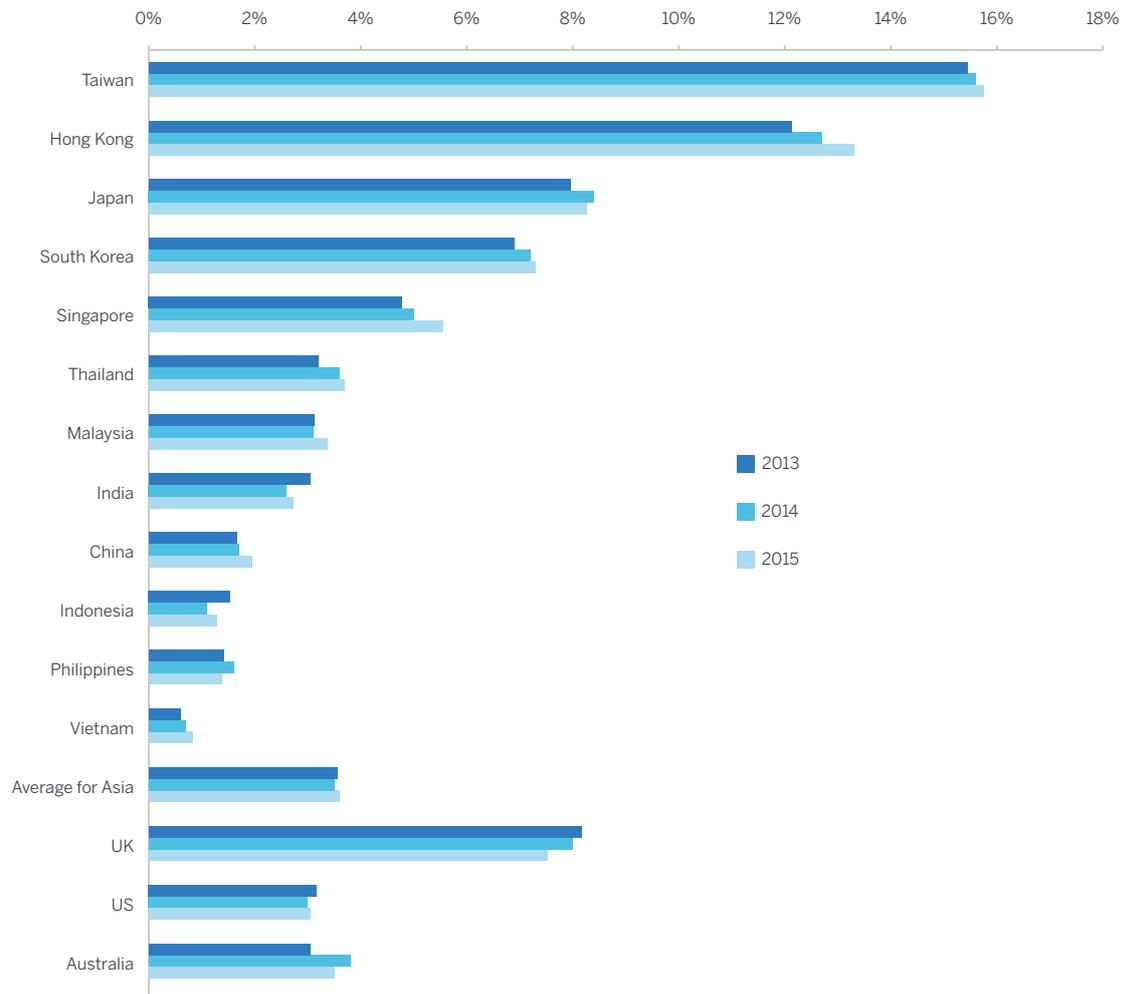
Sources: Various life insurance associations and insurance regulators.

15 Please note that not all insurers have their financial years coincide with calendar years. In this report, we have defined FY2015 results to be the financial year results which contain the majority of 2015 calendar year results. For example, the 2015 results presented above for insurers that have a March financial year-end date corresponds to the financial results for the year ending 31 March 2016. In this report, companies with non-coinciding financial years include Indian insurers (March year-end) and AIA (November year-end).

16 Companies that have not yet disclosed their 2015 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 2015 reporting date.

17 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 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.

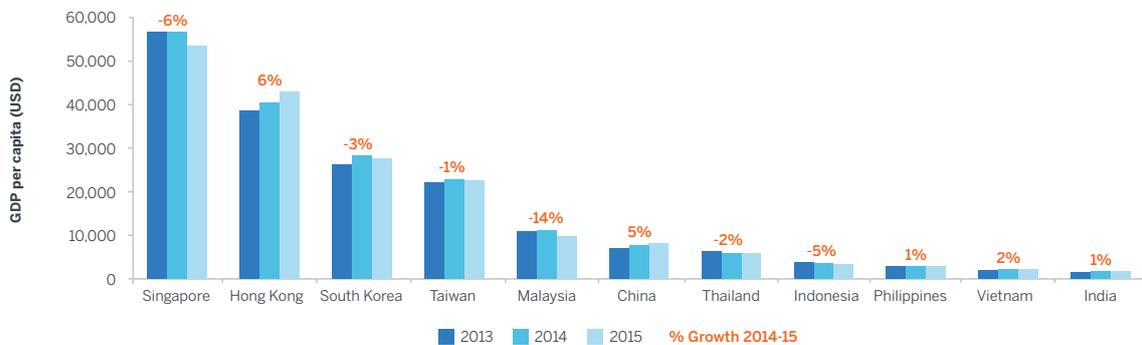
FIGURE 11: ASIAN LIFE INSURANCE PENETRATION,¹⁸ 2013-15, % OF GDP PER CAPITA



Source: Swiss Re Sigma

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 biggest life insurance markets in Asia (excluding Japan) by gross written premiums, reflecting their large populations, high GDP per capita, and high insurance penetration.

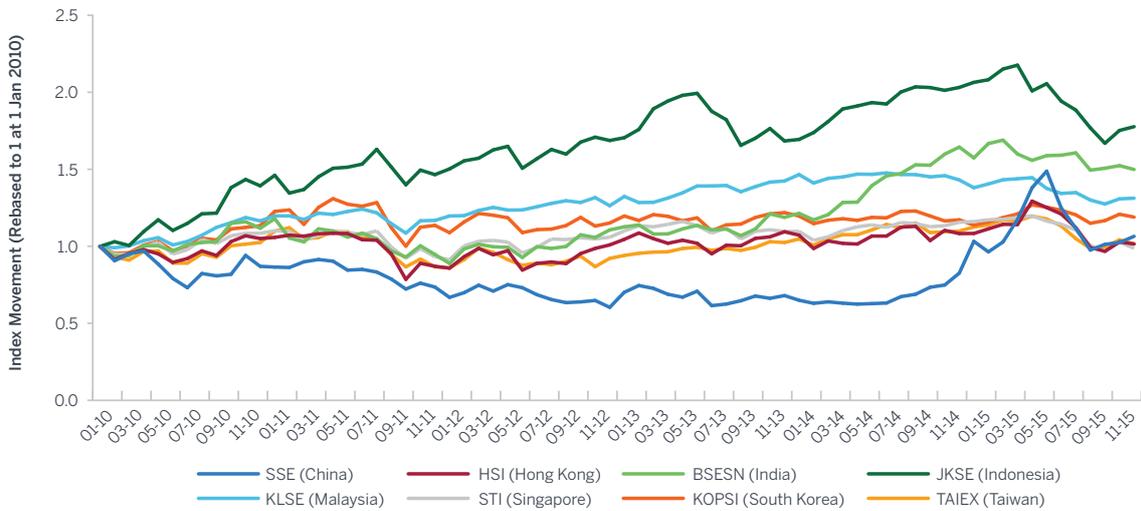
FIGURE 12: GDP PER CAPITA¹⁹ OF IN-SCOPE ASIAN COUNTRIES, 2013-2015



18 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.

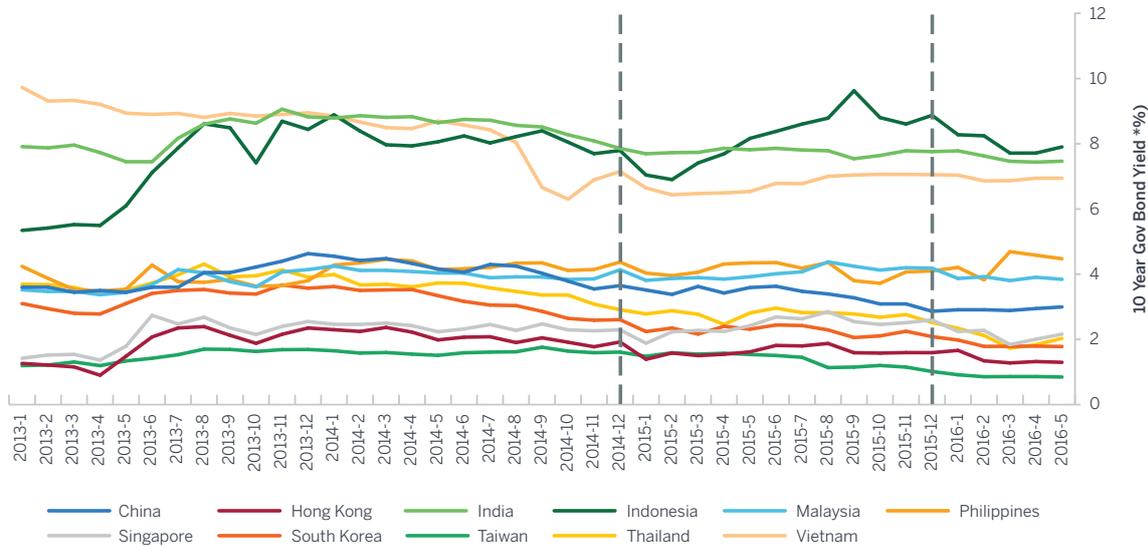
19 Source: International Monetary Fund, World Economic Outlook Database, April 2016.

FIGURE 13: RECENT EQUITY MARKET PERFORMANCE: GROWTH OF MAJOR EQUITY INDICES^{20, 21} FROM 1 JANUARY 2010 TO 31 DECEMBER 2015



China and South Korea’s equity markets are the only ones to have risen during 2015. This is despite the large fall in China’s stock market in mid-2015, which also affected other Asian countries to some extent.

FIGURE 14: 10-YEAR SOVEREIGN BOND YIELDS,²² 2013-2015



Moves in Asian sovereign bond market yields, which should be closely related to the EV risk discount rate and investment return assumptions adopted by insurers, were not uniform across the region, with yield curves increasing in some countries (e.g., Indonesia) but decreasing in others (e.g., China, Taiwan). However, most (outside of Japan) remain above the levels seen in Europe, and are generally stable and positive.

20 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.

21 Source: Yahoo Finance.

22 Source: Investing.com.

Overall, Asian economies are continuing to perform well relative to the rest of the world in GDP growth terms. Although economists are mostly positive about Asia's medium-term economic prospects, growth is expected to slow down in 2016. Some commonly cited factors explaining this include:

- China's transition to an economy led by domestic consumption should result in a more sustainable growth model in the medium term, but it is unlikely to be a smooth process and could have adverse effects on its major trading partners in the short term.
- In the short term, domestic demand (instead of exports) is expected to be the driver of GDP growth in many Asian countries, which is due to weak global conditions, lower commodity prices, robust labour market conditions, and healthy growth in disposable income. Exceptions include India and Indonesia, where stronger growth is expected because of public infrastructure development and reforms geared to attract more foreign direct investment.
- Despite the widespread expectation of global deflation, there are still risks from unexpected increases in domestic interest rates, or a U.S. interest rate hike resulting in currency depreciations, which could potentially affect growth, given the tighter global financial conditions, combined with high leverage, seen in many countries in the region.
- There is increased political risk in many countries in Asia, including Thailand, Malaysia, and the Philippines.

For insurers, continued GDP growth and an associated rapid growth in the middle class are fuelling rising levels of insurance premiums. 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 new C-ROSS regime, as well as Thailand's and Singapore'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 becoming increasingly important as a performance measurement tool and external financial disclosure metric for insurers operating in Asia. As discussed last year, EV and related VNB results are being used as key performance indicators for insurers to communicate their values to external stakeholders. EV can also be 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.

Other changes on the horizon for the Asian insurance industry include the International Financial Reporting Standards (IFRS) 4 Phase II accounting for 'Insurance Contracts,' which is in the final stages of the drafting process; the final version is expected to be published at the end of 2016. This puts the earliest effective date for the accounting standard at 2020. For Asian countries, the exact date for moving to this new accounting standard is likely to be later than 2020, as local accounting and financial reporting boards choose to customise their implementations of IFRS, or to wait for full implementation elsewhere before following suit. As an example, Indonesia is targeting a one-year delay between the implementation of IFRS 4 Phase II standards and its harmonisation with

Indonesian GAAP, and its accounting board (PSAK) has recently established an IFRS 9 and IFRS 4 Phase II working party to coordinate this.

In this publication, we focus on EV results as at year-end 2015. 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 United Kingdom, 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.²³

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

- Value of in-force business (VIF): The discounted future distributable earnings arising from policies in-force as at the valuation date.
- 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 more informed 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 are now known as EEV. EEV provides more standardisation of definitions, required calculations, and disclosures, providing greater comparability among insurers.

²³ 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 EEV²⁴ or MCEV²⁵ 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 AMERICAN MNC	–	3	–	3	6
NORTH AMERICAN MNC	1	–	–	–	1
CHINA	6	–	–	–	6
HONG KONG	1	–	–	–	1
INDIA	1	–	2	2	5
SOUTH KOREA	4	–	–	–	4
TAIWAN	6	–	–	–	6
THAILAND	1	–	–	–	1
VIETNAM	1	–	–	–	1
TOTAL	23	3	2	5	33

Apart from European and Japanese insurers, the only companies operating in Asia that are reporting EEV, IEV,²⁶ or MCEV are the Indian insurers. However, none of the Indian insurers reporting EEV or MCEV currently presents externally reviewed EV results to the extent specified in the disclosure requirements of the EEV or MCEV principles. In July 2016, ICICI Prudential became the first insurer to file for an IPO, with its IEV disclosure being formally reviewed by an external party. Results for this disclosure will be covered in our upcoming 2016 mid-year report.

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.

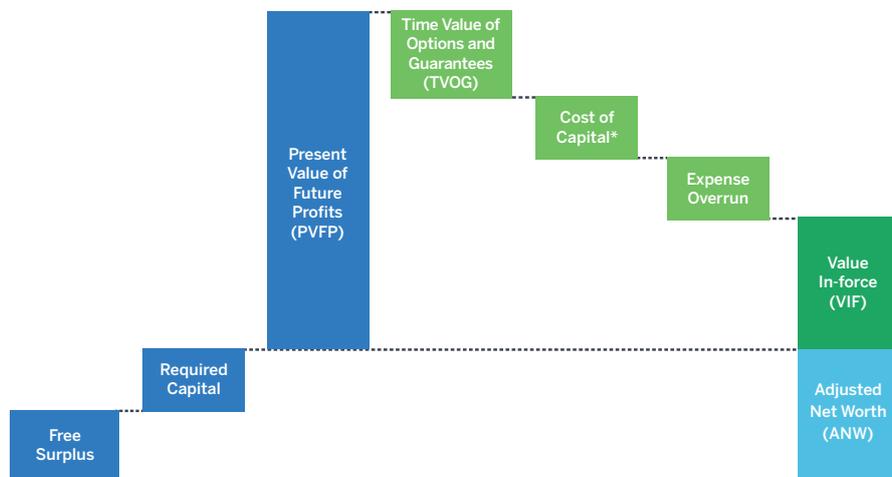
24 Including Ageas, AXA, and Prudential.

25 Including Allianz, Aviva, and Zurich.

26 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 investments 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 nonfinancial risks, 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 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 reflect the current actual expense position. At a company level, the difference between the actual current expense level and the targeted long-term level is commonly referred to as the expense overrun.

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

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

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

FIGURE 17: COMPARISON OF TEV, EEV, AND MCEV

ITEM	TEV	EEV	MCEV
PVFP	Projection of future profits using real-world investment return assumptions, discounted using subjective risk discount rate.	Projection of future profits using real-world investment return assumptions, discounted using a curve based on risk-free rates, adjusted using a risk margin which reflects any risks not allowed for elsewhere in the valuation. Some EEV reporting firms also opt to use a market-consistent approach, which entails using risk-free rates in the certainty equivalent approach.	Projection of future profits using market-consistent risk-neutral investment return assumptions, discounted using a curve based on risk-free rates. Discount rates can be adjusted to include an illiquidity premium.
TVOG	Not explicitly allowed for, although companies may argue that the cost is implicitly included through the use of a risk-adjusted discount rate.	Mandatory calculation using stochastic models for material guarantees. While both risk-neutral and real-world models are theoretically allowed, most insurers will use risk-neutral models, for ease of calculation.	Consistent with PVFP methodology, a market-consistent risk-neutral calculation using stochastic models.
Cost of Capital	There is no standardisation of this, but it is included by virtually every insurer. Typical practice is to explicitly model the cost in the cash flow projections and present it as an adjustment to the EV figure.	Mandatory, calculated as the difference between required capital held at the valuation date and the present value of the projected releases of the required capital, allowing for future investment return on that capital. Disclosed as part of required capital.	Mandatory split into FCoC and CRNHR.
Discount Rate	Subjective assumption, typically calculated as a risk-free rate plus a margin, or the portfolio investment return plus a margin. A single discount rate is typical; using a curve is rare.	Two possible approaches: 1. 'Top-down,' with one discount curve used for all cash flows based on risks faced by the entire organisation. 2. 'Bottom-up,' where each cash flow is discounted using a risk-free rate plus the risk margin, based on the exposed risks.	A bottom-up approach is mandatory, and the curve is typically on swap rates, with adjustments for illiquidity and the risk margin.
Expenses	No standardisation, but typically based on current or recent and expected ongoing experience. Where expense overruns exist, insurers will typically provide both pre- and post-overrun EV/VNB figures.	Future expenses such as renewal and maintenance expenses must reflect expected ongoing operating expenses, including investment in systems to support the business, and allowing for future inflation. Overheads and holding company expenses must be allocated in a manner consistent with current and historical practice. Expense overruns must be allowed for.	Similar to EEV principles, with additional guidance. Favourable changes in unit costs such as productivity gains should not normally be included, if they have not been achieved by the end of the reporting period. However, for start-up operations, allowing for improvements in unit costs in a defined period may be allowed for, so long as there is sufficient evidence to justify it. Exceptional development and one-off costs that have an impact on shareholder value must be disclosed separately, with a description of their nature. Company pension scheme deficits must be allocated to the covered business expense assumptions in an appropriate manner.
Investment Returns	Typical practice is to use a risk-free rate plus risk premium approach for main asset classes, where the risk-premium assumptions differ by asset class.	Some insurers opt to use a risk-neutral approach, while others use a risk-free rate plus 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 business, so long as it is calculated robustly and consistently.

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.

Embedded value results

This section presents EV results under three different lenses:

- Asia-wide
- Company by company
- Detailed country-level

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

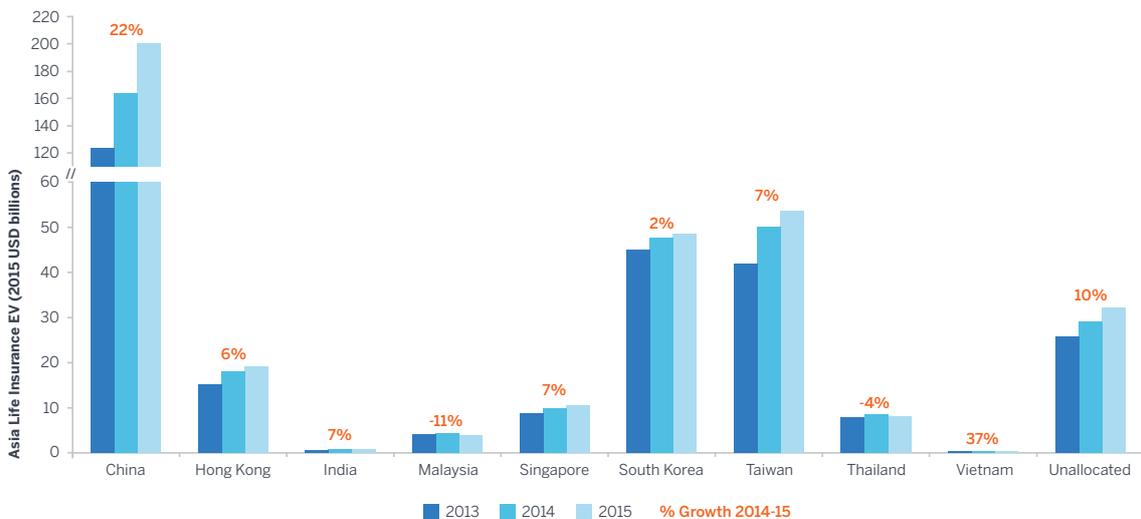
The values presented in this section relate to EV results for life insurance and other long-term insurance operations in Asia, excluding Japan. Because of the way some companies group their businesses, Asian operations are sometimes classed under their ‘international’ or ‘emerging markets’ business units, 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 2015, reported Asian life insurance EV grew by 13.6% on a comparable basis²⁷ to USD 376 billion from USD 331 billion. Figure 18 breaks down the total EV growth by country (to the extent that a market breakdown has been disclosed by companies).

FIGURE 18: COMPARABLE ASIAN LIFE INSURANCE COVERED EV,^{28, 29} 2013 TO 2015



The two countries that posted lower EV results in USD terms in 2015 were Malaysia and Thailand (-11% and -4%, respectively). In Malaysia, a devaluation of the Malaysian ringgit in 2015 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, decreasing interest rates have had a negative impact on companies’ ANW, which is due to significant increases in gross premium valuation (GPV) reserves.

27 As at the data cutoff date (31 May 2016), some insurers have not yet disclosed their FY2015 EV figures. Hence, this chart and subsequent commentary only include insurers that have a complete set of FY2014 and FY2015 EV figures. The results of the remaining companies will be included in our ‘2015 Embedded Value Update – Asia (excl. Japan)’ report. The missing companies include: Bajaj Allianz, Birla Sun Life, HDFC Life, and ICICI Prudential.

28 To provide comparability and eliminate FX effects, results for all years have been converted to USD using the prevailing FX rate as at the FY2015 reporting date.

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

The countries with the largest reported annual growth in EV were China (22%) and Singapore (7%). Vietnam’s 37% EV growth is misleading as it only reflects the EV of Dai-ichi Life Vietnam. The strong EV growth in China was mainly due to very high new business sales and investment-related gains, with market value gains from falling bond yields a major contributor to the latter, we understand. There were generally no consequent falls in the VIF, however, as investment return and risk discount rate assumptions for most life insurers in China reporting EV results have been completely unchanged for the last two years. This is despite the long-term government bond yield curve decreasing by around 80 bps and 100 bps during 2014 and 2015, respectively (this is discussed further in the China section).

