Embedded Value Review

Embedded Value as at 31 December 2012

BANGKOK LIFE ASSURANCE PUBLIC COMPANY LIMITED,
THAILAND

ERNST & YOUNG

Independent Actuaries' Report

The following is the text of a report prepared by Ernst & Young for the purpose of incorporation into this circular, in connection with the components of the embedded value of Bangkok Life as at 31 December 2012.

23 April 2013

The Directors

Bangkok Life Assurance Public Company Limited

23/115-121 Royal City Avenue, Rama 9 Road

Huaykwang, Bangkok 10310

THAILAND

Dear Sirs

Independent Actuaries' Report

1. Introduction

Ernst & Young Advisory Pte. Ltd. ("EY") based in Singapore ("we" or "our") was engaged by Bangkok Life Assurance Public Company Limited ("BLA", "the company" or "Bangkok Life") to review the calculation of embedded value ("EV") and value of one year's new business ("VNB") results as at 31 December 2012.

This report sets out the scope of the work that we have performed and summarises the results of our work. The reader's attention is drawn to Section 8 of this report which sets out the reliances and limitations relating to this report. This report has been prepared solely for the directors of Bangkok Life Assurance and cannot be relied on by any other third party.

2. Scope of work

The scope of our work set out in detail in our engagement letter can be summarised as:

- Review the EV and VNB methodology adopted by BLA
- Review the EV and VNB assumptions chosen by BLA, covering
  - Economic assumptions
  - Non-economic assumptions (including expense assumptions)

3. Valuation methodology

Bangkok Life has adopted a traditional deterministic discounted cash flow methodology to determine the components of embedded value. This methodology makes implicit allowance for the time value cost of options and guarantees and other risks associated with the realisation of the expected future distributable earnings through the use of a risk adjusted discount rate and is consistent with the generally accepted traditional embedded value principles. It is a common methodology used by life insurance companies in Asia at the current time.

The embedded value of BLA has been determined as the sum of:

- net assets attributable to the shareholders after any net of tax adjustment to market value ("adjusted net asset value"); and,
- value of in-force business allowing for the release of solvency capital ("the value of in-force business" or "VIF").

Net asset value is defined as the value of assets less policy liabilities, less other liabilities and less solvency capital, all measured on the Thailand statutory basis. Adjustments are made to this to derive the adjusted net asset value, mainly to reflect the market value of any assets that are not reported at market value under the OIC regulations and the taxation of any unrealised gains. The solvency capital requirement is derived as 11.75% of the reserve, representing a 140% capital adequacy ratio.

The **value of in-force business** has been calculated as the present value of expected future after-tax distributable earnings for existing business discounted back to the valuation date using a traditional deterministic cash flow discount methodology. Distributable earnings are those profits arising after allowance for policy reserves on an NPV reserving basis and after the release of solvency capital.

Similarly, the **value of one year's new business** has been calculated as the present value of expected future after-tax distributable earnings for one year's new business discounted back to the point of sale using a traditional deterministic cash flow discounting methodology.

In determining the value of in-force business of BLA, the policy databases underlying the life insurance business of BLA as at 31 December 2012 were used. New business volumes and mix have been based on the actual business written by BLA in the 12 months to 31 December 2012.

4. Valuation assumptions

In order to review the embedded value and the value of one year's new business, consideration was given to the experience analyses produced by BLA and whether the assumptions used represent a prudent best estimate of BLA's future experience.

Non-economic assumptions were checked for their consistency with the latest experience studies, and where appropriate, benchmarked against industry experience for reasonableness. Economic assumptions were also reviewed and benchmarked against the Thailand market.

The principal bases and assumptions used in the calculations are summarised below. These assumptions have been made on a "going concern" basis, assuming that the current economic and legal environment continues in Thailand.

Risk Discount Rates

The risk discount rate represents a rate of return commensurate with the risks associated with the realisation of future distributable earning. It is calculated as the sum of the risk-free rate and risk margin to make allowance for the risk that actual future experience may be different to that assumed in this report.

Last year, where the net of tax distributable earnings in a year were positive, they were discounted using a central risk discount rate of 10%. Where the net of tax distributable earnings in a year were negative, they were discounted using the assumed investment return of 5%.

This year, the net of tax distributable earnings are discounted using a central risk discount rate of 10%. This aligns BLA with common market practice. There are limited instances of negative cashflows; hence the impact of this change is less than 1% on the EV and VNB of BLA. A change in the business or economic environment could lead to more instances negative cashflows and hence a larger impact.