Although the situation in China is somewhat extreme, the theme of EV bond yield or portfolio-level investment return assumptions diverging further from valuation date spot bond yields is repeated across the region, as yield curves continued to fall in several markets during 2015. Some companies have been sensibly trying to remove some of the subjectivity from the choice of long-term yield assumptions by aligning assumed future increases to capital market forward rates to some extent, while also recognising the inherent volatility of these rates.

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.

We expect more scrutiny of the EV methodology associated with increasing yield assumptions in the near future, as analysts and investors grapple with recent results which, paradoxically, suggest falling yields are positive to EV and long-term investment assumptions continue to diverge from spot bond yields.

FIGURE 19: COMPARABLE ASIAN LIFE INSURANCE COVERED ANW, 2013 TO 2015

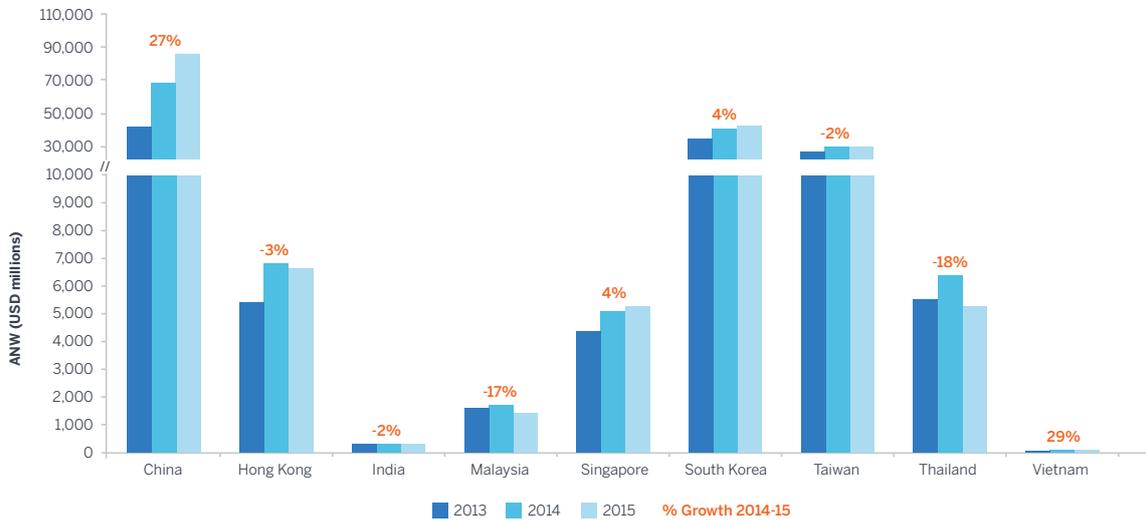
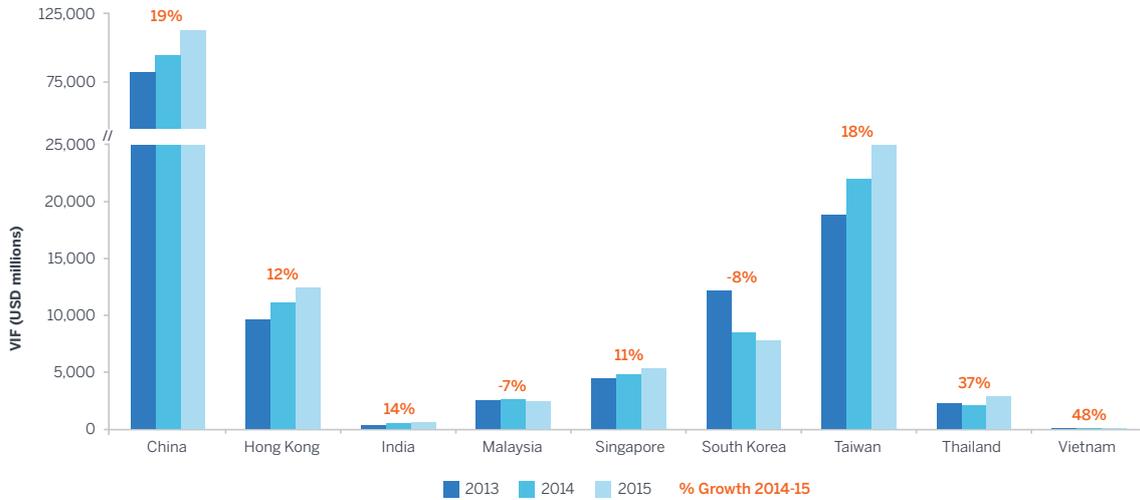


FIGURE 20: COMPARABLE ASIAN LIFE INSURANCE COVERED VIF, 2013 TO 2015

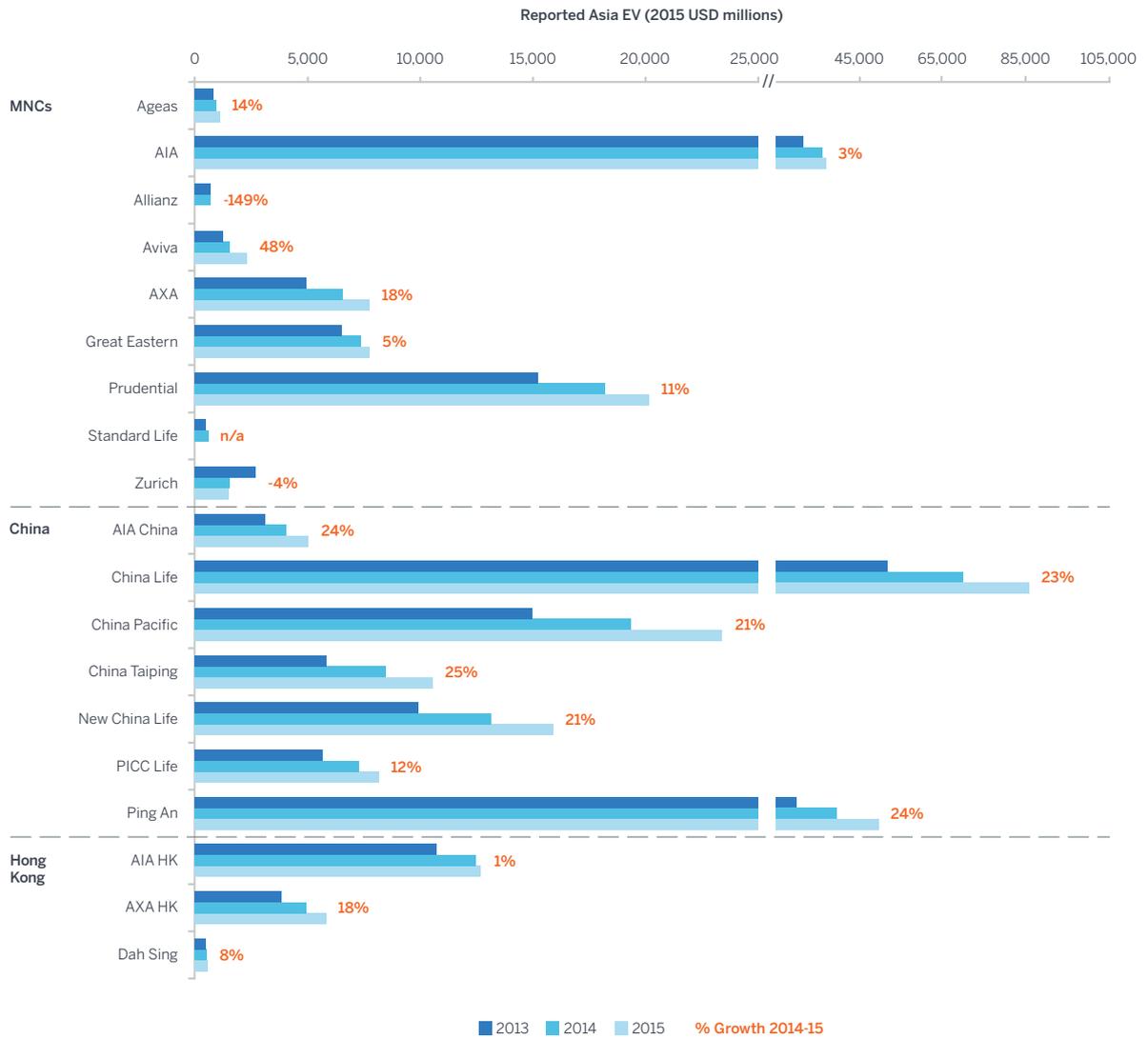


For most markets, the growth in EV has been largely driven by increases in VIF, with only China and South Korea reporting greater ANW growth than VIF growth. The falls in ANW and VIF for some countries highlight the challenge that insurers face in remaining profitable in low interest rate and weak equity market conditions.

VIF growth remains positive for most countries, with the exception of Malaysia and South Korea, driven primarily by strong VNB results and, in some cases, long-term investment return assumptions not reducing with yield curve falls. For Malaysia, a steep devaluation of the currency, following the highly publicised 1MDB scandal, has affected the U.S. dollar reported results of a growing market in local currency terms, while a decrease in the already low South Korean interest rates has adversely affected the value of the large in-force portfolios of savings and investment type products in the market. In Thailand, depressed fixed interest yields resulted in increases in statutory reserves for many players, reducing ANW but increasing VIF. Overall, the significantly higher starting reserves outweighed the impact on VIF of reductions in economic assumptions.

EV BY COMPANY

FIGURE 21: ASIAN LIFE INSURANCE COVERED BUSINESS EV BY COMPANY,^{30, 31, 32} 2013 TO 2015



30 The EV figures for each company have been converted to USD at the mid exchange rate prevailing as at their FY2015 reporting dates, to remove the effect of currency fluctuations.

31 Standard Life stopped reporting EV in 2015. SCB Life delisted in May 2015 and the latest EV disclosure is for FY2013.

32 Please note that some companies have not yet disclosed their 2015 EV results. The 2015 results for these companies have been left blank as a consequence.

FIGURE 21: ASIAN LIFE INSURANCE COVERED BUSINESS EV BY COMPANY, 2013 TO 2015 (CONTINUED)

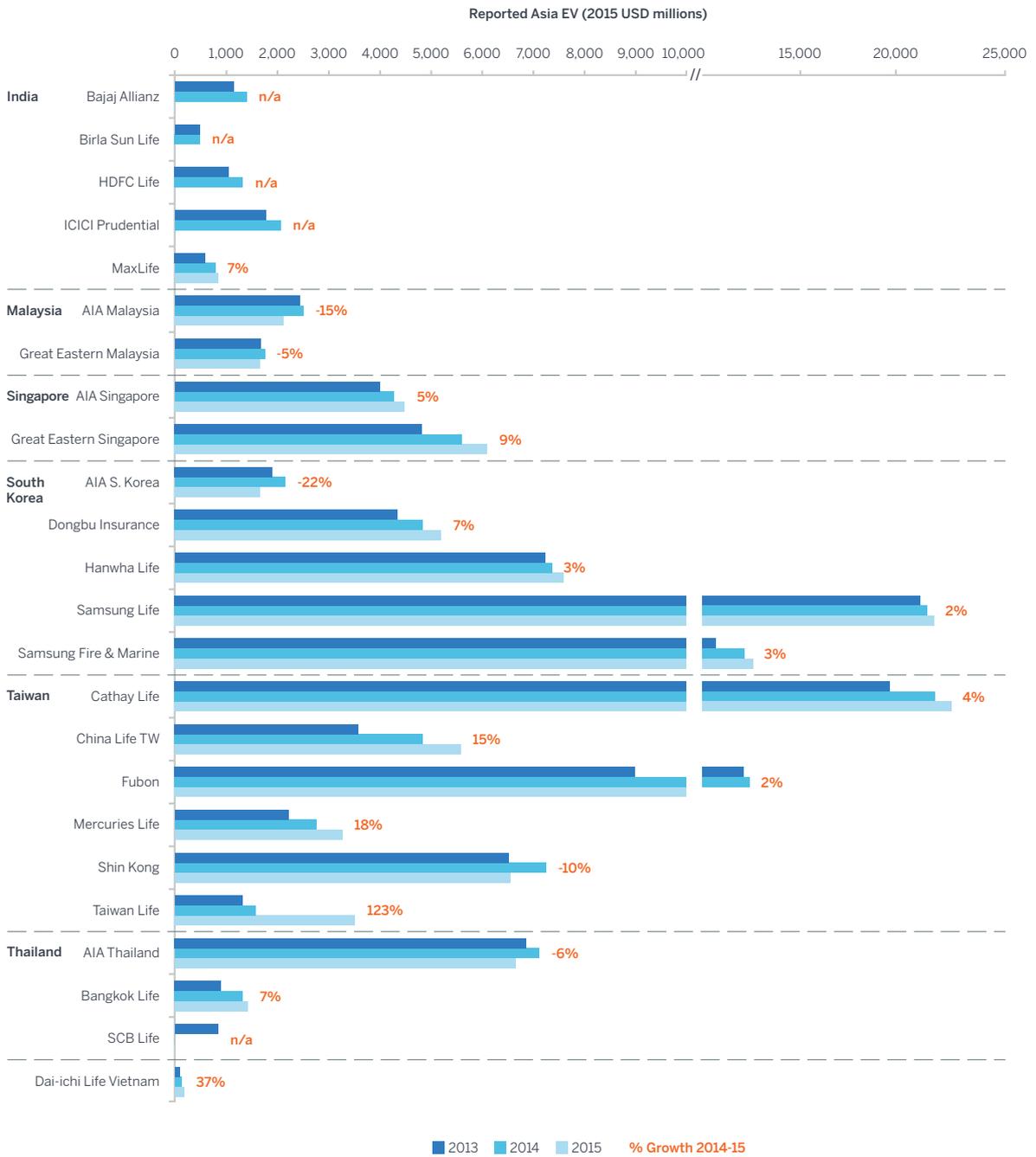


FIGURE 22: SPLIT OF 2015 ASIAN LIFE INSURANCE EV TO VIF AND ANW BY COMPANY

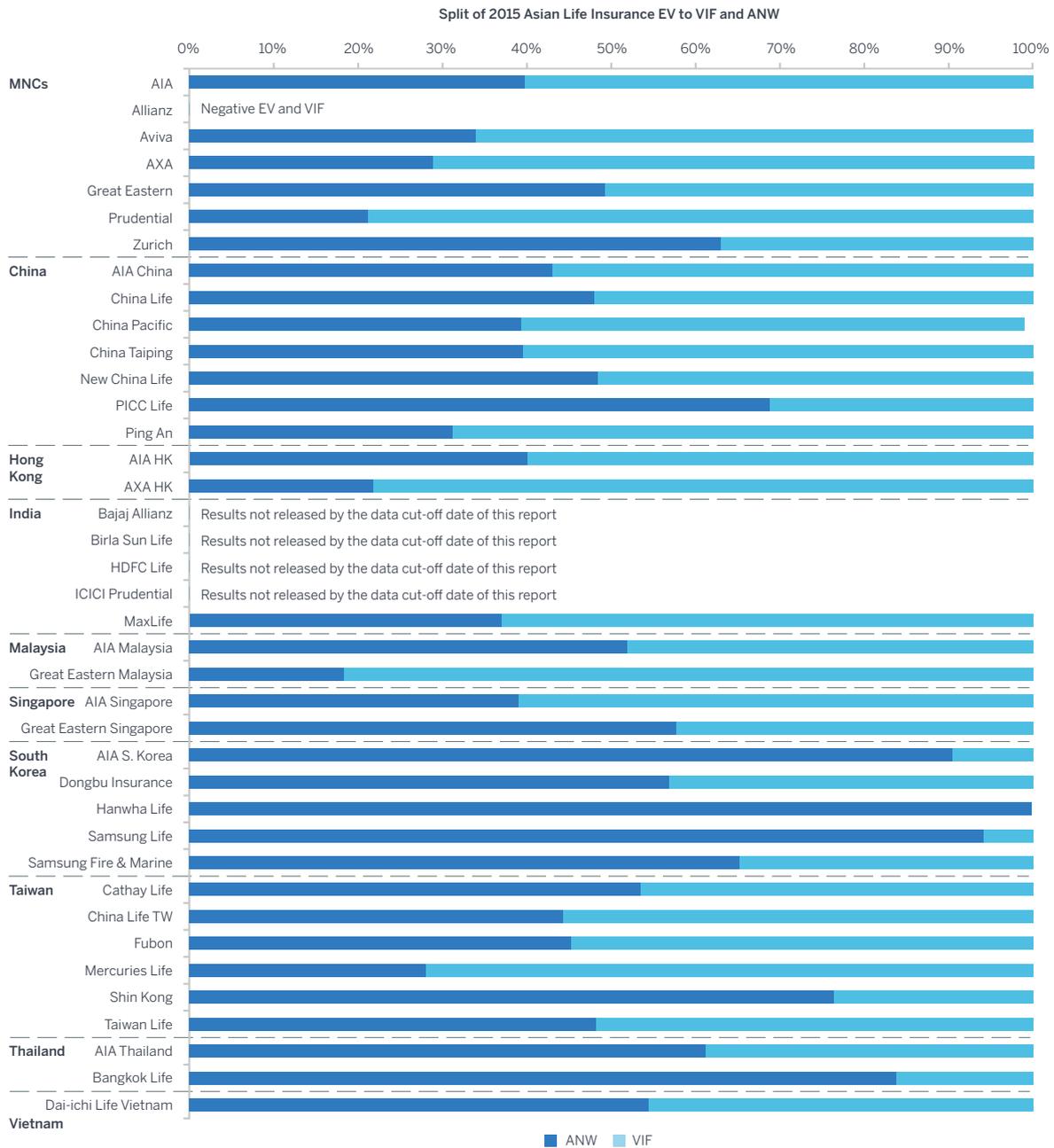


Figure 21 above shows the growth in EV by individual company. Amongst the companies included in this report, Taiwan Life reported the greatest annual increase in EV (123%), followed by Aviva (48%) and Dai-ichi Life Vietnam (37%). The key driver of both Taiwan Life and Aviva’s increases in EV was acquisition activity. Taiwan Life was acquired by CTBC Financial and merged with CTBC Life, while Aviva added Friends Provident International to its regional portfolio, as part of its acquisition of the Friends Life Group.

The Chinese life insurers once again showed the highest growth in EV in 2015, mainly due to strong VNB results and investment-related gains. These results were based on investment return assumptions that graded up to similar levels as prior years, even though the long-term government bond yield curve continued to decrease in 2015.

In contrast, MCEV-reporting Allianz and Zurich experienced falls in EV for 2015 of 149%³³ and 4%, respectively. Allianz’s Asia EV actually became negative in 2015, mainly due to the low interest rates in South Korea and Taiwan affecting their large in-force portfolios of high guarantee traditional policies. Allianz has since announced the sale of its South Korea life and investment operations to China’s Anbang Insurance Group in April 2016, as well as the sale of its Taiwanese high guarantee block of business to Taiwan Life in May 2016. Elsewhere, we understand that AIA’s reported decreases in EV in Malaysia, South Korea, Thailand, and ‘Other markets’ (Australia, Indonesia, New Zealand, Philippines, Sri Lanka, Taiwan, and Vietnam combined) are primarily due to falls in interest rates or exchange rates in 2015 (discussed further in the Detailed Country Analysis section).

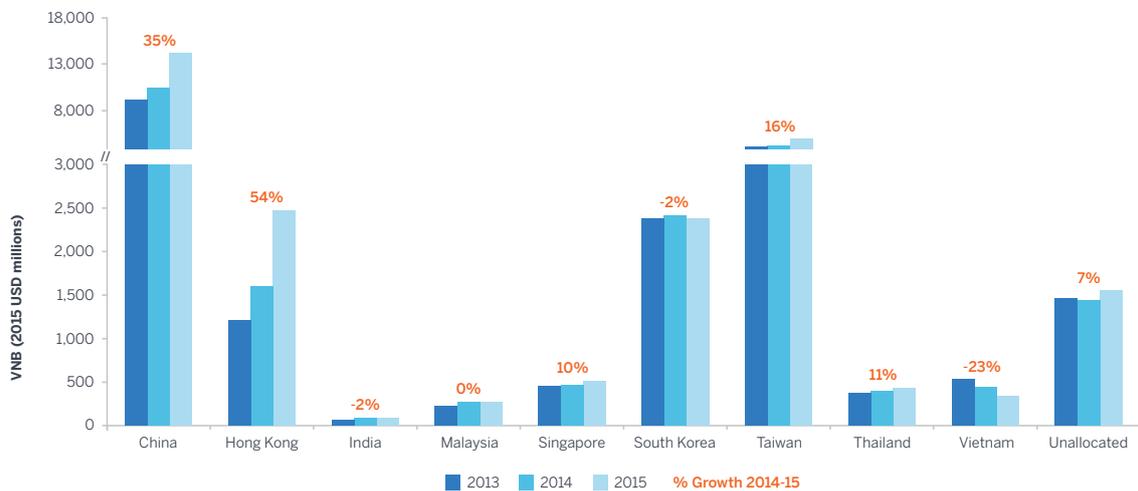
Figure 22 breaks down the reported EV for 2015 into its VIF and ANW components for each market. Chinese insurers generally show a higher proportion of their EV coming from VIF, compared with the South Korean and Thai insurers, which typically have a higher proportion of ANW.

The key factor for those markets with value more weighted to ANW is the persistent low interest rate environment. All other things being equal, a declining interest rate environment will increase the value of fixed income assets held on the balance sheets, thereby increasing the value of the ANW. In theory, this should be offset by a reduction in VIF, as the investment return assumptions are in turn adjusted to account for the low interest rates. If insurers are marking all assets to market and have asset durations shorter than liability durations, then the VIF reductions should more than offset the ANW increases (unless investment return assumptions have not been reduced to the same degree as the yield curve). This is discussed further in the Hot Topics section.

VNB IN ASIA

Total reported value of new business (VNB) for Asia stood at USD 24.0 billion in 2015, compared with USD 19.2 billion in 2014, representing growth of 24.2%³⁴ 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,³⁵ 2013 TO 2015



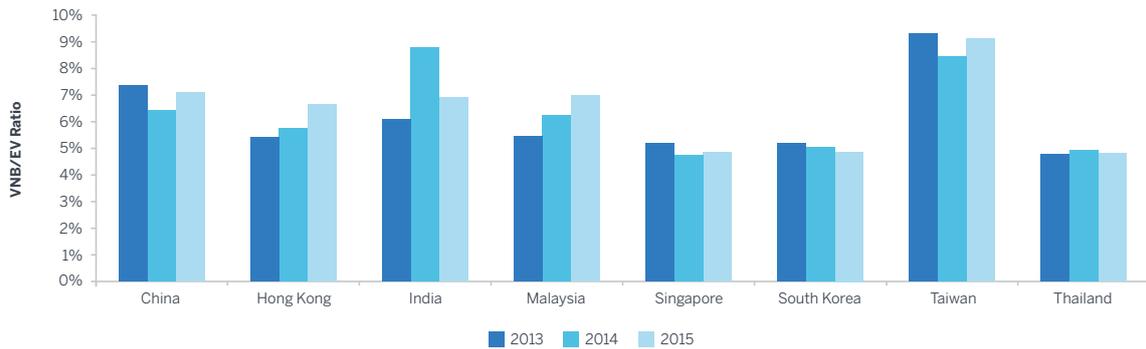
33 Based on the reported Allianz Asia MCEV in 2015 of EUR -324 million divided by the reported Allianz Asia MCEV in 2014 of EUR 658 million.
 34 This percentage has been calculated on a comparable basis, i.e., only companies that have disclosed a full set of FY2014 and FY2015 numbers have been included here.
 35 As at the data cutoff date (31 May 2016), some insurers have not yet disclosed their FY2015 EV figures. Hence, this chart and subsequent commentary only includes insurers that have a complete set of FY2014 and FY2015 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, HDFC Life, and ICICI Prudential.

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. Major insurers in Hong Kong, such as AIA and Prudential, reported significant increases in VNB in 2015.

Indonesia and South Korea reported reductions in VNB, the former being mainly due to a reduction in new business sales for Prudential Indonesia, and the latter to the low interest rate environment. India’s apparent decrease in VNB purely reflects the results of Max Life, which is the only Indian insurer that has disclosed EV results as at the data cutoff date of this report.

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,³⁶ 2013 TO 2015



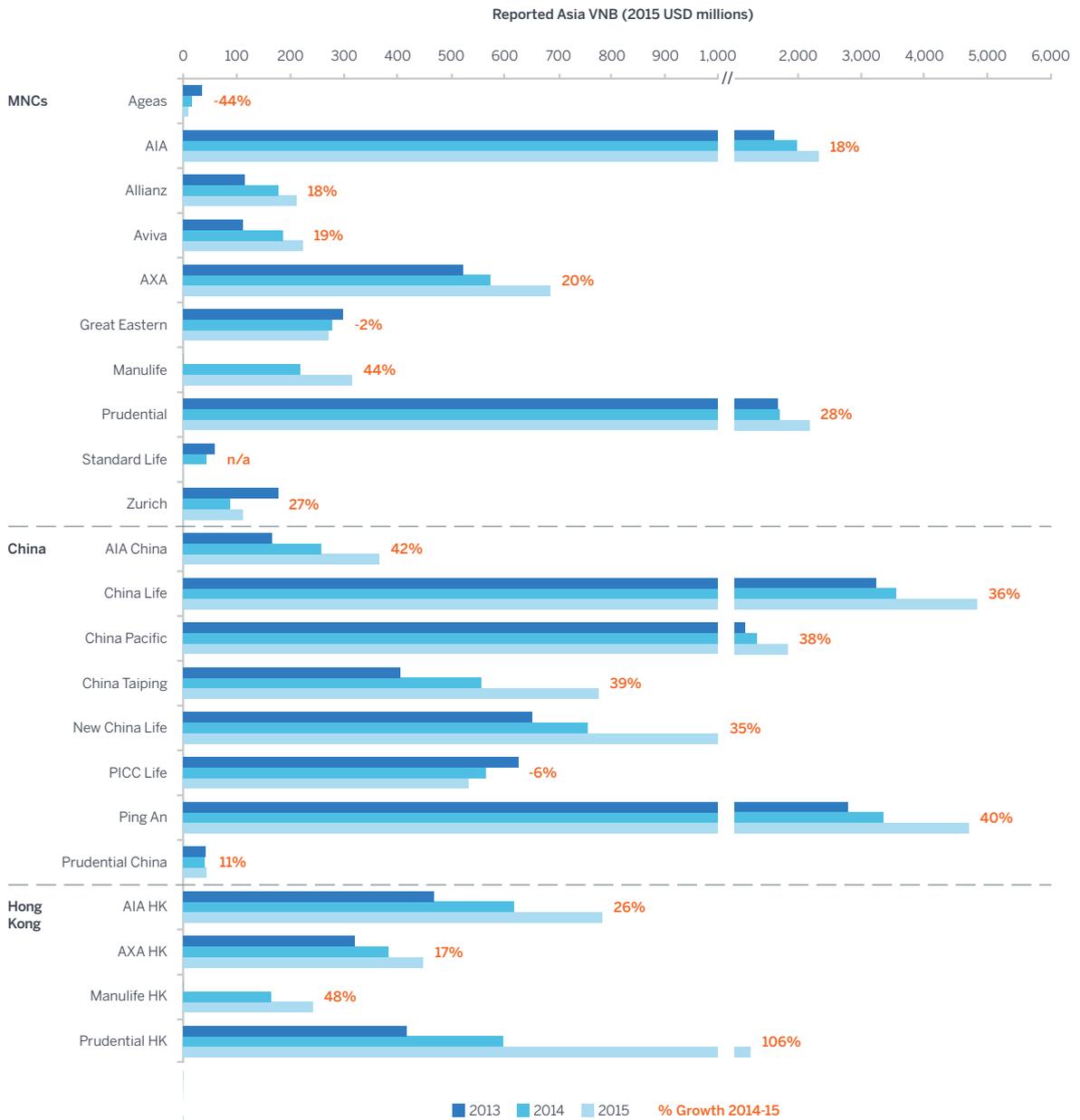
The majority of markets have exhibited a relatively stable ratio over the last three years. The developing countries tend to show higher VNB/EV ratios compared with developed countries, with Taiwan a notable outlier because of its large volumes of ‘negative spread’ in-force business.

Hong Kong’s and Malaysia’s ratios both increased in 2015, primarily due to strong new business sales. As discussed more extensively in our Hong Kong section below, insurance sales to mainland Chinese visitors have been the primary driver of new business for many Hong Kong insurers recently. The Malaysia results reflect a rise in profit margins, on top of positive new business growth (see the Malaysia section for further details).

³⁶ 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,³⁷ 2013 TO 2015



³⁷ Manulife only began reporting VNB for its Asian operations in 2014.

FIGURE 25: ASIAN VNB BY COMPANY, 2013 TO 2015 (CONTINUED)

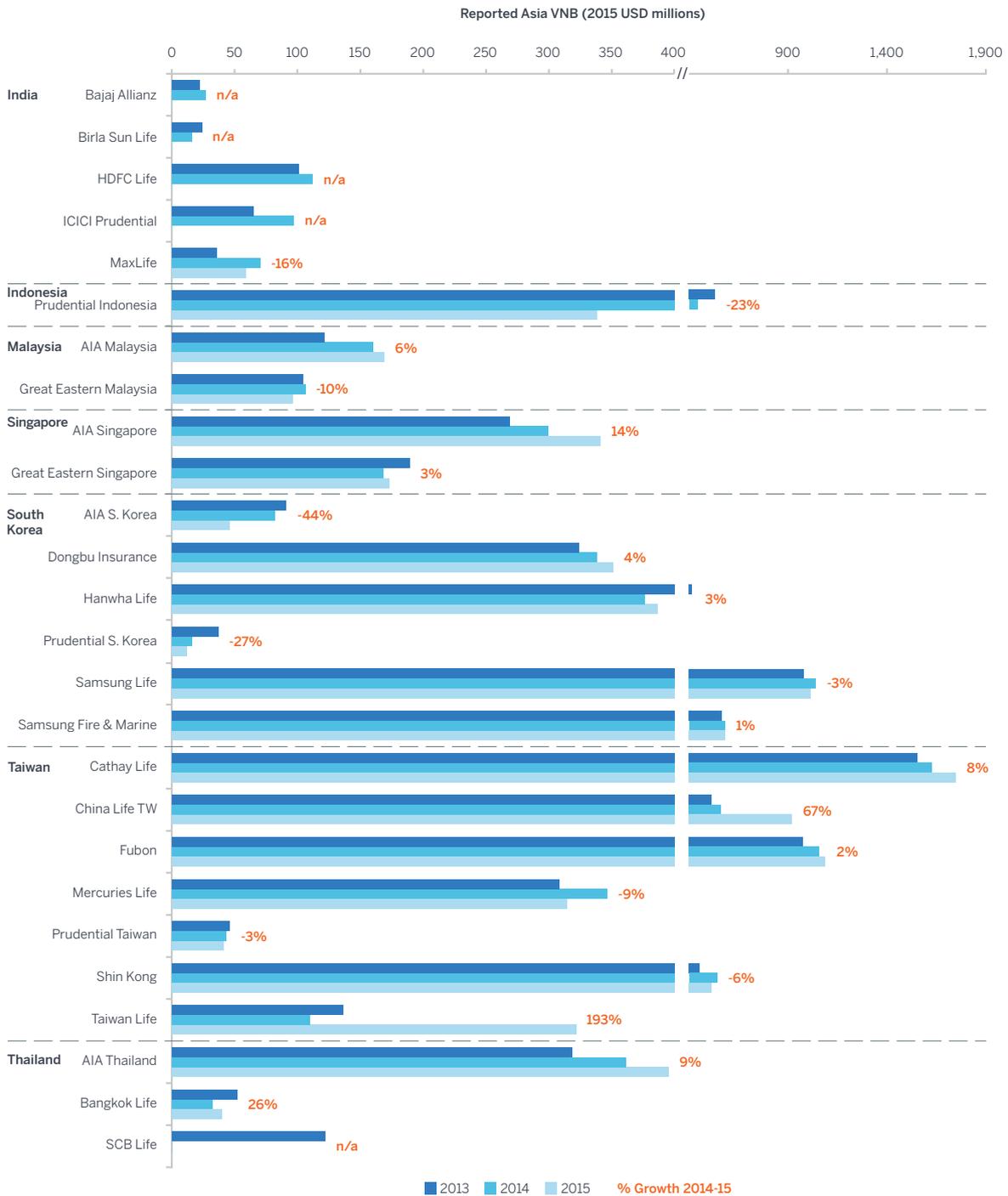


Figure 25 presents each individual company’s VNB from 2013 to 2015.

Taiwan Life at 193%, China Life (Taiwan) at 67%, and Manulife at 44% reported the largest increases in Asian VNB in 2015:

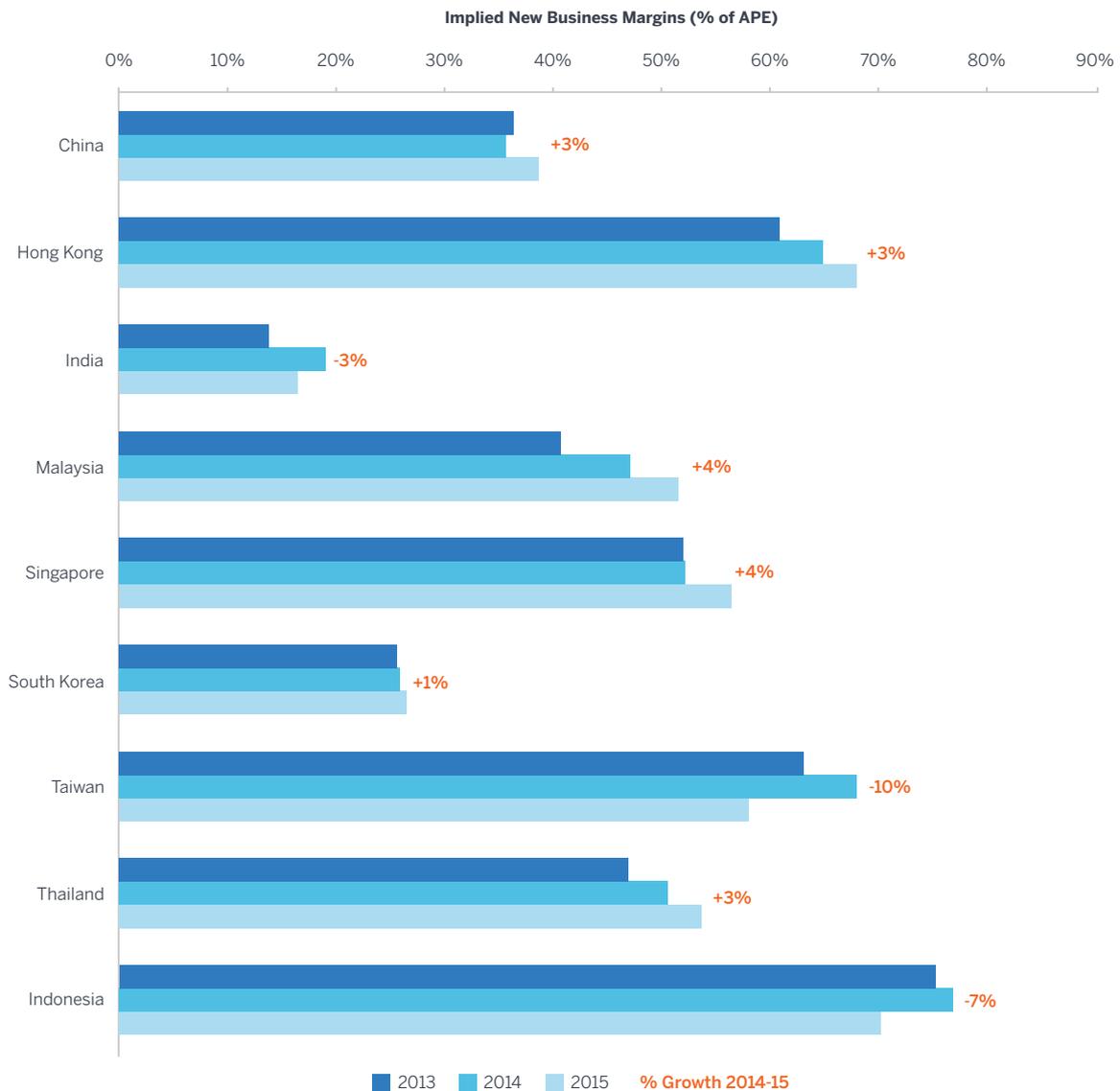
- Taiwan Life’s large increase in VNB was mainly due to its merger with CTBC Life in 2015
- China Life (Taiwan) saw strong VNB growth, due to improvements in new business margins caused by a change in product mix
- Manulife’s growth in VNB was primarily driven by higher new business sales in its Asian operations

Prudential Hong Kong is also worth highlighting, as it saw a 106% increase in VNB in 2015, driven by increased offshore new business (chiefly from mainland Chinese visitors).

Market-consistent EEV-reporting Ageas saw the largest decrease in Asian VNB of 44%. According to Ageas this was due to new local regulations that impacted its product offerings in the first half of 2015, but decreasing yield curves may have also played a part in these results; Ageas only completed the sale of its Hong Kong operations to China’s JD Group in May 2016, so that was not to blame. The Korean operations of AIA and Prudential also posted decreases in VNB of 44% and 27%, respectively. AIA’s result was mainly driven by falling new business volumes, while Prudential’s new business grew but margins reduced materially.

NEW BUSINESS MARGINS³⁸ IN ASIA

FIGURE 26: IMPLIED NEW BUSINESS MARGINS³⁹ BY COUNTRY, 2013-2015



38 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.

39 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. Indonesia, Taiwan, and Hong Kong appear to have the highest margins in Asian. Indonesia is based on one data point, namely the reported margin for Prudential Indonesia. For Hong Kong, the four insurers disclosing VNB in 2015 (AIA, Prudential, AXA, and Manulife) are reporting similar new business margin levels of around 70%.

Indonesia and Taiwan have seen a fall in implied new business margins for 2015, reflecting the decrease in profitability of new business for Prudential in Indonesia and domestic insurers in Taiwan, respectively, while Hong Kong's improvement in new business margins reflects the increasing profitability reported in most Hong Kong insurers' disclosures. It is also worth noting that many Taiwanese and Chinese insurers assume increasing investment returns for future years, with assumptions significantly higher than valuation date bond yields, 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 (FY2013, FY2014, and FY2015⁴⁰). 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 FY2015. As a result, the 2015 growth rates for each MNC's subsidiary may not be the same as those presented in the previous sections, due to currency differences.

40 Please note that that not all insurers have their financial years coincide with calendar years. In this report, we have defined FY2015 results to be the financial year results which contain the majority of 2015 calendar year results. For example, the FY2015 results for Indian insurers that have a March financial year-end date correspond to the financial results for the year ending 31 March 2016. 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, 2013-2015⁴¹

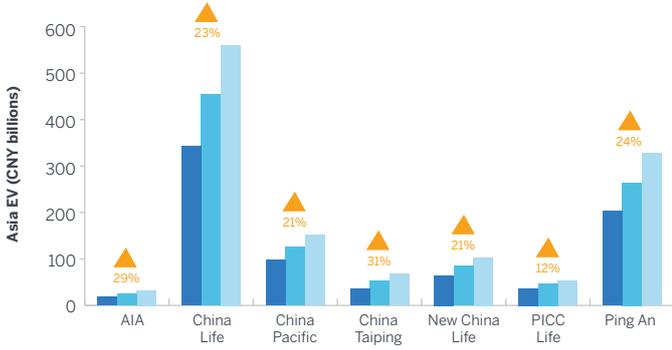


FIGURE 28: REPORTED ANW OF CHINESE INSURANCE OPERATIONS, 2013-2015

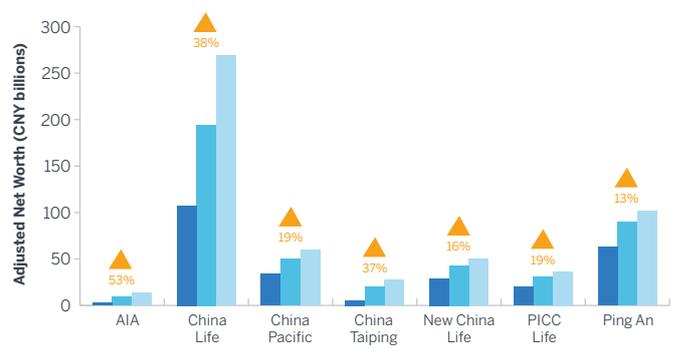


FIGURE 29: REPORTED VIF OF CHINESE INSURANCE OPERATIONS, 2013-2015

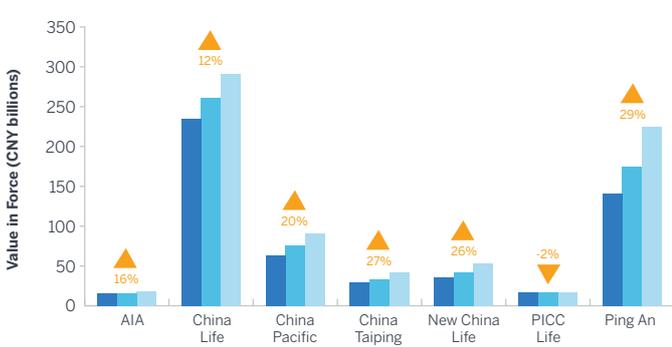


FIGURE 30: REPORTED VIF/ANW SPLIT OF CHINESE INSURANCE OPERATIONS, 2015

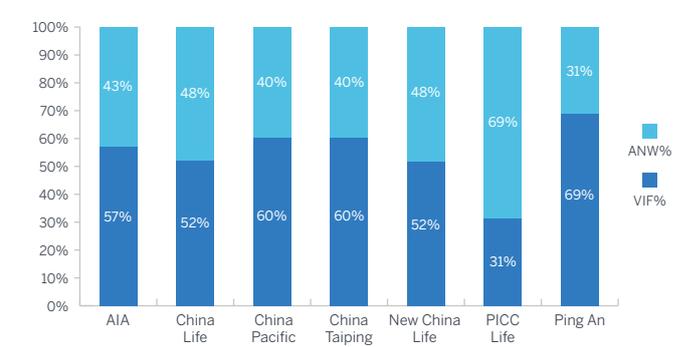


FIGURE 31: REPORTED VNB OF CHINESE INSURANCE OPERATIONS, 2013-2015⁴²

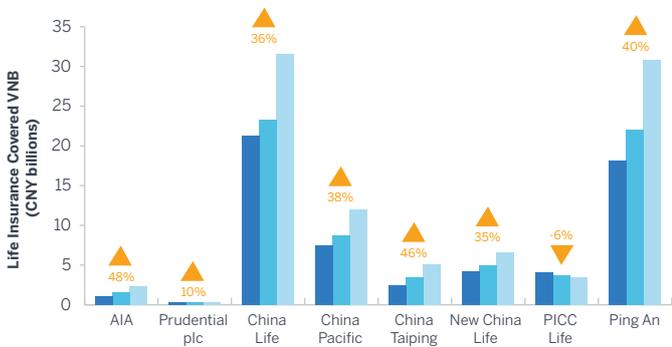


FIGURE 32: REPORTED APE OF CHINESE INSURANCE OPERATIONS, 2012-2014

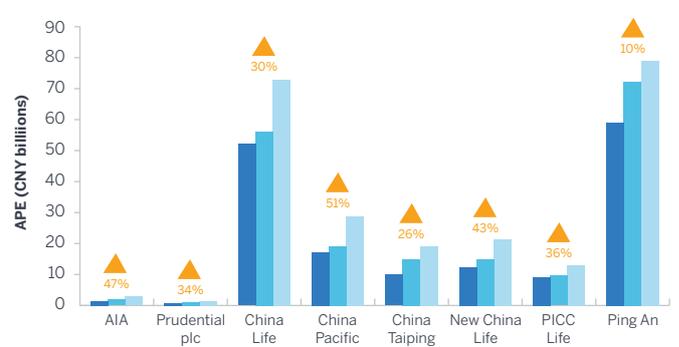
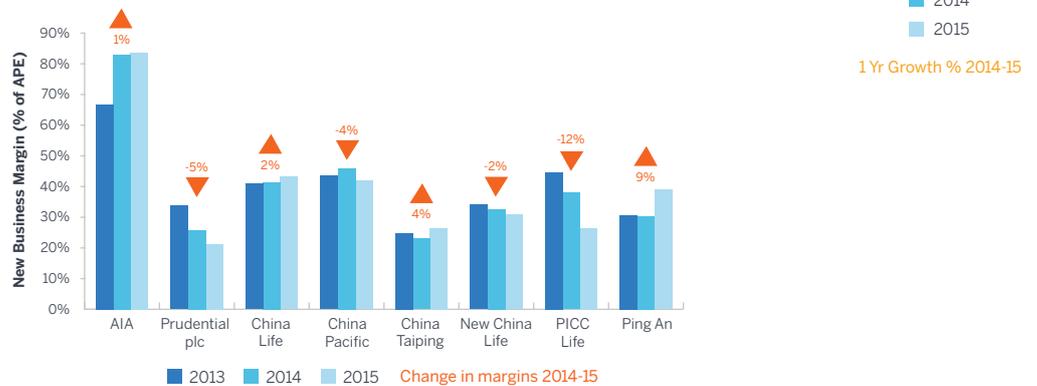


FIGURE 33: REPORTED NEW BUSINESS MARGINS OF CHINESE INSURANCE OPERATIONS, 2013-2015



41 The reported EV for PICC Life in 2014 was CNY 47.4 billion. In 2015, PICC Life reduced the investment return assumption from 5.75% to 5.50%. Based on the 2015 assumptions, the revised 2014 EV was CNY 45.9 billion, which gives a comparable growth rate of 15.6% in 2015.

42 The reported VNB for PICC Life in 2014 was CNY 3.67 billion. In 2015, PICC Life reduced the investment return assumption from 5.75% to 5.50%. Based on the 2015 assumptions, the revised 2014 VNB was CNY 3.10 billion, which gives a comparable growth rate of 11.7% in 2015.