Values are also illustrated on risk discount rates of 9% and 11%. The selection of the risk discount rate depends upon a number of objective and subjective factors and the illustrated range is provided to assess the sensitivity of value to changes in the risk discount rate. The range given should not be interpreted to imply an upper or lower bound.

The discount rates appropriate to an investor will depend on objective and subjective considerations including their own requirements, tax position and perception of risks associated with the realisation of future profits.

Investment Returns

The investment returns assumption is unchanged from last year. Investment returns were derived by considering current and expected future asset allocations and associated investment returns for a range of major asset classes. Assumed future investment returns, net of investment expenses, are 5% for all years.

Inflation

Future inflation rate was assumed to be 3% per annum. This assumption is unchanged from last year.

Mortality and Morbidity

The assumption for mortality rates was derived by taking into consideration BLA's mortality experience from 2010 to 2012, its expectations on current and expected future experience and the overall experience of the Thailand life insurance market. The mortality assumptions adopted have been based on the 2008 Thai Mortality Table for both male and female lives. The mortality assumptions vary by product type.

There are several changes to the mortality assumptions this year:

- The mortality assumptions are based on the latest TMO2008 tables instead of the TMO1997 tables.
- The mortality assumptions are set separately by product type instead of using one universal assumption for all products. As a result, the assumptions have increased or decreased in line with the specific experience of each product type.

Persistency

Persistency includes assumptions for policy lapse, premium persistency, premium holidays and partial withdrawals. The persistency assumptions have changed in line with BLA's recent persistency experience study. Persistency assumptions vary by sales channel, product type, premium payment mode and policy duration.

Loss Ratios

The loss ratios used to project claims in respect of the short-term business were derived with regards to BLA's recent experience. This year, BLA has set its assumptions based on the average of the last three years' experience. Previously, only the most recent year's experience was used.

Operating Expenses

Operating expenses were allowed for based on the most recent experience analysis performed by BLA. Its analysis allocated expenses to the various product lines written by the company and then attributed between initial expenses and maintenance expenses.

Based on this analysis, the expenses assumptions were determined for acquisition and maintenance activities, split by product type, and unit costs expressed as a percentage of premium and an amount per policy.

Expense assumptions have been updated in line with BLA's most recent expense experience.

Commission and Other Variable Costs

Commission and other variable cost assumptions were based on the levels currently being paid. These were assumed to continue into the future without change.

Taxation

Tax is assumed to be paid on the same basis as is consistent with current business unit tax basis, which is assumed to continue unaltered into the future. Income tax rate of 20% for year 2013-2014 and 30% for year 2015 onwards are assumed.

Other Assumptions

- Reinsurance: BLA's current reinsurance arrangements have been assumed to continue unaltered.
- Solvency Capital: Allowance has been made for solvency capital as 11.75% of the NPV reserve, based on the minimum capital required to maintain a capital adequacy ratio of 140%.
- Reserving Basis: The NPV methods for calculating BLA's policy reserves have been assumed to continue unaltered.

5. Summary of valuation results

The components of economic value of BLA as at 31 December 2012, using the methodology and assumptions described in Sections 3 and 4 of this report, are set out in Tables 1 and 2 below:

Table 1: Embedded Value as at 31 December 2012 (THB Million)

Risk discount rate	9%	10%	11%
Adjusted net asset value	11,457	11,457	11,457
Value of in-force business (after release of capital)	20,397	19,154	18,023
Embedded value	**31,853**	**30,610**	**29,480**

Table 2: Value of One Year's New Business in the 12 months to 31 December 2012 (THB Million)

Risk discount rate	9%	10%	11%
Value of one year's new business (before cost of capital)	2,903	2,769	2,646
Cost of solvency capital	(789)	(859)	(916)
Value of one year's new business (after cost of capital)	**2,114**	**1,910**	**1,730**

We have relied on the accuracy of the net asset value of BLA, as shown in the statutory balance sheet as at 31 December 2012, without independent verification. The following adjustments were made to derive the adjusted net asset value of THB 11,457 million as at 31 December 2012 (as set out in Table 1 above).

- Net of tax fair value adjustment for assets held by BLA
- Allowance for starting solvency capital in the net asset value rather than in the value of inforce

6. Sensitivity analysis

BLA has performed sensitivity analyses on the value of in-force business and the value of one year's new business, by independently varying certain assumptions regarding future experience. Sensitivity scenarios are included to show the impact of changes in key assumptions on the components of embedded value. The sensitivities were performed by allowing parallel movements to the relevant parameters with respect to the base case.

Tables 3 and 4 show the sensitivity results of the value of in-force business and the value of one year's new business respectively.