Seven companies reported 2015 EV results in China, all of which managed double-digit growth for the year. China Taiping reported the largest growth at 31%, followed by AIA China at 29%, and Ping An at 24%. 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).

EV results rose strongly in 2015, although in most cases less than in 2014; with the large falls in the stock market from June 2015 to August 2015 being blamed in several cases. As a weighted average, approximately 50% of the increase in EV for the companies is attributable to increases in ANW in 2015, compared with 68% in 2014. This is further highlighted in Figures 28 and 29 above, with ANW increases in both years reflecting increases to bond values as a result of the falling yield curve, while VIF continues to grow at a steady pace.

Investment return and risk discount rate assumptions for most life insurers have been completely unchanged for the last two years despite the long-term government bond yield curve decreasing by around 80 bps and 100 bps during 2014 and 2015, respectively. With no reduction in assumed investment returns, there is no negative impact on VIF, which we would usually expect to see when the yield curve falls materially. The full set of economic assumptions disclosed in the market is set out in Figure 93. The domestic life insurers typically assume investment returns rising from around 5% to 5.5%, with risk discount rates of around 11%. Although the 10-year government bond yield stood at 2.86% at the end of 2015, we expect part of the justification for the EV investment assumptions used will be the material credit spreads offered by other fixed interest investments available to life insurers in the market.

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 (although much of this has been short-term, high-guarantee business) and increased margins associated with an industry shift away from bancassurance towards agency. The number of agents of China Life, Ping An, CPIC, and New China Life increased significantly in 2015. Excluding PICC Life and Prudential, insurers reported significant growth in VNB for 2015. AIA recorded the largest growth in VNB for 2015, which was predominantly due to its product and distribution strategy, more agency, and more protection, with critical illness a main focus. For PICC Life, when comparing the VNB using the new investment return assumptions in 2015, the VNB increased by 11.7%, which is much lower than the growth rate of the other listed local insurers because of the sharp decrease in bancassurance new business.

Further to the traditional life pricing interest rate liberalisation in August 2013, CIRC relaxed pricing rules on universal life and participating business in February 2015 and October 2015, respectively. While traditional product repricing resulted in significant new business growth, there was less of an impact from the changes to universal life and participating business, given greater policyholder focus on crediting rates and dividends for these products.

The year 2015 was also the first one in which C-ROSS calculations were required, with insurers reporting solvency results under both the Solvency I and C-ROSS regimes. In 2016, C-ROSS came into full effect, with officially reported aggregate solvency ratios of 290%, 221%, and 441% for nonlife companies, life companies, and reinsurance companies, respectively, as at Q1 2016. Overall, three companies failed to demonstrate the minimum capital adequacy ratio of 100%. 92% of the companies had capital adequacy ratio above 150%, the intervention threshold. C-ROSS is expected to result in companies reviewing product and investment strategies in an effort to better manage capital going forward.

For more in-depth information and analysis on C-ROSS, please refer to our detailed analysis located at <http://www.milliman.com/insight/2015/Analysis-of-Chinas-new-C-ROSS-solvency-capital-regime/>.

HONG KONG

FIGURE 34: REPORTED EV OF HONG KONG INSURANCE OPERATIONS,⁴³ 2013-2015

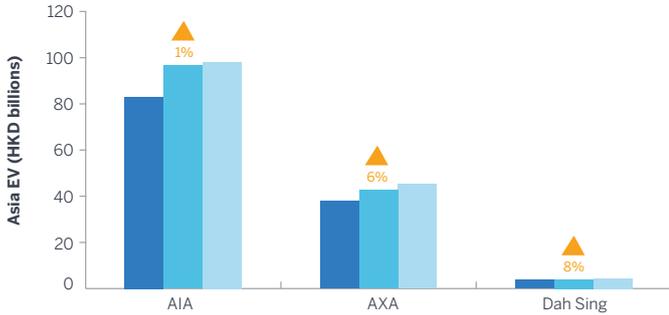


FIGURE 35: REPORTED ANW OF HONG KONG INSURANCE OPERATIONS, 2013-2015

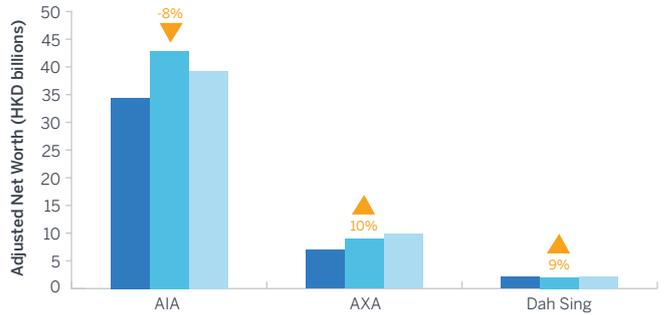


FIGURE 36: REPORTED VIF OF HONG KONG INSURANCE OPERATIONS, 2013-2015

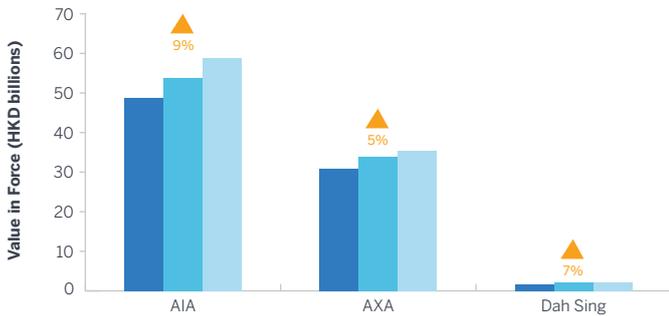


FIGURE 37: REPORTED VIF/ANW SPLIT OF HONG KONG INSURANCE OPERATIONS, 2015

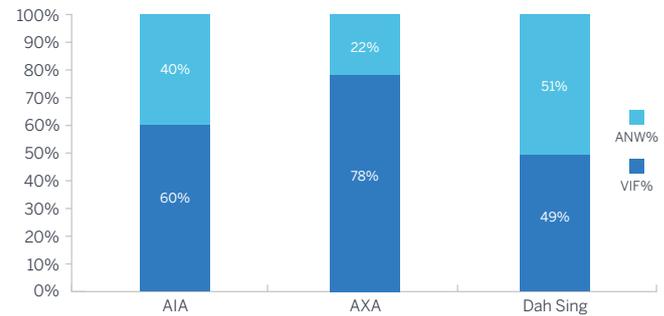


FIGURE 38: REPORTED VNB OF HONG KONG INSURANCE OPERATIONS,⁴⁴ 2013-2015

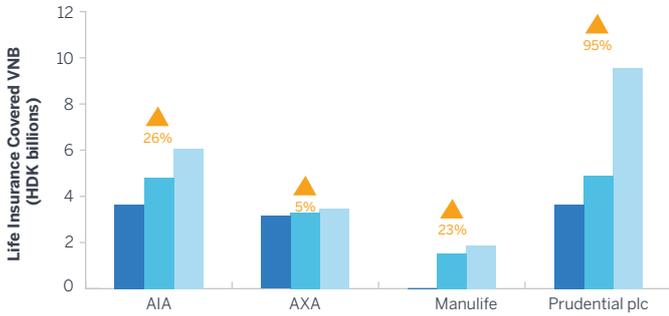


FIGURE 39: APE OF HONG KONG INSURANCE OPERATIONS, 2013-2015

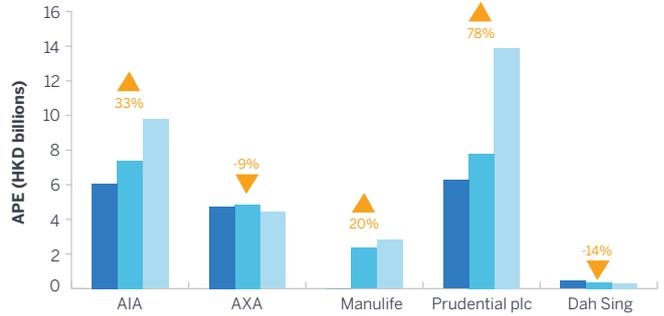
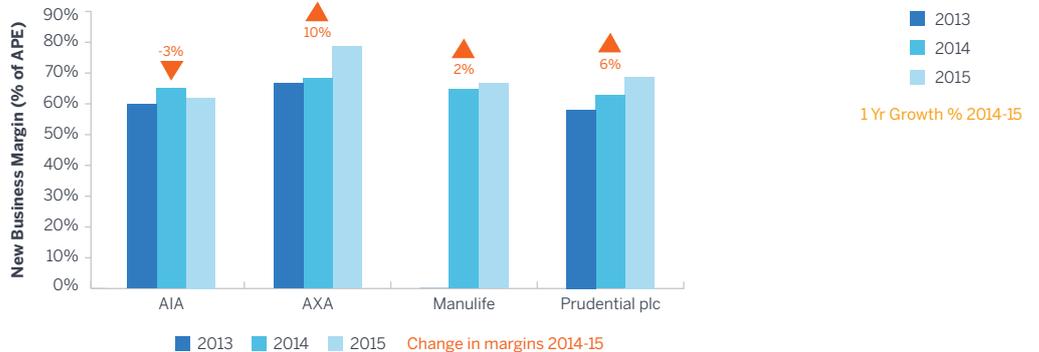


FIGURE 40: REPORTED NEW BUSINESS MARGIN OF HONG KONG INSURANCE OPERATIONS, 2013-2015



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

44 Manulife began disclosing VNB for its Asian operations in 2014.

Only three insurers currently disclose EV results for their Hong Kong operations separately, namely AIA, AXA, and Dah Sing, although Prudential and Manulife (the latter from 2014 onwards) disclose VNB and new business margins.

EV growth slowed in 2015 compared with 2014. The increase in ANW for AXA and Dah Sing was probably driven by the decrease in the long-term yield curve (thereby increasing the market value of fixed income assets). However, AIA saw a decrease in ANW over the same period. VIF increases have been partly due to positive experience variances and increases in reserves, as well as the ability to write profitable new business despite various market challenges. For insurers with sufficient scale or those operating successfully in profitable niches, new business margins in Hong Kong continue to be amongst the highest in Asia (as can be seen by Figure 40 above).

The growth in VNB among the insurers was mixed, with Prudential posting the highest figure of 95%, driven by increased offshore new business (mainly from mainland Chinese visitors), by increases in agency headcount/productivity, and by its diversification into the broker channel. In contrast, AXA saw only 5% growth in its market-consistent VNB, which was mainly due to regulatory-driven lower investment-linked sales and a reduction in the risk-free yield curve.

The life insurance sector benefitted from increased domestic demand and continued robust sales to mainland Chinese visitors to Hong Kong. According to the Office of the Commissioner of Insurance (OCI), the unweighted mainland China new business premiums increased by 30% in 2015 to HKD 31.6 billion, accounting for 24.2% of total 2015 unweighted new business premiums. However, the Chinese authorities have started to discourage such purchases by issuing risk advisories, requiring UnionPay to set a maximum limit for each transaction used for insurance premiums, and even prohibiting the use of third-party payment providers to buy insurance products in Hong Kong (other than for personal accident, medical, and transportation). A new fact statement to be signed by all Chinese mainlanders purchasing Hong Kong insurance policies is also expected to be introduced during 2016. It remains to be seen whether there will be further efforts from the mainland authorities to curb 'tourist buying' and how successful they will be in practice.

Despite an overall rise in new business for many life insurers in Hong Kong during 2015, the market conditions were challenging for most players. There was increased regulatory scrutiny of the sale of investment-linked assurance scheme (ILAS) products, with stricter point-of-sale regulations and enhanced consumer disclosures. According to data from the OCI, this led to a 64% reduction in investment-linked new business APE from 2014 levels.

As seen previously in 2014, the new business margins were very similar among the four life insurers reporting results separately for Hong Kong, despite their reporting on a range of different TEV/EEV/MCEV bases across some different product and distribution strategies.

On the regulatory front, Hong Kong's new Independent Insurance Authority (IIA) is due to be established by the end of 2016, the appointments of its directors having been announced in December 2015. The proposed body will take over from the current government regulator, the OCI, and from the three self-regulatory bodies currently overseeing insurance intermediaries. Up to now, there has been no announcement of the appointment of the IIA's Chief Executive, however.

An important ongoing regulatory development is the establishment of a new RBC solvency regime in Hong Kong. A consultation paper was published by the OCI in September 2014, setting out the proposed framework, in broad terms, and the process for developing new rules. Implementation is not expected before 2018, as a second round of consultation is yet to be rolled out. After the second round of consultation, the OCI has estimated it will take another two to three years before the appropriate legislation is passed. 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.'

For more information on the new RBC framework in Hong Kong, please refer to the Milliman e-Alert published in October 2014 at <http://www.milliman.com/insight/Periodicals/asia-ealert/Risk-based-capital-framework-for-the-insurance-industry-of-Hong-Kong/>.

INDIA

FIGURE 41: REPORTED EV OF INDIAN INSURANCE OPERATIONS, 2013-2015

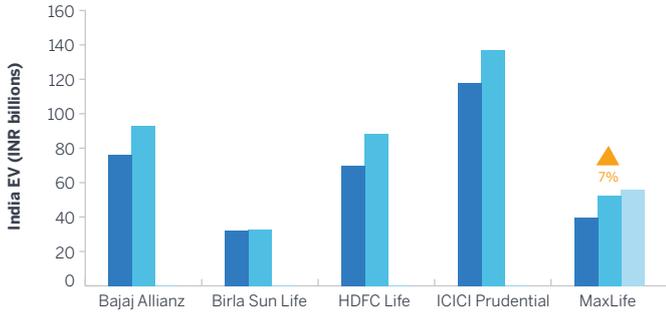


FIGURE 42: REPORTED ANW OF INDIAN INSURANCE OPERATIONS, 2013-2015

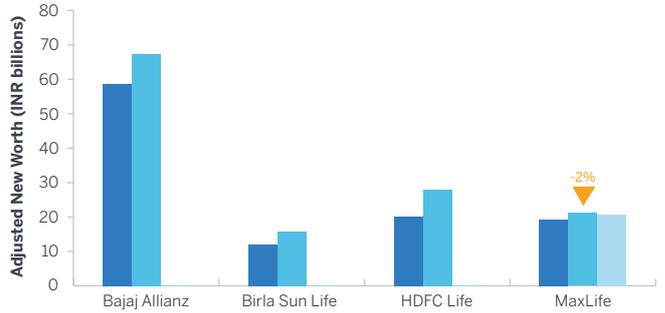


FIGURE 43: REPORTED VIF OF INDIAN INSURANCE OPERATIONS, 2012-2014

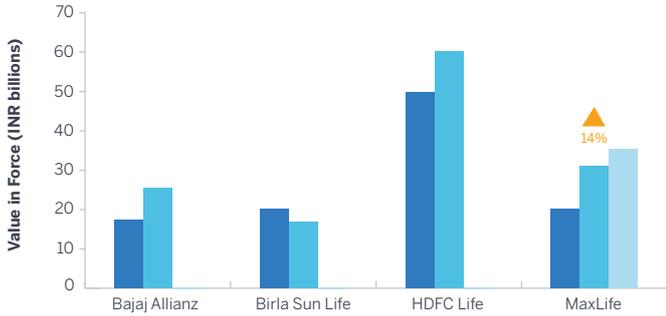


FIGURE 44: REPORTED VIF/ANW SPLIT OF INDIAN INSURANCE OPERATIONS, 2014

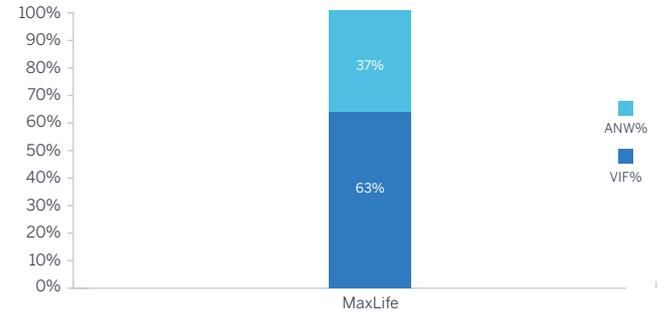


FIGURE 45: REPORTED VNB⁴⁵ OF INDIAN INSURANCE OPERATIONS, 2013-2015

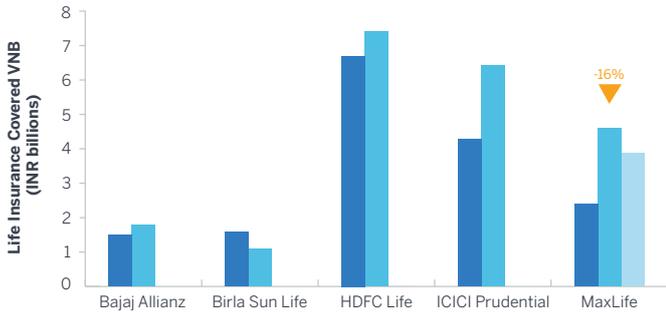


FIGURE 46: REPORTED APE OF INDIAN INSURANCE OPERATIONS, 2013-2015

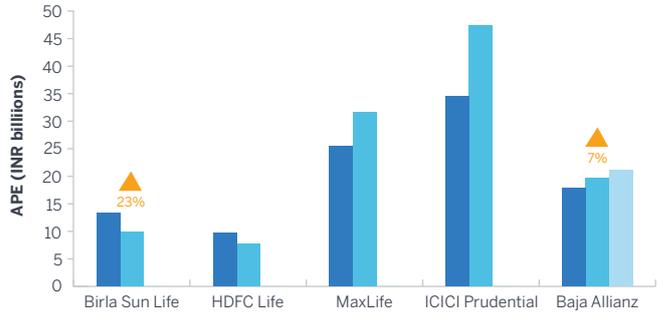
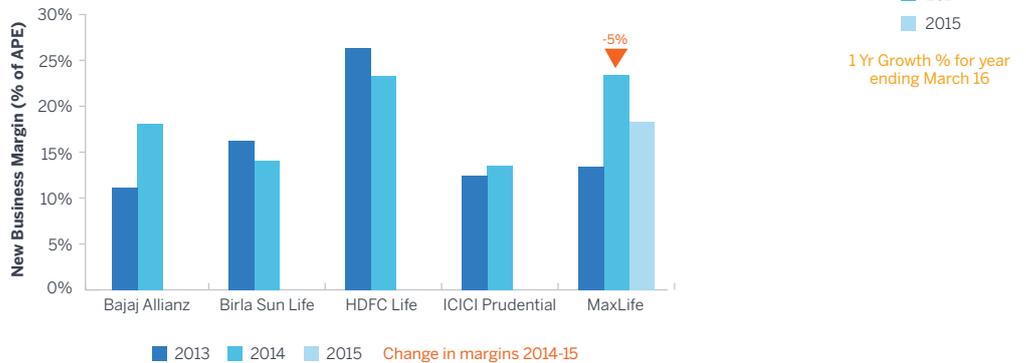


FIGURE 47: REPORTED NEW BUSINESS MARGIN⁴⁵ OF INDIAN INSURANCE OPERATIONS, 2012-2014



45 The VNB and calculated new business margins do not include the impact of expense overruns.

The FY2015⁴⁶ results for Indian companies have not been released in time for this report, except for Max Life. Therefore, this analysis has been based on the FY2014 results. The revised Figures 41 to 47 containing the FY2015 results will be included in the upcoming '2016 Mid-Year Embedded Value Results – Asia (excl. Japan)' report to be published later in the year.

EV/VNB reporting in India shows some divergence of methodologies. Some companies such as Birla Sun Life have chosen to prepare disclosures using TEV methodology. Others such as HDFC Standard Life and Bajaj Allianz Life use market-consistent approaches. Although in the past ICICI Prudential Life disclosed results using a TEV methodology, its latest disclosures were asserted by the company to be in accordance with APS10, using IEV methodology, an approach which is market-consistent. Max Life has changed from an EEV basis to a market-consistent approach, but with a clear statement that it was 'not intended to be compliant with the MCEV Principles ... or the APS10 (IEV).'

The 2014 disclosures (as at 31 March 2014) were the first to highlight the new business margins taking into account the impact of the product-related regulatory changes issued in February 2013. New business margins have typically been reported in the range of 13% to 23% using the various methodologies and before the impact of acquisition expense overruns. It is important to note, however, that expense overruns are significant for most companies. Only the large companies have eliminated maintenance expense overruns, while acquisition expense overruns persist.

The impact of acquisition expense overruns on disclosed VNB and new business margins are as follows:

- HDFC Life's FY2014 VNB decreases from INR 7.4 billion to INR 5.9 billion, leading its new business margins to decrease from 23.4% to 18.5%.
- ICICI Prudential's FY2014 VNB⁴⁷ decreases from INR 6.42 billion to INR 2.7 billion, which causes its new business margin to drop from 13.6% to 5.7%.
- Max Life's FY2015 VNB reduces from INR 3.88 billion to INR 3.78 billion, causing its new business margin to decrease from 18.3% to 17.9%.
- Bajaj Allianz disclosed the impact of expense overruns on its overall EV of INR 2.6 billion, but did not separately disclose the VNB impact.

Following the passing of the Insurance Laws (Amendment) Act, 2015, permitting foreign companies to increase their levels of equity from 26% to 49%, several overseas investors have increased their joint venture stakes. Several (but not all) of the remaining companies are expected to complete shareholder-related transactions in the coming year. In July 2016, ICICI Prudential was the first to file for an IPO. During the same month, HDFC Life also announced plans to merge with Max Life (whose parent is already listed), thus scrapping its prior IPO plans. The listing process of ICICI Prudential, with the filing of its Draft Red Herring Prospectus, has significantly enhanced the level and quality of disclosures in the market (in accordance with the requirements of APS10). It remains to be seen if this becomes the new standard that other insurers seek to follow.

The Insurance Regulatory and Development Authority of India (IRDAI) has released a number of new regulations exercising its new powers under the abovementioned Act, including the following:

- New rules around the allocation of life insurance operating expenses, which are expected to affect most companies and their participating business in particular.
- Proposal to change the distributor commission structures for various products, which could increase sales of protection business.
- Proposal for the alignment of Indian insurance accounting with IFRS.

For more in-depth information and analysis on the new regulations, please refer to our analysis, available at <http://www.milliman.com/insight/Periodicals/asia-ealert/New-life-insurance-regulations-in-India-January-2016/>.

46 For the purposes of this report, FY2015 for India insurers represent the financial year ending 31 March 2016.

47 Based on IEV.

INDONESIA

FIGURE 48: REPORTED VNB OF INDONESIAN INSURANCE OPERATIONS, 2013-2015

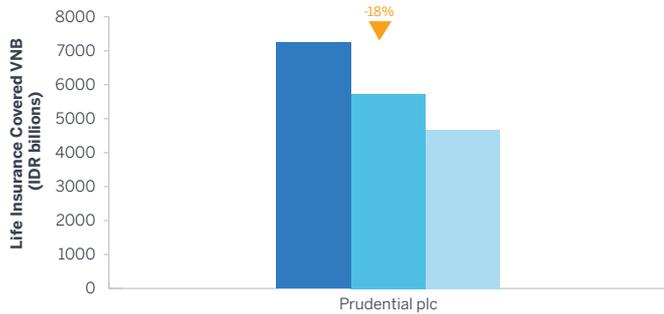


FIGURE 49: REPORTED APE OF INDONESIAN INSURANCE OPERATIONS, 2013-2015

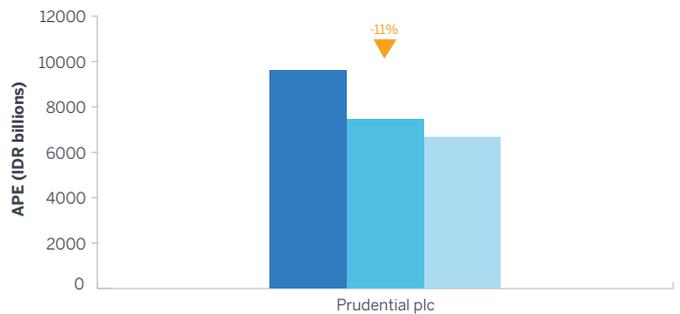
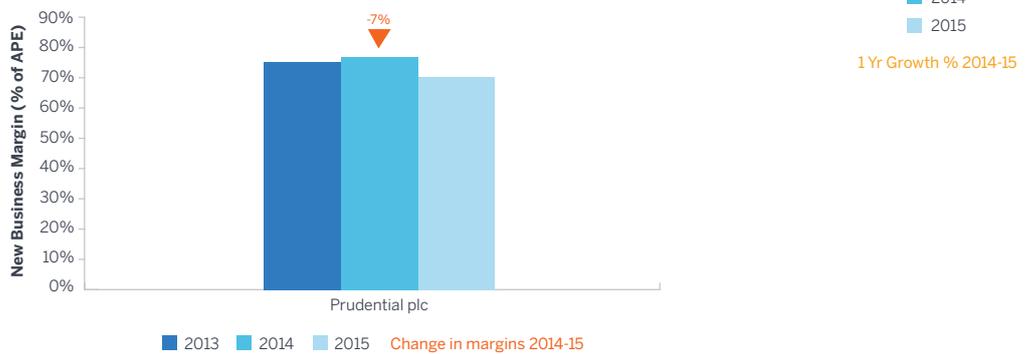


FIGURE 50: REPORTED NEW BUSINESS MARGIN OF INDONESIAN INSURANCE OPERATIONS, 2013-2015



It is still the case that no insurers publicly disclose EV figures for their Indonesian operations. Prudential remains the only insurer to disclose its VNB and new business margins for Indonesia. For 2015, Prudential’s VNB showed a marked decline of 18%, driven by an 11% decline in APE and a 7% reduction in new business margin.

New business APE for the whole Indonesian life insurance market grew by a modest 4%⁴⁸ in 2015, compared with a decline of 3% in 2014. Traditional life sales have become more prominent as investment-linked business has been adversely affected by stock market falls. Agency’s share of total new business reduced in favour of bancassurance, although agency remains the largest distribution channel, with a 45% share of new business APE in 2015.

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 and requires foreign companies to comply with the single presence policy, permitting them to hold licenses, by 2024, in only one company of each type (life, general, Shariah, and reinsurance). As a result, Manulife was the first major insurer to announce plans to establish a separate Shariah operating entity. The recently announced acquisition of CIMB Sun Life by Sun Life Financial will also likely lead to the Canadian insurer consolidating its interests in these two entities in order to comply with the new single presence requirement. Another major life insurer to face this issue is AXA, which owns stakes in three life insurance companies and two general insurance companies in Indonesia.

Other regulatory developments of interest include the announcement of an 80% cap of foreign ownership in Indonesian insurance businesses, although there remains considerable uncertainty around the details of this regulation, particularly around whether existing foreign ownership stakes above 80% will be ‘grandfathered.’

48 Source: Life insurance association of Indonesia, Asosiasi Asuransi Jiwa Indonesia (AAJI).

A recent announcement by the regulator, the OJK, to prevent exclusive bancassurance partnerships may also have implications on the industry in the coming years. Details of this regulation are also still largely unclear as at the date of this report.

Our report last year highlighted the human capital issues faced by the industry. The recruitment and retention of skilled professionals remain critical success factors for insurers, given their relative scarcity in the market, especially in new areas such as digital distribution.

For updates on the Indonesia life insurance industry, please refer to our latest Indonesia Life Insurance Newsletter (published June 2016) at <http://www.milliman.com/insight/Periodicals/indonesia-life-newsletter/Indonesia-Life-Insurance-Newsletter--June-2016/>.

MALAYSIA⁴⁹

FIGURE 51: REPORTED EV OF MALYSIAN INSURANCE OPERATIONS, 2013-2015

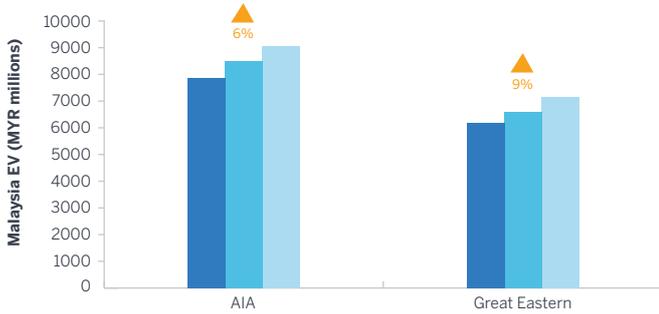


FIGURE 52: REPORTED ANW OF MALYSIAN INSURANCE OPERATIONS, 2013-2015

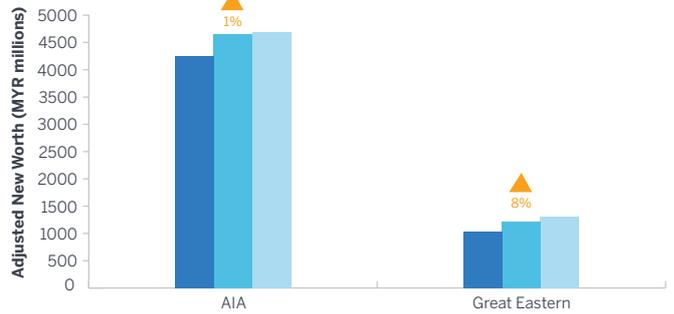


FIGURE 53: REPORTED VIF OF MALYSIAN INSURANCE OPERATIONS, 2013-2015

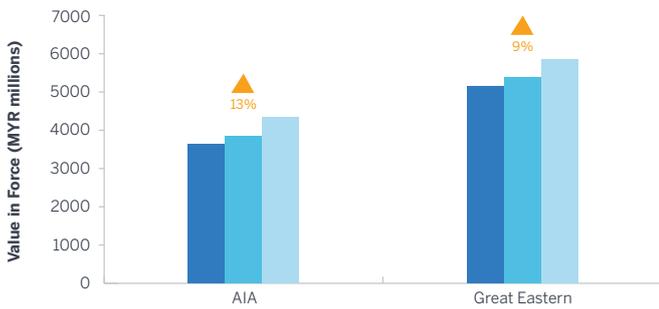


FIGURE 54: REPORTED VIF/ANW SPLIT OF MALYSIAN INSURANCE OPERATIONS, 2015

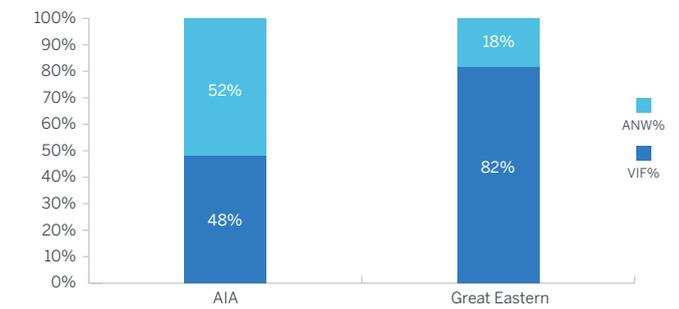


FIGURE 55: REPORTED VNB OF MALYSIAN INSURANCE OPERATIONS, 2013-2015⁵⁰

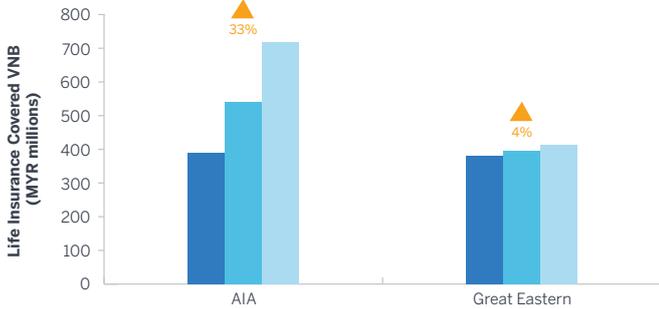


FIGURE 56: REPORTED APE OF MALYSIAN INSURANCE OPERATIONS, 2013-2015

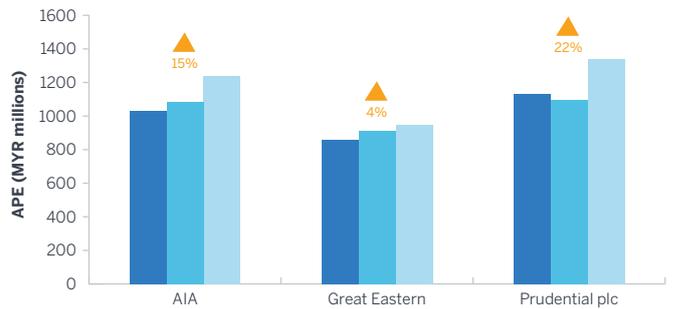
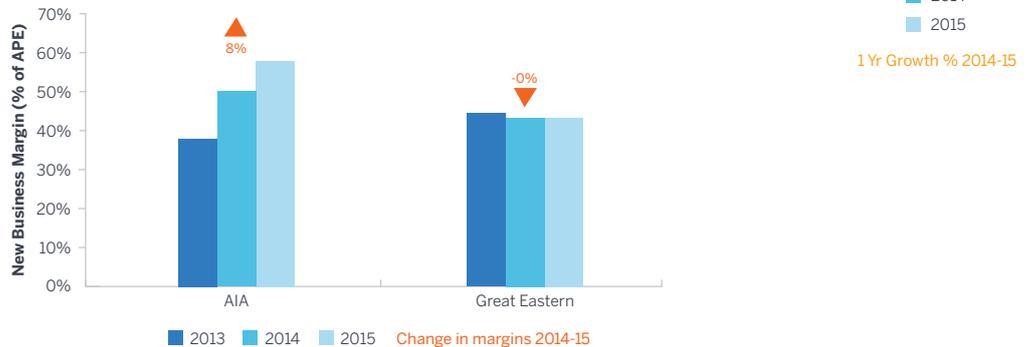


FIGURE 57: REPORTED NEW BUSINESS MARGIN OF MALYSIAN INSURANCE OPERATIONS, 2013-2015



49 Note that the discussion in Malaysia is as per the disclosures.

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

Only Great Eastern and AIA disclose EV and VNB results separately for Malaysia. Prudential Malaysia's results are not disclosed (it is part of an aggregated classification), although some of the underlying EV assumptions are provided. The investment assumptions and risk discount rates for Great Eastern were unchanged for the 2014 and 2015 disclosures. Meanwhile, Prudential increased its risk discount rate assumption marginally for in-force business from 6.6% to 6.7%, and its equity yield assumption from 10.1% to 10.2%. Both Prudential and AIA have increased their 10-year bond yield assumptions to 4.2%, reflecting a similar increase in the Malaysian 10-year government bond yield (2014 Prudential and AIA assumptions are 4.1% and 3.99% respectively).

The new business margins for AIA continue to grow materially, overtaking Great Eastern in 2015. The new business margins for these companies are primarily driven by investment-linked business, which accounts for 54% and 66% of AIA and Great Eastern's 2015 new business APE, respectively.

Investment-linked business in Malaysia is typically packaged with protection riders. According to AIA's disclosures, much of the increase in new business margins is attributable to its strategy of promoting regular premium investment-linked business combined with higher levels of protection cover and improving agency productivity through the use of technology.

In response to the lower interest rate environment, some insurers have been able to revise bonus rates downwards for their participating business; a practice that historically has proven to be difficult. Insurers are expected to continue to make further adjustments in bonus rates in the next few years, following the introduction of the new guidelines on the 'Management of Participating Life Business.' The new rules have significant implications, particularly around policyholders' reasonable expectations and how existing participating business will be managed going forward, which includes a requirement to pay asset shares on a cohort basis (previously this could be done on a fund basis, resulting in material cross-subsidies in some cases). This will likely result in some participating products requiring significant bonus cuts, with other participating products requiring significant bonus increases, in order to comply with the new guidelines.

The claims experience of medical riders has been less favourable, given the challenges in managing medical inflation and the introduction of the Goods and Services Tax (GST) in 2015.

Takaful, or Islamic insurance, continues to grow in Malaysia; family Takaful new business contributions rose by 3.9% in 2015. In May 2016, Zurich announced that it has entered into a conditional special purchase agreement to acquire 100% of the shares of MAA Takaful Berhad, from the MAA Group and the Solidarity Group Holding BSC, for RM 525 million (approximately USD 134.6 million⁵¹). The industry is expecting further restructuring, as existing composite Takaful licenses are required by 2018 to be separated into two capitalised legal entities (family Takaful versus general Takaful), in order to comply with the 'Financial Services Act 2013' and 'Islamic Financial Services Act 2013.'

In November 2015, Bank Negara Malaysia (BNM) issued the 'Life Insurance and Family Takaful Framework' (LIFE Framework), with the stated aims of achieving higher levels of insurance and Takaful penetration in Malaysia, increasing the professionalism of intermediaries, and enhancing the transparency around the provision of products and services to consumers. The LIFE Framework outlines a series of measures to further liberalise the insurance industry, which includes the removal of the commission caps on investment-linked and protection products, the diversification of distribution channels by incentivising the growth of financial advisers, and encouraging direct marketing via an online aggregator website service, which allows customers to compare prices among insurers.

Going forward, despite the challenging external political and economic environment, the industry is expecting continued expansion at a moderate single-digit growth, given the currently low penetration rates and the various initiatives in the LIFE Framework to encourage the development of alternative distribution channels to expand the reach and penetration of insurance in Malaysia.

For further in-depth information and analysis on the BNM LIFE Framework, please refer to our discussion paper at <http://www.milliman.com/insight/Periodicals/asia-ealert/Malaysia-Life-Insurance--Family-Takaful-Framework-concept-paper/>.

51 Exchange rate: USD 1 = RM 3.90.

SINGAPORE

FIGURE 58: REPORTED EV OF SINGAPOREAN INSURANCE OPERATIONS, 2013-2015⁵²

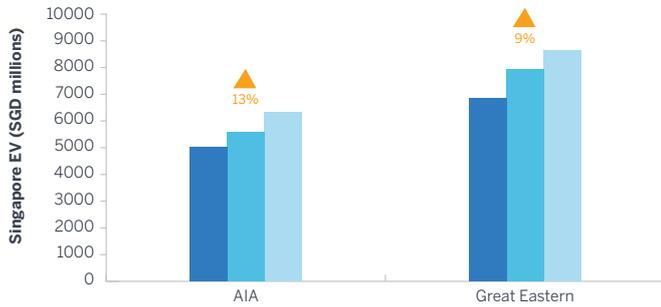


FIGURE 59: REPORTED ANW OF SINGAPOREAN INSURANCE OPERATIONS, 2013-2015

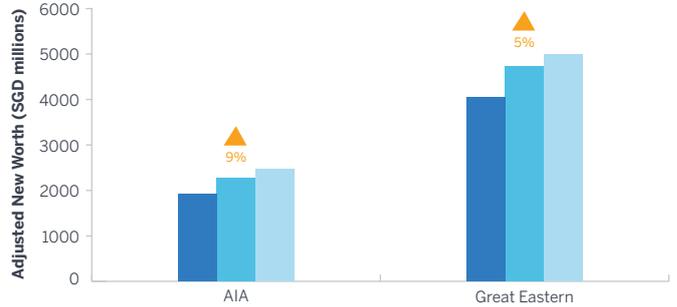


FIGURE 60: REPORTED VIF OF SINGAPOREAN INSURANCE OPERATIONS, 2013-2015

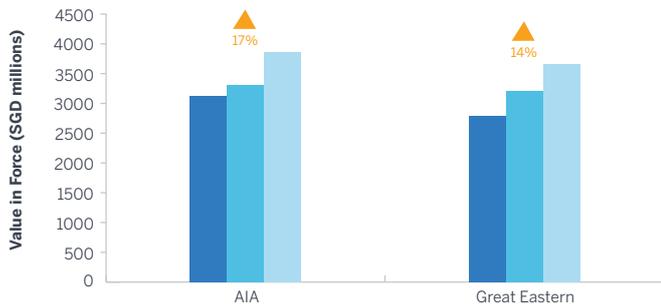


FIGURE 61: REPORTED VIF/ANW SPLIT OF SINGAPOREAN INSURANCE OPERATIONS, 2015

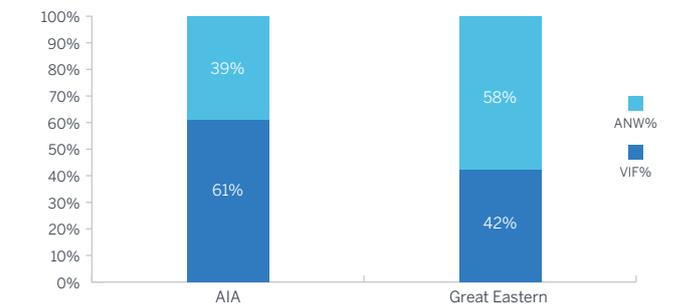


FIGURE 62: REPORTED VNB OF SINGAPOREAN INSURANCE OPERATIONS, 2013-2015

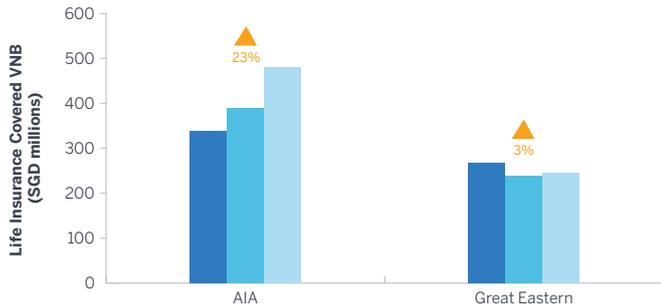


FIGURE 63: REPORTED APE OF SINGAPOREAN INSURANCE OPERATIONS, 2013-2015

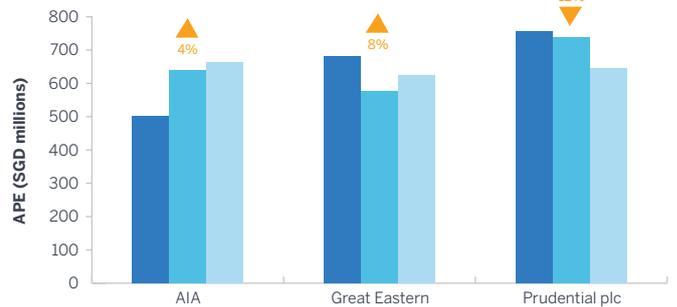
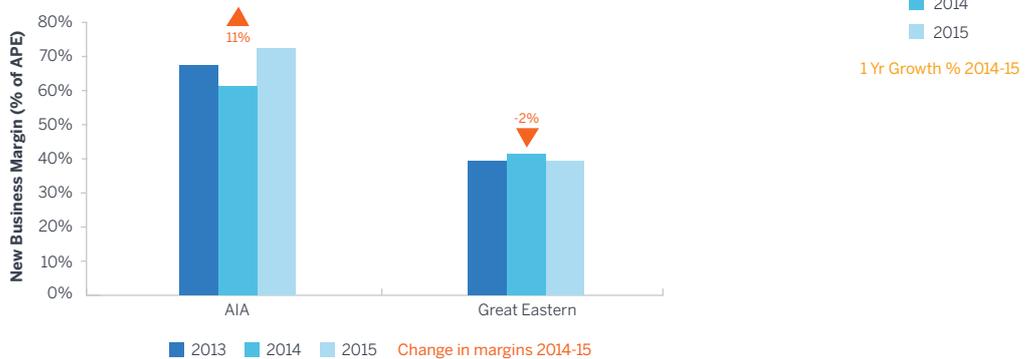


FIGURE 64: REPORTED NEW BUSINESS MARGIN OF SINGAPOREAN INSURANCE OPERATIONS, 2013-2015



⁵² Great Eastern Singapore's EV and ANW includes its businesses in Brunei, China, Hong Kong, Indonesia, Sri Lanka, and Vietnam.

Only Great Eastern and AIA disclose EV and VNB results separately for Singapore. Prudential's results are not disclosed (it is part of an aggregated classification), although some of the underlying EV assumptions are provided. The risk discount rate for AIA has increased from 6.8% to 6.9%, while the risk discount rates of Great Eastern and Prudential (in-force business) have decreased from 7.5% to 7.25% and 5.1% to 5.0%, respectively. The investment return assumptions for Great Eastern were unchanged in its 2014 and 2015 disclosures (5.25% for participating, 4.0% for nonparticipating, and 6.0% for investment-linked business). Prudential increased its equity yield assumption from 8.3% to 8.6%, while the 10-year government bond yield assumption for AIA and Prudential was increased from 2.23% and 2.30% to 2.50% and 2.60% respectively, in response to a similar 0.3% increase in the Singaporean 10-year government bond yield. The fall in new business APE for Prudential is likely driven by the loss of the Maybank bancassurance relationship, following the establishment of Etiqa in Singapore (Etiqa is a life insurance subsidiary of Maybank), the loss of an exclusive Singapore Post distribution to AXA, and the withdrawal of its universal life product (sold to the 'high net worth' segment of its bank partners).

On the regulatory front, as part of the Financial Advisory Industry Review (FAIR), insurers catering to the retail market have started distributing products directly to consumers with no commissions, although volumes from direct sales are currently insignificant as a proportion of total sales. In July 2016, the regulator released the third consultation paper for RBC 2 and began conducting its second Quantitative Impact Study (QIS 2) to evaluate the impact of the RBC 2 proposals. Results for QIS 2 have to be submitted by October 2016. Overall, the basis for QIS 2 appears to be less stringent than the previous quantitative impact study (QIS 1), performed in 2014, with more allowance for diversification, full credit taken for negative reserves, and discounting in the long term referenced to an ultimate forward rate where no data points exist. However, as per the findings for QIS 1, the risk charges for equities and credit risk remain higher than the current framework. This will likely lead to more onerous capital requirements, particularly for participating business, which accounts for over 50% of the new business APE in 2015. One key outstanding issue is the specification of the matching adjustment (MA) and illiquidity premium (IP), with the MA and IP scenarios for QIS 2 expected to be released by the Monetary Authority of Singapore (MAS) in August 2016. Depending on the proposed rules, the MA and IP could potentially reduce the capital requirements under RBC 2.

For more information on the previous RBC 2 consultation in 2014, please refer to our e-Alert at <http://sg.milliman.com/uploadedFiles/insight/Periodicals/asia-ealert/singapore-rbc-2.pdf>.