Table 3: Sensitivity Results of Value of In-Force Business as at 31 December 2012 (THB Million)

	Value of In-Force Business (after release of capital)	
Risk discount rate	10%	Sensitivity
Base Case	**19,154**	
1: 25 bps increase in investment returns	21,380	12%
2: 25 bps reduction in investment returns	16,927	-12%
3: 100bps increase in risk discount rate	18,044	-6%
4: 100bps reduction in risk discount rate	20,375	6%
5: 10% increase in maintenance expenses	18,796	-2%
6: 10% reduction in maintenance expenses	19,511	2%
7: 25% increase in capital requirements	17,247	-10%
8: 25% reduction in capital requirements	21,060	10%
9: 10% increase in lapse rates	19,185	0%
10: 10% reduction in lapse rates	19,124	-0%
11: 10% increase in morbidity rates	18,694	-2%
12: 10% reduction in morbidity rates	19,613	2%
13: 10% increase in mortality rates	18,852	-2%
14: 10% reduction in mortality rates	19,459	2%

Table 4: Sensitivity Results of Value of One Year's New Business as at 31 December 2012 (THB Million)

	Value of One Year's New Business (after cost of capital)	
Risk discount rate	10%	Sensitivity
Base Case	**1,910**	
1: 25 bps increase in investment returns	2,142	12%
2: 25 bps reduction in investment returns	1,677	-12%
3: 10% increase in lapse rates	1,883	-1%
4: 10% reduction in lapse rates	1,938	1%
5: 10% increase in mortality rates	1,854	-3%
6: 10% reduction in mortality rates	1,966	3%
7: 10% increase in maintenance expenses	1,797	-6%
8: 10% reduction in maintenance expenses	2,022	6%
9: 10% increase in morbidity rates	1,858	-3%
10: 10% reduction in morbidity rates	1,961	3%
11: 25% increase in capital requirements	1,707	-11%
12: 25% reduction in capital requirements	2,112	11%

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7. Opinion

Based on the scope of our work and the review we have performed, in our opinion:

- The methodology adopted by BLA to determine the components of economic value (embedded value and the value of one year's new business) is reasonable and consistent with the generally accepted traditional embedded value principles;
- The assumptions adopted by BLA to assess the value of in-force business, the cost of holding required solvency capital and the value of one year's new business as at 31 December 2012 are reasonable; and,
- The calculations set out in Sections 5 and 6 of this report have been carried out in accordance with the methodology and assumptions described in this report, the sample calculations which we checked were satisfactory and overall results are reasonable.

We have shared recommendations and observations with BLA to help align methodology, assumptions and calculations with best practice we have seen in the market.

8. Reliances and limitations

In performing our review and producing this report, we have relied without independent verification upon the completeness and accuracy of the data and information supplied by BLA, both orally and in written format. Where possible, we have reviewed some of the information provided for reasonableness and consistency with our knowledge of the Thailand life insurance industry and with our knowledge of BLA. The accuracy of the results presented in this report is dependent on the accuracy of this information.

Reliance was placed on, but not limited to, the accuracy of the following information:

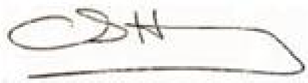
- historical financial statements and regulatory returns
- value of the audited shareholders' net assets of BLA as at 31 December 2012
- the cash flow projection results at an aggregate level and at an individual model point level for a number of selected products
- details of policy terms and conditions including surrender values, current and expected future dividend formulae and crediting rates
- reserving basis and methodology as at 31 December 2012 and the reserve factors calculated by BLA.

The estimates of value include provision only for the claims made by policyholders in the normal course of business under the terms of the policies issued to them. We have not attempted to investigate, or make allowance for, the effect upon the value of any other claim by or against BLA. The projections and values developed have been constructed on a "going concern" basis and assume a continuation of the current economic, taxation, legal and regulation environment prevailing in Thailand. We have not considered possible financial implications arising from the changes in these areas.

The values attributable to the life insurance business are highly dependent on the results of financial projections carried out by BLA. Although the financial projections are developed in conformity with what BLA believes to be the current and proposed operating environments of BLA and BLA's view of the indicative future experience within such environments, it should be recognised that actual future results will vary from those projected. Deviations in the parameters used to reflect the environment could alter the projected results substantially. These parameters include those used to reflect factors such as management direction, insurance regulations, accounting practices, taxation and external economic factors such as inflation rates and available investment yields.

Our opinion is based on data available to us at, or prior to 31 December 2012, and takes no account of developments after that date.

For and on behalf of Ernst & Young Advisory Pte. Ltd.



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