Please also look out for our new e-Alert on the 2016 consultation paper, which will be released shortly after the scenarios for the MA and IP have been prescribed.

SOUTH KOREA

FIGURE 65: REPORTED EV OF SOUTH KOREAN INSURANCE OPERATIONS, 2013-2015⁵³

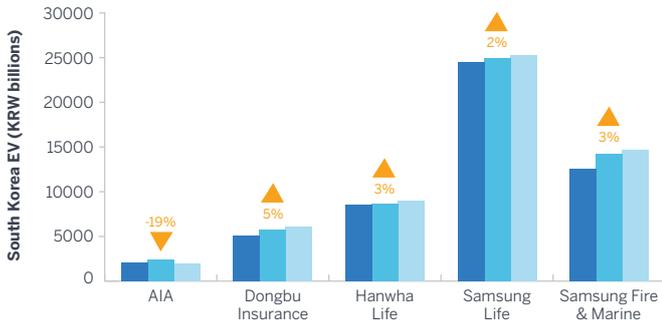


FIGURE 66: REPORTED ANW OF SOUTH KOREAN INSURANCE OPERATIONS, 2013-2015

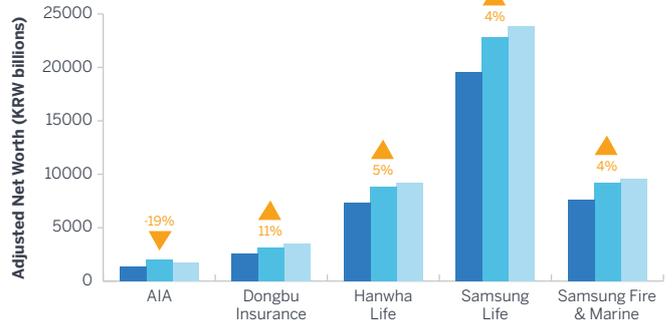


FIGURE 67: REPORTED VIF OF SOUTH KOREAN INSURANCE OPERATIONS, 2013-2015⁵⁴

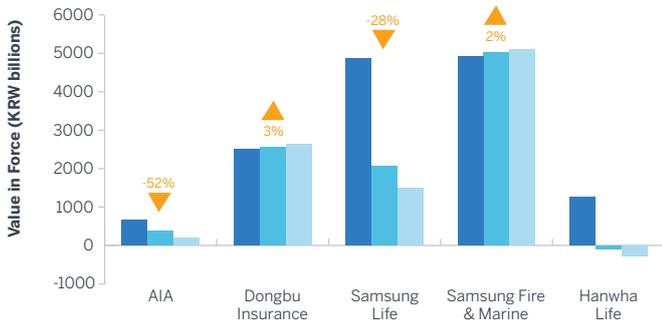


FIGURE 68: REPORTED VIF/ANW SPLIT OF SOUTH KOREAN INSURANCE OPERATIONS, 2015

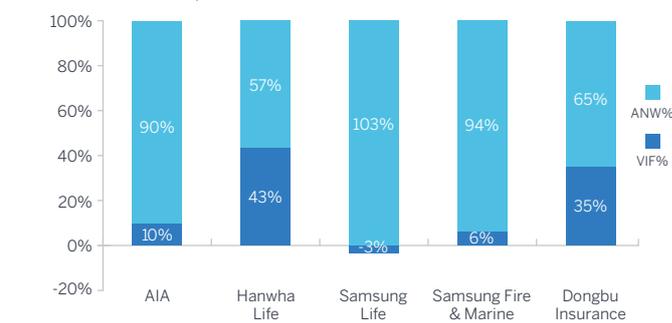


FIGURE 69: REPORTED VNB OF SOUTH KOREAN INSURANCE OPERATIONS, 2013-2015

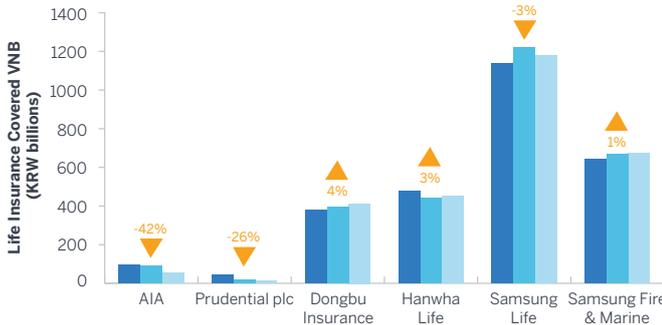


FIGURE 70: REPORTED APE OF SOUTH KOREAN INSURANCE OPERATIONS, 2013-2015

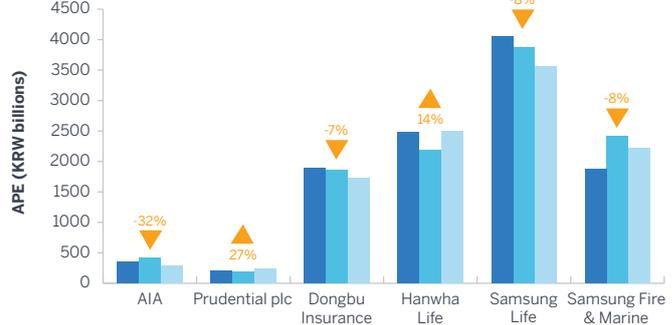
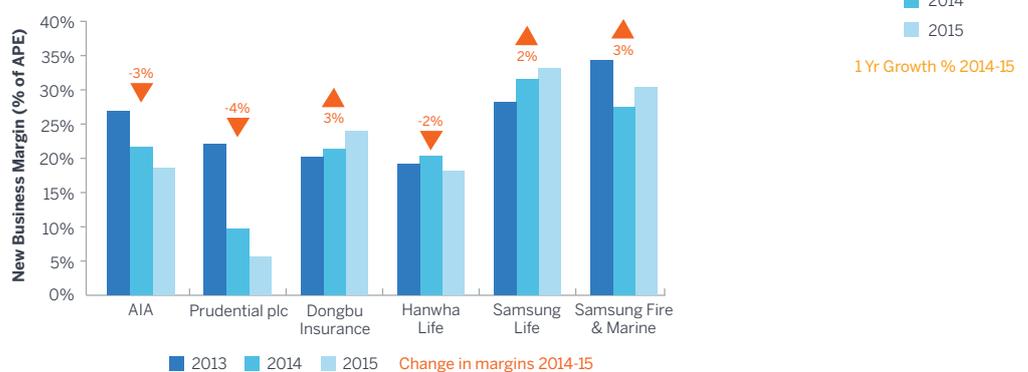


FIGURE 71: REPORTED NEW BUSINESS MARGIN OF SOUTH KOREAN INSURANCE OPERATIONS, 2013-2015



53 Hanwha Life did not disclose the EV following dividends and share repurchases in 2015. 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.

54 Hanwha Life has negative VIF in year 2014 and year 2015.

Our South Korea analysis includes the EV and VNB results of AIA, Dongbu Insurance, Hanwha Life, Samsung Life, and Samsung Fire and Marine, as well as the VNB results for Prudential. All of these companies have reduced their risk discount rates and investment return assumptions for 2015. Note that Dongbu Insurance and Samsung Fire and Marine also transact property and casualty insurance, hence care will need to be taken when comparing their EV against other companies, as the results only cover their ‘pseudo-life’ type long-term business.

South Korean insurers, similar to those in other more developed economies around the world, are finding the sustained low interest rate environment particularly challenging. Interest rates have declined further, resulting in an uplift in fixed income asset values, with all Korean insurers except AIA reporting increases in their ANW. On the other hand, VIF results have either fallen or stayed roughly the same, as investment returns have reduced with the falling yield curve. Domestic insurers, which typically have large portfolios of savings and investment type products (such as Samsung Life and Hanwha Life), have been the hardest hit (other than AIA). These products are particularly sensitive to low interest rates, with 2015 representing another year where the interest margins (the difference between actual investment returns achieved and that assumed for pricing) were negative.

Another primary driver of the decline in VNB during 2015 was reduced sales, which was mainly due to the difficult economic situation. Companies focused on protection products have been affected by consumer reluctance to spend, while companies focusing on savings products were only able to maintain new business volumes by offering aggressive policy returns to policyholders. As the MNCs saw their new business margins decrease, some domestic insurers increased their margins, primarily from selling more protection products than they have in the past.

The South Korean regulator recently enhanced the RBC requirements by increasing the required capital factors for asset default risks, in line with the ‘Roadmap for the Advancement of Solvency Regulation,’ published in 2011, which sets out planned solvency regime changes up to 2018.

In addition to solvency requirements, the regulator has increased its focus on the upcoming adoption of IFRS 4 Phase II, which will be a major task for all insurers. To minimise the one-off shock of IFRS 4, the existing liability adequacy test (LAT) is to be strengthened, requiring higher reserve levels for most South Korean companies. The regulator has publicly stated that South Korean life insurers are likely to need to raise more capital to meet the reserve requirements of IFRS 4 Phase II.

In October 2015, the Road-map to Strengthen Competitiveness of Insurance Business’ was launched, which detailed the following plans to:

- Reduce product restrictions to encourage more diverse insurance products
- Reform pricing regulations to allow insurance companies to set their own premium rates and interest rates
- Improve protection of policyholders through increasing penalties for misconduct by insurance companies
- Open an online insurance market
- Ensure financial soundness of insurers by enhancing the prudential regulations in accordance with international standards

TAIWAN

FIGURE 72: REPORTED EV OF TAIWANESE INSURANCE OPERATIONS, 2013-2015

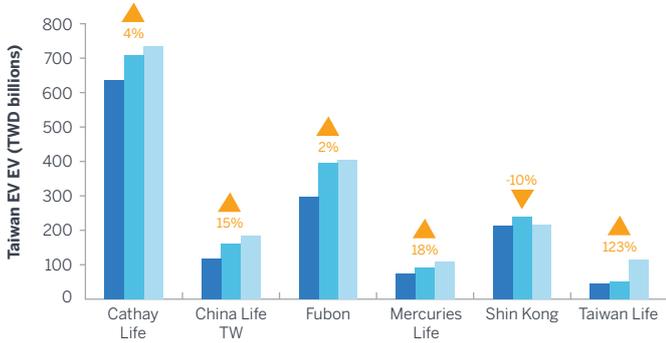


FIGURE 73: REPORTED ANW OF TAIWANESE INSURANCE OPERATIONS, 2013-2015

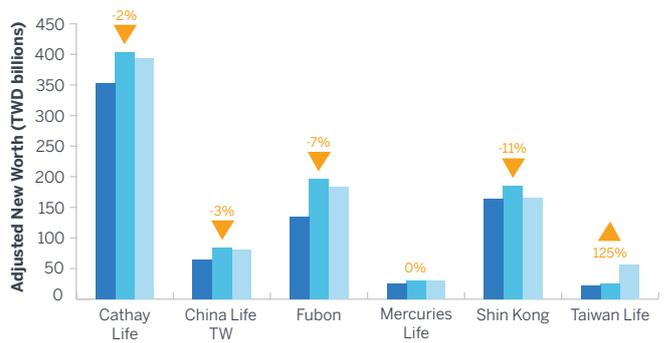


FIGURE 74: REPORTED VIF OF TAIWANESE INSURANCE OPERATIONS, 2012-2014

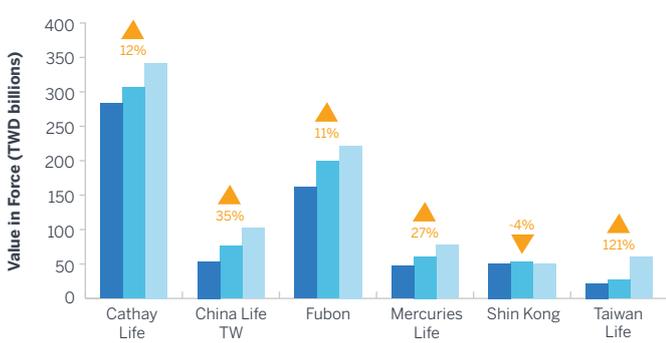


FIGURE 75: REPORTED VIF/ANW SPLIT OF TAIWANESE INSURANCE OPERATIONS, 2015

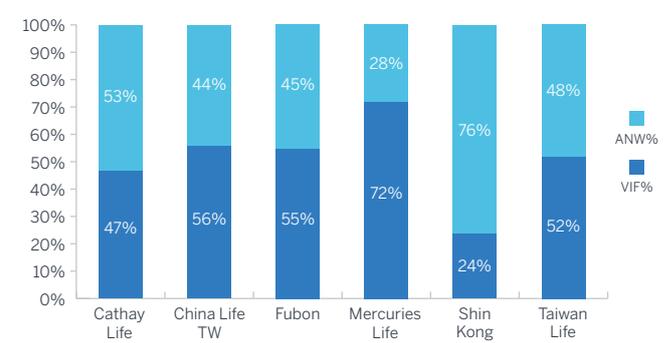


FIGURE 76: REPORTED VNB OF TAIWANESE INSURANCE OPERATIONS, 2013-2015

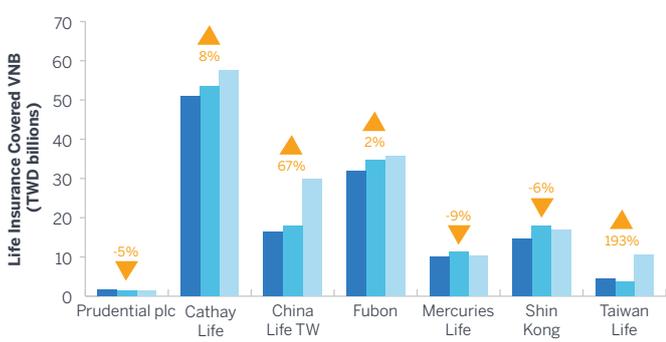


FIGURE 77: REPORTED APE⁵⁵ OF TAIWANESE INSURANCE OPERATIONS, 2013-2015

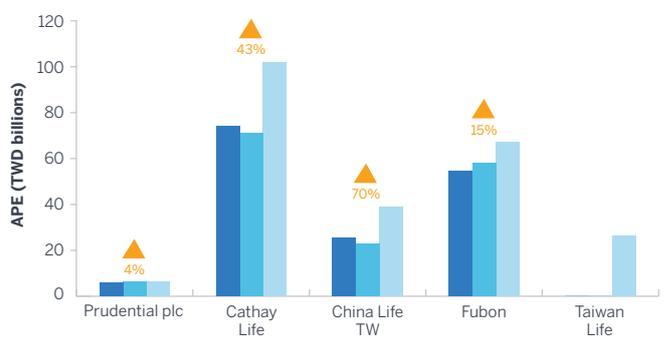
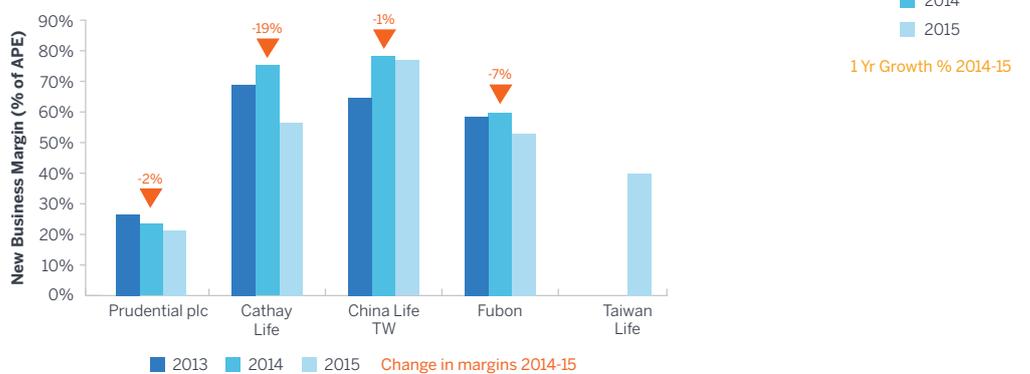


FIGURE 78: REPORTED NEW BUSINESS MARGIN OF TAIWANESE INSURANCE OPERATIONS, 2013-2015



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

Several domestic life insurance companies in Taiwan disclose both EV and VNB results, namely Cathay Life, China Life (Taiwan),⁵⁶ Fubon Life, Mercuries Life, Shin Kong Life, and Taiwan Life. Prudential only disclosed its VNB results for Taiwan, while AIA Taiwan's results are not disclosed separately (although some of the underlying EV assumptions are provided). In October 2015, CTBC Financial completed its acquisition of Taiwan Life, merging the company with its existing subsidiary CTBC Life in time for year-end reporting (keeping the 'Taiwan Life' name). The combined EV (CTBC/Taiwan Life) is reported as Taiwan Life in the graphs in Figures 72 to 78.

Taiwan insurers' EV performance in 2015 was mixed. Taiwan Life's EV grew by 123% as a result of the merger described above. Mercuries Life and China Life (Taiwan) also saw strong EV growth of 18% and 15%, respectively, which were mainly due to new business sales and economic assumption changes for the former and significant growth in new business sales of 70% by the latter. Elsewhere, Shin Kong Life reported a 10% decrease in EV, which was mainly due to a fall in ANW caused by a decrease in its unrealised gains on property and available-for-sale (AFS) assets.

Following a fall in the 10-year government bond yield of around 60 bps during 2015, investment return assumptions have generally reduced slightly, although risk discount rate assumptions for most life insurers have remained unchanged. The domestic life insurers typically assume investment returns rising from around 3.5% to 4% up to 5% to 5.5%, with risk discount rates of around 10.5%, while the 10-year government bond yield stood at 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 widening gap between the assumptions and the yield curve can be justified. The full set of economic assumptions disclosed in the market is set out in Figure 93.

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, e.g., Cathay Life and Fubon Life have more than 50% of general account assets invested in higher-yielding U.S. dollar and other foreign currency assets. Insurers also tend to have significant exposure to the domestic equity and real estate markets.

Taiwanese life insurance has been oriented to savings deposit products in the past. However, the regulator has taken very active measures to redirect sales away from single premium savings deposit replacement products in the past two years, in particular by making them either capital-punitive or completely prohibited by regulations. As a result, insurers have been gradually moving to regular premium products.

Since 2015, the Taiwanese regulator has promoted the formation of 'Offshore Insurance Units' (OIU) by insurance companies. OIUs are separately licensed entities which provide tax and other regulatory incentives for sales to foreigners either visiting Taiwan or residing in Taiwan. Since July 2015, 14⁵⁷ insurance companies have been approved to set up such businesses. The top three OIU insurance companies are Fubon Life, Cathay Life, and Taiwan Life. Taiwan Life has the widest range of OIU products and has recently planned on setting up OIU VIP centers at various locations in Taiwan and China to promote such business. After promoting OIU for over one year, there has been significant growth in sales from this sector. May 2016 new business premium growth was over 500%, compared with the same month last year. However, through June 2016, the accumulated OIU new business premium is estimated to be only USD 14 million. Initially, people expected most of the OIU business to come from the visitors of mainland China. However, most of the customers have been Japanese and Singaporeans instead. This year, 2016, has also seen a sharp decrease of mainland visitors because of recent political tensions.

In May 2016, the FSC sent a request to all insurance companies to evaluate whether any of their open blocks of insurance products are in an 'expenses loss' situation. This was defined as being when the expense loadings charged to policyholders are lower than the actual expense payout for issuing the policy (including the operating expenses and any commission or bonus paid to the distribution channel). We understand that the regulator is hoping that this will put downward pressure on commission rates. Small and medium-sized insurance companies are likely to be more affected than larger firms, which is due to their relative expense efficiencies.

⁵⁶ Not to be confused with the insurer China Life based in China; they are unrelated companies.

⁵⁷ Source: Financial Supervisory Commission.

THAILAND

FIGURE 79: REPORTED EV OF THAILAND INSURANCE OPERATIONS, 2013-2015

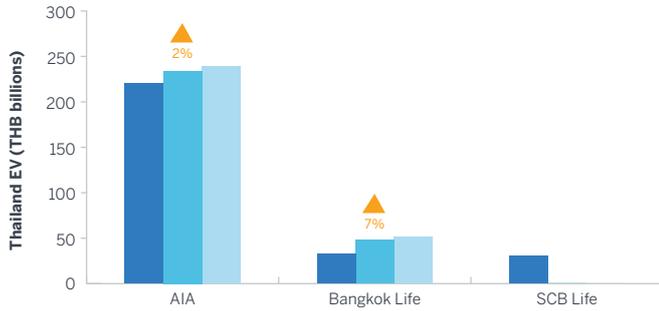


FIGURE 80: REPORTED ANW OF THAILAND INSURANCE OPERATIONS, 2013-2015

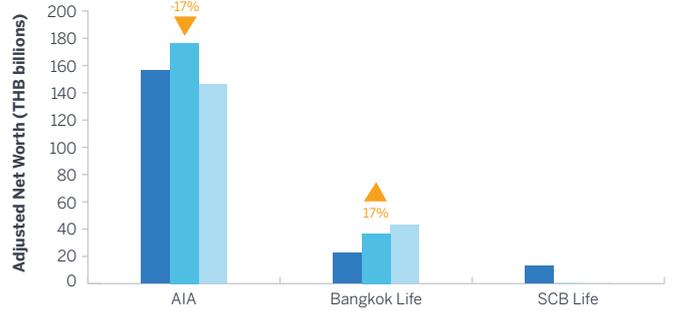


FIGURE 81: REPORTED VIF OF THAILAND INSURANCE OPERATIONS, 2013-2015

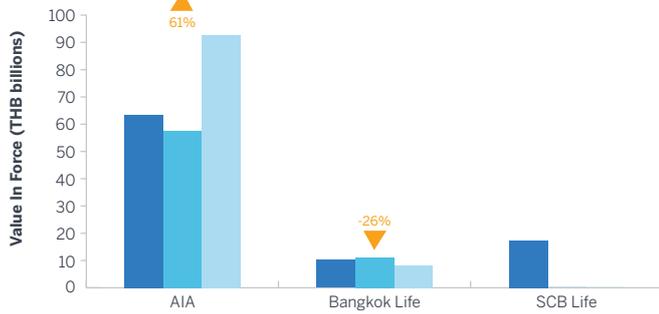


FIGURE 82: REPORTED VIF/ANW SPLIT OF THAILAND INSURANCE OPERATIONS, 2015

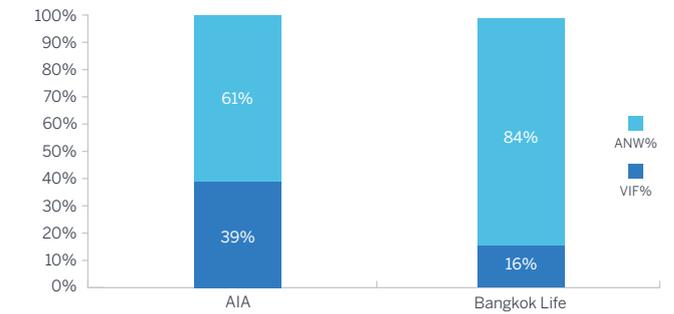


FIGURE 83: REPORTED VNB OF THAILAND INSURANCE OPERATIONS, 2013-2015

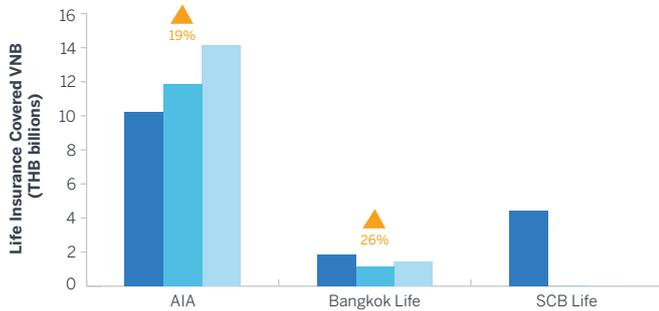


FIGURE 84: REPORTED APE OF THAILAND INSURANCE OPERATIONS, 2013-2015

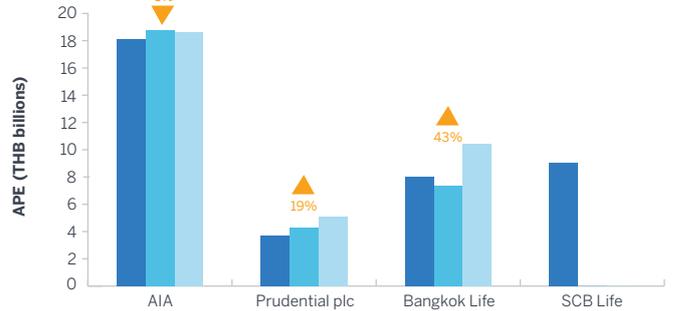
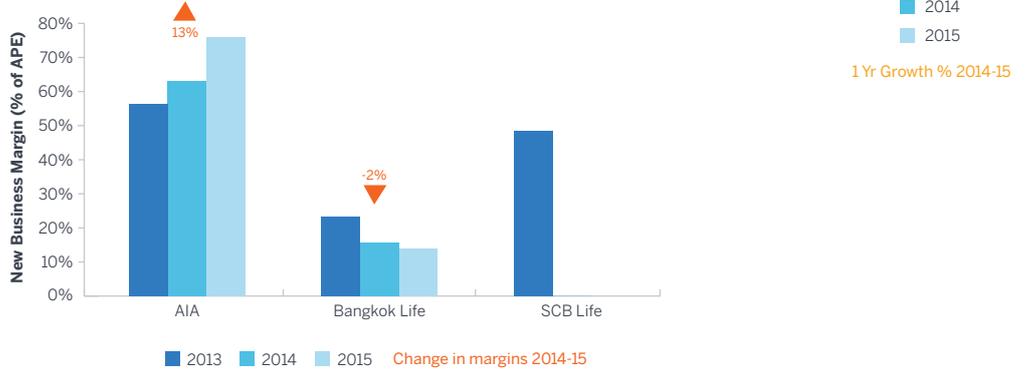


FIGURE 85: REPORTED NEW BUSINESS MARGIN OF THAILAND INSURANCE OPERATIONS, 2013-2015



Three life insurance companies have disclosed their EV and VNB results in recent years in Thailand, namely AIA, Bangkok Life, and SCB Life. The 2015 EV results for Prudential are not disclosed (they are part of an aggregated classification), but there is some disclosure of the underlying EV assumptions. SCB Life delisted from the Stock Exchange of Thailand in May 2015 and has not disclosed its results for 2014 and 2015, although the company's 2013 results have been included in this section for reference. The EV and VNB disclosures highlight some important developments impacting the Thai life insurance industry.

Fixed interest yields have been on a sharply downward trend in recent years, finishing calendar year 2015 at a level similar to which they started, as evidenced by Figure 86.

FIGURE 86: HISTORICAL 10-YEAR THAILAND GOVERNMENT BOND YIELDS



Source: The Thai bond Market Association.

The depressed investment climate has led to many market players reducing their long-term investment return assumptions and risk discount rates in their 2015 EV disclosures. AIA cut its long-term equity return assumption by 27 bps to 9.20%, its long-term 10-year government bond yield assumption by 22 bps to 3.40%, and its risk discount rate by 20 bps to 8.8%. Bangkok Life reduced its investment return assumption from 4.75% to 4.25% and cut its risk discount rate from 10% to 9%. Prudential Thailand reduced its long-term 10-year government bond yield assumption by 20 bps to 2.5% and cut its risk discount rate from 9.5% to 9.3%.

The low fixed interest yields have led to significant increases in statutory reserves in 2015 year-end EV reporting for many life insurers in Thailand, leading to a reduction in ANW in reported EV figures. The depressed yields have also resulted in increases in market risk charges and higher cost of capital in EV and VNB reporting for many life insurers. For those insurers with strong new business growth and associated new business strain, this has combined to reduce solvency ratios, materially in some cases.

AIA's ANW fell by 17% in 2015, whilst its VIF increased by 61% in 2015, leading to an increase in EV of 2%. The increase in VIF was due to a variety of factors, including the increase in starting reserves and various assumptions changes, such as a reduction in projected corporate income tax rates from 30% to 20%. The change in assumed corporate income tax rate followed confirmation by the National Legislative Assembly of Thailand in January 2016, and brought AIA in line with peers.

In contrast, Bangkok Life reported an increase of 17% in ANW and a reduction in VIF of 26% in 2015, resulting in an increase in EV of 7%. 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% drop in VIF. As mentioned above, Bangkok Life reduced its investment return assumption by 50 bps in 2015.

AIA's VNB increased by 19% in 2015, driven by a rise in VNB margin offsetting a fall in new business APE. VNB margin rose from 63.2% for 2014 to 75.8% for 2015, which AIA explained as being due to its successful pivot towards sales of higher margin protection products and riders in 2015.

The insurance regulator, the Office of Insurance Commission (OIC), is continuing industry consultation and field testing of a revised risk-based capital framework, 'RBC 2.' Following a series of RBC 2 discussions and workshops held in the first half of 2016, a number of changes have been introduced in the proposed RBC 2 framework. For total available capital, current tier 1 capital has been broken down into common equity tier 1 (CET1) and additional tier 1 (AT1) capital. Minimum floors on CET1 and tier 1 capital have been set to be no lower than 65% and 80% of total risk requirements, respectively. For the insurance risk charge, the calculations for claim reserves and premium reserves for short-term business have been modified. Compared with the prevailing RBC rules, there are changes proposed to parameters and models in RBC 2. In addition, operational risk and group risk components are to be introduced. The proposed operational risk charge is determined using a factor approach, based on gross premiums and reserves, whereas the group risk charge is to be allowed for via a reduction in the total available capital. Other areas, such as the discounting rates for gross premium reserves, the treatment of surrender risk charge, and the confidence interval requirement of total capital required are yet to be determined. Quantitative Impact Studies (QIS) are being undertaken by the industry before the final RBC 2 framework is agreed.

For more information on the draft RBC 2 framework in Thailand, please see our e-Alert at <http://www.milliman.com/uploadedFiles/insight/Periodicals/asia-ealert/asia-e-alert-thailand-rbc2-framework.pdf>.

The low interest rate environment has continued into 2016, with 10-year Thai government bond yields falling below 10-year U.S. Treasury bill yields during some periods in the first quarter of 2016. The operating environment remains extremely challenging for many life insurers in Thailand, a market historically dominated by products offering material investment guarantees. As predicted in our '2014 Embedded Value Results – Asia (excl. Japan)' report, a continuation of low fixed interest yields has led more companies to focus on expanding their product ranges, with several insurers building investment-linked capabilities. Sales of investment-linked business in Thailand remain low, but companies like AIA are starting to gain some traction in this area.

VIETNAM

FIGURE 87: REPORTED EV OF VIETNAM INSURANCE OPERATIONS, 2013-2015

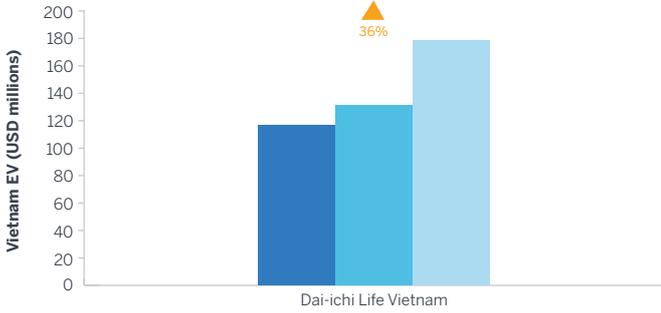


FIGURE 88: REPORTED ANW OF VIETNAM INSURANCE OPERATIONS, 2013-2015

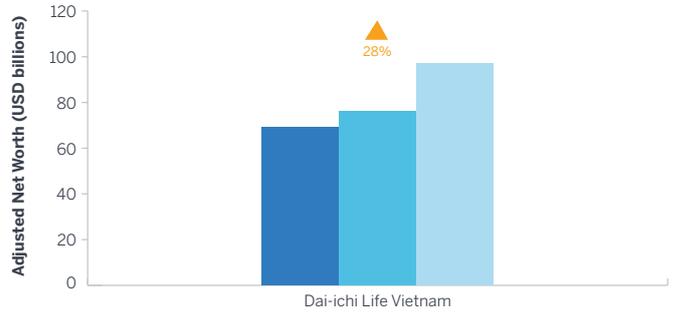


FIGURE 89: REPORTED VIF OF VIETNAM INSURANCE OPERATIONS, 2013-2015

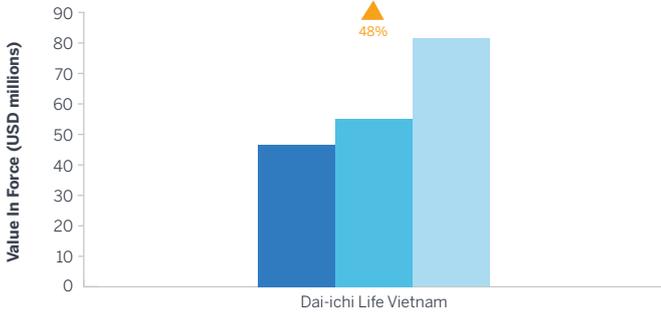


FIGURE 90: REPORTED VIF/ANW SPLIT OF VIETNAM INSURANCE OPERATIONS, 2015

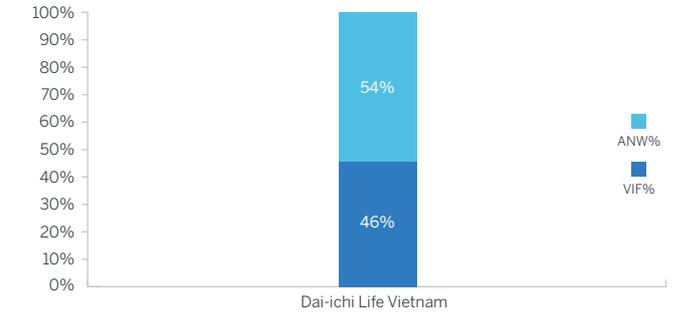
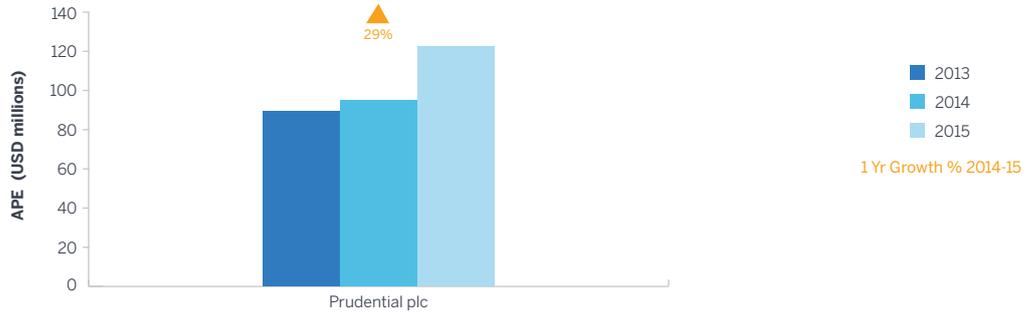


FIGURE 91: REPORTED APE OF VIETNAM INSURANCE OPERATIONS, 2013-2015



Dai-ichi Life is the only company that discloses EV results for Vietnam, although interestingly it uses a TEV methodology, as opposed to the EEV methodology adopted at group level. Dai-ichi Life Vietnam does not disclose its risk discount rate and investment return assumptions. The 2015 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. The risk discount rate and investment return assumptions for AIA Vietnam have remained unchanged for the 2015 and 2014 disclosures at 13.8%. Prudential Vietnam cut its risk discount rate assumption in 2015 by 20 bps to 13.8%, and reduced the 10-year government bond yield by 10 bps to 7.1%, reflecting a similar 0.1% decrease in the underlying Vietnamese 10-year government bond yield.

On the regulatory front, a number of circulars have been issued recently by the regulatory authorities, including Decision 35/2015/QĐ-TTg. 'Decision 35' added life insurance to the list of essential goods and services for which contract forms and general transaction conditions must be registered according to the Law on Protection of Consumer Interests. This has given the Ministry of Industry and Trade (MOIT) responsibilities for the approval of insurance products (understood to be from a consumer protection standpoint), alongside the Ministry of Finance (MOF). As a result, life insurance companies needed to file all existing products with the MOIT for approval by 15 January 2016.

In July 2016, the Ministry of Finance issued regulations to restrict the amount of reinsurance placed overseas to 90% of a foreign insurer's total business in Vietnam. According to the Association of Vietnam Insurance (AVI), overseas reinsurance premiums accounted for a third of the domestic market's total premiums collected in 2015 (including both life and general insurance), meaning one-third of insurance revenues are sent outside Vietnam.

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

1. A single discount rate applied to all periods, calculated using a benchmark risk-free rate plus risk margin or 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 RDR 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 ⁵⁸
MNC	Ageas	MC EEV	Swap rates + volatility adjustment	Equity: +300 bps above reference rate. Real Estate: +200 bps above reference rate. Debt Securities: Based on actual cash flows.
	AIA	TEV	China: 9.75% Hong Kong: 7.00% Indonesia: 13.50% South Korea: 9.10% Malaysia: 8.75% Philippines (Philam Life): 10.50% Singapore: 6.90% Sri Lanka: 15.70% Taiwan: 7.85% Thailand: 8.80 % Vietnam: 13.80%	China: Equities 9.50%, 10Y Gov't Bonds 3.70% Hong Kong: Equities 7.55%, 10Y Gov't Bonds 2.50% Indonesia: Equities 12.80%, 10Y Gov't Bonds 8.00% South Korea: Equities 7.20%, 10Y Gov't Bonds 3.20% Malaysia: Equities 8.75%, 10Y Gov't Bonds 4.20% Philam Life: Equities 9.20%, 10Y Gov't Bonds 4.00% Singapore: Equities 7.00%, 10Y Gov't Bonds 2.50% Sri Lanka: Equities 11.70%, 10Y Gov't Bonds 10.00% Taiwan: Equities 6.60%, 10Y Gov't Bonds 1.60% Thailand: Equities 9.20%, 10Y Gov't Bonds 3.40% Vietnam: Equities 13.80%, 10Y Gov't Bonds 8.00%
	Allianz	MCEV	Swap rates - credit risk adjustment + volatility adjustment	Equity: +500 bps above reference rate. Real Estate: +2000 bps x reference rate.
	Aviva	MCEV	Swap rates + liquidity premium	Equity: +350 bps above reference rate. Real estate: +200 bps above reference rate.
	AXA	MC EEV	Swap rates + volatility adjustment	n/a: Risk-neutral projection in line with MCEV principles.
	Great Eastern	TEV	Singapore: 7.25% Malaysia: 9.00%	Singapore: 5.25% (participating), 4.00% (nonparticipating), 6.00% (linked). Malaysia: 6.00% (participating), 5.00% (nonparticipating), 7.00% (linked).
	Manulife	TEV	Hong Kong: 10.00%	Hong Kong: 11.50% Equity, 1.85% Gov't Bonds Asia excl. Hong Kong and Japan: 9.00% to 11.00% Equity
	Prudential plc	MC EEV	China: 9.4% (NB), 9.4% (IF) Hong Kong: 3.7% (NB), 3.7% (IF) Indonesia: 12.8% (NB), 12.8% (IF) South Korea: 6.1% (NB), 5.7% (IF) Malaysia: 6.6% (NB), 6.7% (IF) Philippines: 11.3% (NB), 11.3% (IF) Singapore: 4.3% (NB), 5.1% (IF) Taiwan: 4.0% (NB), 3.9% (IF) Thailand: 9.3% (NB), 9.3% (IF) Vietnam: 13.8% (NB), 13.8% (IF)	China: 10Y Gov't Bonds 2.9% Hong Kong: 10Y Gov't Bonds 2.3%, Equities 6.2% India: 10Y Gov't Bonds 8.0% Indonesia: 10Y Gov't Bonds 8.9% South Korea: 10Y Gov't Bonds 2.1% Malaysia: 10Y Gov't Bonds 4.2%, Equities 10.2% Philippines: 10Y Gov't Bonds 4.6% Singapore: 10Y Gov't Bonds 2.6%, Equities 8.6% Taiwan: 10Y Gov't Bonds 1.0% Thailand: 10Y Gov't Bonds 2.5% Vietnam: 10Y Gov't Bonds 7.1%
	Zurich	MCEV	Swap rates + liquidity premium	n/a: 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).

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

Another interesting comparison can be made between AIA and Prudential. Despite their contrasting methodologies (TEV versus EEV), their investment assumptions are quite similar for some of the emerging markets (e.g., Indonesia, Malaysia, Vietnam) but diverge sharply for other markets (e.g., Hong Kong, South Korea).

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

COUNTRY	COMPANY	EV PRINCIPLE	RISK DISCOUNT RATE	INVESTMENT RETURNS
China	Chinese 10-year government bond yield at 31 Dec 2015: 2.85%			
	AIA	TEV	9.8%	China: Equities 9.49%, 10Y Gov't Bonds 3.74%
	China Life	TEV	11.0%	Year 1: 5.1%; Year 2: 5.2%; Year 3: 5.3%; Year 4: 5.4%; Year 5+: 5.5%
	China Pacific	TEV	11.0%	Year 1: 5.1%; Year 2+: 5.2%
	China Taiping	TEV	11.0%	Year 1: 5.3%; Year 2+: 5.5%
	New China Life	TEV	11.5%	Year 1: 5.00% (non-linked), 7.60% (linked) Year 2: 5.10% (non-linked), 5.20% (universal life), 7.60% (linked) Year 3: 5.20% (nonparticipating), 5.30% (participating), 5.50% (universal life), 7.80% (linked) Year 4+: 5.20% (nonparticipating), 5.50% (participating), 5.60% (universal life), 7.90% (linked)
	PICC Life	TEV	10.00%	5.50%
	Ping An	TEV	11.00%	Non-investment-linked: 4.75% in Year 1, increasing by 0.25% every year until 5.50% Investment-linked: slightly higher than non-investment-linked
	Prudential	EEV	9.40%	10Y Gov't Bonds 3.7%
Hong Kong	Hong Kong 10-year government bond yield at 31 December 2015: 1.60%			
	AIA	TEV	7.00%	Equities 7.55%, 10Y Gov't Bonds 2.50%
	AXA	MCEV	Swap rates + volatility adjustment	n/a: Risk-neutral projection in line with MCEV principles.
	Dah Sing	TEV	8.30%	3.10% to 5.45%, based on investment portfolios
	Manulife	TEV	10.00%	Equities 11.50%, 10Y Gov't Bonds graded from 1.54% to 3.37%
	Prudential	EEV	3.70%	Equities 6.3%, 10Y Gov't Bonds 2.3%
India	Indian 10-year government bond yield at 31 December 2015: 7.76%			
	Bajaj Allianz	IEV	Risk-free yield curve	n/a: Risk-neutral projection in line with IEV principles
	Birla Sun Life	TEV	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	n/a: Risk-neutral projection in line with IEV principles
	Max Life	MCEV	Risk-free gov't bond yield curve	n/a: Risk-neutral projection in line with MCEV principles
Indonesia	Indonesian 10-year government bond yield at 31 December 2015: 8.85%			
	AIA	TEV	13.50%	Equities 12.80%, 10Y Gov't Bonds 8.00%
	Prudential	EEV	12.80%	10Y Gov't Bonds 8.9%
Malaysia	Malaysian 10-year government bond yield at 31 December 2015: 4.19%			
	AIA	TEV	8.75%	Equities 8.75%, 10Y Gov't Bonds 4.20%
	Great Eastern	TEV	9.00%	6.0% (participating), 5.0% (nonparticipating), 7.0% (linked)
	Prudential	EEV	6.6% (NB), 6.7% (IF)	Equities 10.2%, 10Y Gov't Bonds 4.2%
Philippines	Philippines 10-year government bond yield at 31 December 2015: 4.12%			
	AIA	TEV	10.50%	Equities 9.20%, 10Y Gov't Bonds 4.00%
	Prudential	EEV	11.30%	10Y Gov't Bonds 4.60%

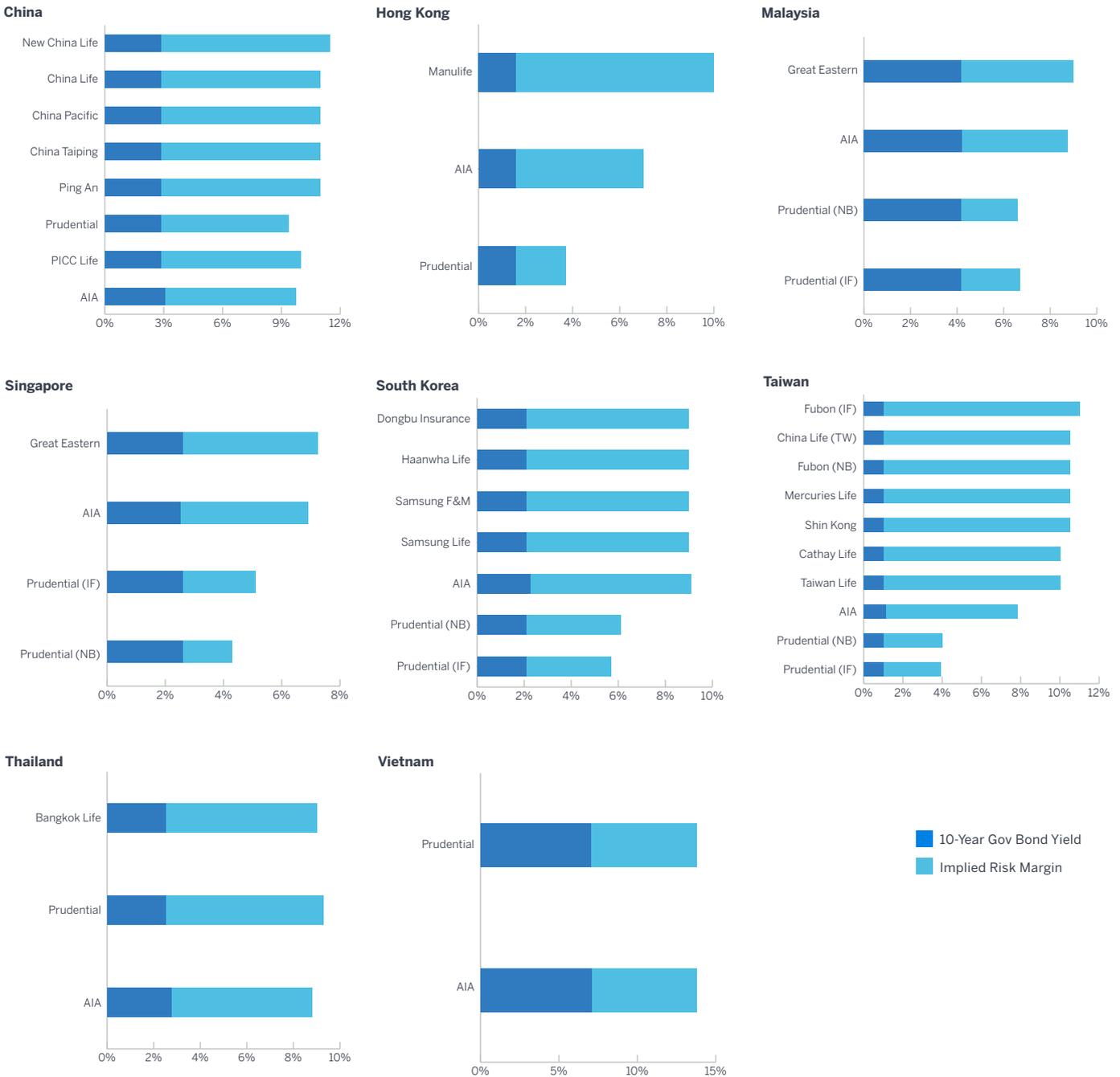
Note: Blue-shaded entries indicate that the FY 2015 EV results have not yet been disclosed, and that the assessment has been based on FY 2014 disclosures instead

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

COUNTRY	COMPANY	EV PRINCIPLE	RISK DISCOUNT RATE	INVESTMENT RETURNS
Singapore	Singaporean 10-year government bond yield at 31 December 2015: 2.60%			
	AIA	TEV	6.90%	Equities 7.00%, 10Y Gov't Bonds 2.50%
	Great Eastern	TEV	7.25%	Singapore: 5.25% (participating), 4.00% (nonparticipating), 6.00% (linked)
	Prudential	EEV	4.3% (NB), 5.1% (IF)	Equities: 8.6%, 10Y Gov't Bonds 2.6%
South Korea	Korean 10-year government bond yield at 31 December 2015: 2.08%			
	AIA	TEV	9.10%	Equities 7.20%, 10Y Gov't Bonds 3.20%
	Dongbu Insurance	TEV	9.00%	3.40%
	Hanwha Life	TEV	9.00%	3.50%
	Prudential	EEV	6.1% (NB), 5.7% (IF)	10Y Gov't Bonds 2.1%
	Samsung Life	TEV	9.00%	3.60%
	Samsung Fire & Marine	TEV	9.00%	3.20%
Taiwan	Taiwan 10-year government bond yield at 31 December 2015: 1.02%			
	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% (NB), 3.9% (IF)	10Y Gov't Bonds 1.0%
	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%	NTD: 3.70%-4.39% USD: 4.55%-5.27%
Thailand	Thailand 10-year government bond yield at 31 December 2015: 2.50%			
	AIA	TEV	8.80%	Equities 9.20%, 10Y Gov't Bonds 3.40%
	Bangkok Life	TEV	9.00%	4.25%
	Prudential	EEV	9.30%	10Y Gov't Bonds 2.5%
Vietnam	Vietnamese 10-year government bond yield at 31 December 2014: 7.15%			
	AIA	TEV	13.80%	Equities 13.80%, 10Y Gov't Bonds 8.00%
	Dai-ichi Life Vietnam	TEV	Not disclosed	Not disclosed
	Prudential	EEV	13.80%	10Y Gov't Bonds 7.1%

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^{59, 60} BY COMPANY⁶¹ FOR EACH MARKET



59 In this case, the risk margin has been defined as the difference between the assumed RDR and the yield on a 10-year government bond as at each insurer's FY2015 reporting date.
 60 The 10-year government bond yields have been extracted from <http://www.investing.com>.
 61 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.

INVESTMENT RETURN ASSUMPTIONS

Unlike insurers reporting under MCEV, companies reporting under TEV and EEV 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 company⁶² 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. As mentioned earlier in this report, it is also interesting to note the widening spread between valuation date spot bond yields and TEV/EEV long-term investment assumptions as yield curves have fallen across the region.

Chinese and Taiwanese insurers 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.

We expect more scrutiny of the TEV methodology associated with increasing yield assumptions in the near future, as analysts and investors grapple with recent results which, paradoxically, suggest falling yields are positive for EV, and long-term investment assumptions continue to diverge from spot bond yields.

EXPENSE OVERRUNS

This item is 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-override,' where the EV figures will be calculated based on long-term target expense levels, and as 'post-override,' 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	IEV	Unspecified	FY2014 EV: Rs 2.6 bn
India	HDFC Life	MCEV	Acquisition expenses	FY2014 VNB: Rs 1.5 bn
India	ICICI Prudential	IEV	Acquisition expenses	FY2014 VNB: Rs 3.7 bn
India	Max Life	MCEV	Acquisition expenses	FY2015 VNB: Rs 0.1 bn

As Figure 95 shows, the primary type of overruns relate to acquisition expenses.

62 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, 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	Ageas	EEV	Internal target capital (excludes non-shareholder funding sources)
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

63 For some companies, their FY2015 disclosures were not published in time for this report, hence the explanation of their required capital is taken from their FY2014 disclosures.

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

CATEGORY	COMPANY	EV METHODOLOGY	REQUIRED CAPITAL
MNC	Allianz	MCEV	Solvency capital requirement (SCR as per Solvency II)
MNC	Aviva	MCEV	Highest of regulatory requirements, group economic capital requirements, and target capital level of business unit (based on FY2014 disclosures ⁶³)
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
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	>= 100% local regulatory requirement plus appropriate capital in addition to minimum solvency capital upon the discretion of the company
China	AIA China	TEV	100% minimum SM
China	China Life	TEV	100% minimum SM
China	China Pacific	TEV	100% minimum SM
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	China: Higher of minimum SM and internal target
China	Ping An	TEV	Not disclosed
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	IEV	Not disclosed (based on FY2014 disclosures ⁶²)
India	Birla Sun Life	TEV	Not disclosed (based on FY2014 disclosures ⁶²)
India	HDFC Life	MCEV	Not disclosed (based on FY2014 disclosures ⁶²)
India	ICICI Prudential	IEV	Not disclosed (based on FY2014 disclosures ⁶²)
India	Max Life	MCEV	Not disclosed
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	150% 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
Taiwan	China Life TW	TEV	200% RBC
Taiwan	Fubon	TEV	200% RBC
Taiwan	Mercuries Life	TEV	200% RBC
Taiwan	Shin Kong	TEV	200% RBC
Taiwan	Taiwan Life	TEV	200% RBC
Thailand	AIA Thailand	TEV	140% RBC
Thailand	Bangkok Life	TEV	140% RBC

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 2015, although its assumption for 2014 was 120%)
- 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
- In Malaysia, where AIA uses 170% and Manulife uses 160% (Great Eastern did not disclose the minimum regulatory level for 2015, although its assumption for 2014 was 130%)

Some Indian and Chinese 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 value⁶⁴ 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, provided that 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.

64 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	Ageas	Market-consistent, stochastic	1,000	Not disclosed	Yes (not disclosed)
MNC	Allianz	Market-consistent, stochastic (except for Latin America)	1,000 (5,000 in Germany)	Yes	Yes (not disclosed)
MNC	Aviva	Not disclosed	Not disclosed	Not disclosed	Yes (GBP 30 million)
MNC	AXA	Market-consistent, stochastic	At least 1,000	Yes	Yes (Japan: EUR 164 million; Hong Kong: EUR 696 million; SE Asia, India, China: EUR 93 million)
MNC	Prudential	Real-world and market-consistent, stochastic	Not disclosed	Yes	Yes (GBP 88 million)
MNC	Zurich	Market-consistent, stochastic	1,000	Yes	Yes (EUR 12 million[1])
India	Bajaj Allianz	Not disclosed (based on FY2014 disclosures)	Not disclosed (based on FY2014 disclosures ⁶⁵)	Not disclosed (based on FY2014 disclosures ⁶⁵)	Yes (based on FY2014 disclosures ⁶⁵)
India	HDFC Life	Market-consistent, stochastic (based on FY2014 disclosures ⁶⁵)	Not disclosed (based on FY2014 disclosures ⁶⁵)	Not disclosed (based on FY2014 disclosures ⁶⁵)	Yes (based on FY2014 disclosures ⁶⁵)
India	ICICI Prudential	Market-consistent, stochastic (based on FY2014 disclosures ⁶⁵)	Not disclosed (based on FY2014 disclosures ⁶⁵)	Not disclosed (based on FY2014 disclosures ⁶⁵)	Yes (based on FY2014 disclosures ⁶⁵)
India	Max Life	Not disclosed (based on FY2014 disclosures ⁶⁵)	1,000 (based on FY2014 disclosures ⁶⁵)	Not disclosed (based on FY2014 disclosures ⁶⁵)	Yes (INR 20 million) (based on FY2014 disclosures ⁶⁵)

Notes: [1] Includes Middle East

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.

Of the companies that separately disclosed Asia TVOG figures, AXA and Prudential report the highest levels of TVOG, in contrast to the rest of the MNCs and Max Life, whose figures are relatively immaterial when compared with their EV levels. This is likely to be a reflection of their long histories in the region, which have resulted in legacy portfolios of participating and other guarantee-bearing products.

⁶⁵ For some companies, their FY2015 disclosures were not published in time for this report, hence the explanation of their required capital is taken from their FY2014 disclosures.

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, providing the risk discount rate and nothing more.

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 2015

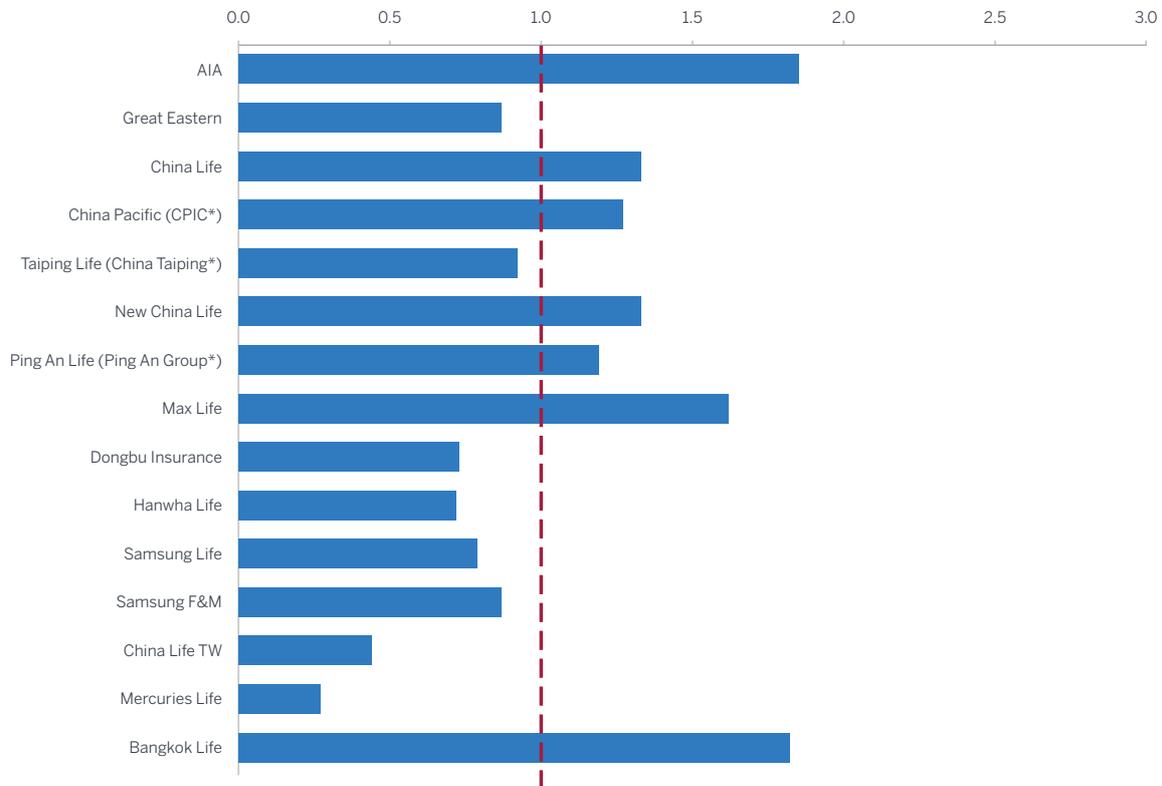
TYPE	COMPANY	EV PRINCIPLE	EVIDENCE OF INDEPENDENT REVIEW OF EV RESULTS	ANALYSIS OF EV MOVEMENT	RECONCILIATION OF ANW TO IFRS NET ASSETS	COST OF CAPITAL & REQUIRED CAPITAL	RISK DISCOUNT RATE ASSUMPTIONS	INVESTMENT RETURN ASSUMPTIONS	"EXPENSE INFLATION ASSUMPTIONS"	NEW BUSINESS MARGIN INFORMATION	EV AND VNB SENSITIVITIES	NEW BUSINESS IMPLIED DISCOUNT RATE AND IRR
MNC	Ageas	MC EEV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AIA	TEV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Allianz	MCEV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	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	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	HDFC Life	MCEV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	ICICI Prudential	IEV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	MaxLife	EEV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
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 FY15 EV results have not yet been disclosed, and that the assessment has been based on FY14 disclosures instead.

Other measures of value

MARKET CAPITALISATION

FIGURE 99: MARKET CAPITALISATION TO EMBEDDED VALUE RATIOS AS AT FY2015 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 4 PHASE II

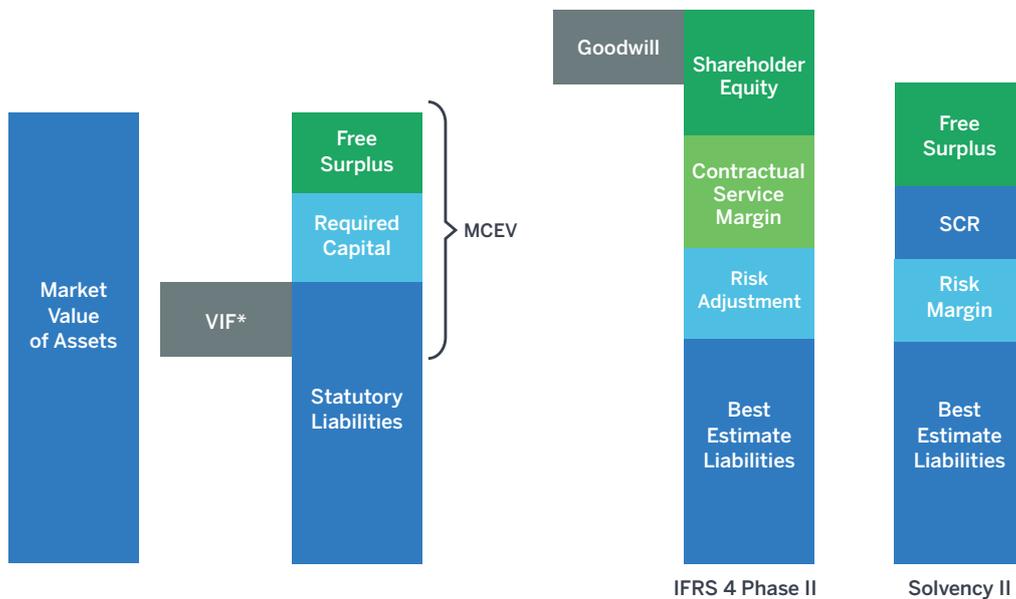
The preparation of accounts on an IFRS basis gives rise to a different interpretation and timing of profit and loss compared with an EV basis. This is fundamentally due to current IFRS 4 standards (called 'Phase I,' implemented in 2004) focusing on a current view of assets and liabilities together with 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. IFRS 4 Phase II aims at further standardising international accounting requirements for insurance contracts. The publication (in June 2013) of the second exposure draft on reporting for insurance contracts by the International Accounting Standards Board (IASB) meant 2013 was a significant year for IFRS reporting. The Financial Accounting Standards Board (FASB) separately published a proposed Accounting Standards Update, Insurance Contracts (Topic 834), also in June 2013.

The IASB Exposure Draft attracted a number of comment letters, with 194 respondents in total. The IASB has also met with numerous stakeholders (investors, regulators, accounting firms, etc.) in all regions with significant insurance industry, including Asia, to discuss the Exposure Draft. Fieldwork was also conducted to understand how it would operate in practice. The IASB has deliberated on the feedback received, and has completed the planned technical decisions, such as on accounting for contracts with participating features. As at February 2016, the IASB has begun the drafting process of the new standard, with the expected publication at the end of 2016. European companies will then have three years before mandatory adoption of the standard; Asian insurers will generally have more time, as IFRS will need to be adopted by their national accounting standard boards.

In contrast, in light of the feedback received on the 2013 proposed update, the FASB decided to limit the scope to insurance entities as described in existing U.S. GAAP. The FASB also decided that the project should focus on making targeted improvements to existing U.S. GAAP. For short-duration contracts, the FASB decided to limit the targeted improvements to enhancing disclosures. The proposed IFRS 4 Phase II balance sheet, based on the IASB Exposure Draft, is compared with MCEV and Solvency II in Figure 100.

FIGURE 100: MCEV VS. SOLVENCY II VS. IFRS 4 PHASE II



The responses from the IASB on the concerns raised in the feedback of the IASB Exposure Draft include:

- **Treatment of participating contracts.** For contracts with contractual pass-through of investment experience, including linked, a mirroring approach was proposed to measure the participation feature and use the accounting value of the underlying asset to value the liability. There were many comments in response to this proposal, including the complexity resulting from the need to bifurcate cash flows. Based on the feedback, the IASB has decided that, for some contracts with participating features, the effect of some market variables should be regarded as a variable fee for service.
- **Presentation of premium and claims in the statement of comprehensive income.** The IASB has attempted to align the definition of revenue with other industries and, as such, revenue will no longer be directly aligned with premium information. The investment component is to be excluded from premiums and claims. The feedback on this proposal has been mixed. The IASB has tentatively decided to maintain the presentation proposed in the Exposure Draft, with additional disclosures.

- **Treatment of unearned profit in an insurance contract.** The Contractual Service Margin (CSM) will be 'unlocked' and changes in the residual CSM are reflected in the profit or loss component.
- **Approach to transition.** A full retrospective application of the building blocks is encouraged, including both the risk margin and the contractual service margin. However, simplified approaches are available to insurers where the data is not available to do a full building block approach, or when it is otherwise impractical to do so. The IASB will reconsider the approach to transition when the standard is near final.
- **Changes in discount rate.** The Exposure Draft required presentation of the effect of changes in the discount rate used to measure the insurance contract liability in Other Comprehensive Income (OCI) rather than in profit or loss. This generated a significant number of comments, with many insurers commenting that this approach created a potential accounting mismatch. The IASB has taken these concerns into account and has made the decision to allow insurers the option of presenting the impact of change in discount rate in either OCI or profit or loss, depending on the accounting policy chosen.

Over 2015, 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 4 Phase II 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 4 Phase II 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 M⁶⁶)

TYPE	COMPANY	EV PRINCIPLE	CHINA	HONG KONG	INDIA	SOUTH KOREA	MALAYSIA	SINGAPORE	TAIWAN	THAILAND	VIETNAM	OTHER ASIA	TOTAL ASIA EV
MNC	Ageas	EEV	-	-	-	-	-	-	-	-	-	1,108	1,108
	AIA	TEV	5,041	12,655	-	1,672	2,129	4,489	-	6,660	-	5,552	38,198
	Allianz	MCEV	-	-	-	-	-	-	-	-	-	(352)	(352)
	Aviva	MCEV	-	-	-	-	-	-	-	-	-	2,315	2,315
	AXA	MC EEV	-	5,839	-	-	-	-	-	-	-	1,917	7,755
	Great Eastern	TEV	-	-	-	-	1,664	6,106	-	-	-	-	7,770
	Manulife	TEV	-	-	-	-	-	-	-	-	-	-	-
	Prudential plc	EEV	-	-	-	-	-	-	-	-	-	20,142	20,142
	Standard Life	EEV	-	-	-	-	-	-	-	-	-	-	-
	Zurich	MCEV	-	-	-	-	-	-	-	-	-	1,495	1,495
China	China Life	TEV	86,260	-	-	-	-	-	-	-	-	-	86,260
	China Pacific	TEV	23,389	-	-	-	-	-	-	-	-	-	23,389
	China Taiping	TEV	10,562	-	-	-	-	-	-	-	-	-	10,562
	New China Life	TEV	15,901	-	-	-	-	-	-	-	-	-	15,901
	PICC Life	TEV	8,164	-	-	-	-	-	-	-	-	-	8,164
	Ping An	TEV	50,316	-	-	-	-	-	-	-	-	-	50,316
Hong Kong	Dah Sing	TEV	-	568	-	-	-	-	-	-	-	-	568
India	Bajaj Allianz	MCEV	-	-	-	-	-	-	-	-	-	-	-
	Birla Sun Life	TEV	-	-	-	-	-	-	-	-	-	-	-
	HDFC Life	MCEV	-	-	-	-	-	-	-	-	-	-	-
	ICICI Prudential	IEV	-	-	-	-	-	-	-	-	-	-	-
	MaxLife	EEV	-	-	849	-	-	-	-	-	-	-	849
Korea	Dongbu Insurance	TEV	-	-	-	5,199	-	-	-	-	-	-	5,199
	Hanwha Life	TEV	-	-	-	7,590	-	-	-	-	-	-	7,590
	Samsung Life	TEV	-	-	-	21,510	-	-	-	-	-	-	21,510
	Samsung Fire & Marine	TEV	-	-	-	12,489	-	-	-	-	-	-	12,489
Taiwan	Cathay Life	TEV	-	-	-	-	-	-	22,358	-	-	-	22,358
	China Life TW	TEV	-	-	-	-	-	-	5,584	-	-	-	5,584
	Fubon	TEV	-	-	-	-	-	-	12,323	-	-	-	12,323
	Mercuries Life	TEV	-	-	-	-	-	-	3,275	-	-	-	3,275
	Shin Kong	TEV	-	-	-	-	-	-	6,561	-	-	-	6,561
	Taiwan Life	TEV	-	-	-	-	-	-	3,519	-	-	-	3,519
Thailand	Bangkok Life	TEV	-	-	-	-	-	-	1,422	-	-	-	1,422
Vietnam	Dai-ichi Life Vietnam	TEV	-	-	-	-	-	-	-	-	179	-	179

Note: Blue-shaded entries indicate that the FY15 EV results have not yet been disclosed, and that the assessment has been based on FY14 disclosures instead.

66 EV results have been converted at the prevailing USD mid-FX rate as at the reporting date.



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

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