

# Bangkok Life Assurance

*2009 Embedded Value & Value of New Business*

**March 2010**

# Embedded Value Methodology

**Embedded value (EV)** is the actuarially estimated economic value of a life insurance company. The methodology PwC have adopted for EV calculation is commonly known as the Traditional Embedded Value (TEV) method. Under TEV, risk discount rate and investment income are set based on real-world expectations and may not be market-consistent.

**There are two main components that make up EV:**

**The adjusted net worth (ANW);**

*Adjusted net worth* is defined as the reported value of free surplus and required capital. The value of free surplus is equal to the market value of the assets supporting this surplus.

**The value of in-force business (VIF);**

*Value of in-force covered business* is defined as the discounted value of projected future distributable earnings of the business in force on the valuation date.

*Future distributable earnings* are defined as the after-tax future regulatory book profits emerging from the business in force on the valuation date less the change in required capital plus the after-tax investment income on required capital.

*After-tax future regulatory book profit* consists of the following parts:

- + Premium income due;
- + Investment income;
- Benefit payments (claims, surrenders and maturities);
- Expenses (including commission);
- Increase in statutory reserves;
- Income Tax;
- Cost of holding required capital (CoC).

*Cost of holding required capital (CoC)* is the present value of the future releases in required capital and the present value of after-tax investment income on assets backing required capital less the required capital at the valuation date.

**EV = ANW + VIF**

## Embedded Value Results

Bangkok Life Assurance PLC Embedded Value as of 31 December 2009 (in million baht)	Risk Discount Rate		
	9%	10%	11%
<b>Adjusted Net Worth ("ANW")</b>	<b>8,870</b>	<b>8,870</b>	<b>8,870</b>
Present Value of Future Profit ("PVFP")	9,780	9,278	8,824
Corporate Tax ("Tax")	(2,735)	(2,588)	(2,455)
Cost of Target Required Capital ("CoC")	(1,387)	(1,540)	(1,671)
<b>Value of Inforce ("VIF")</b>	<b>5,658</b>	<b>5,150</b>	<b>4,698</b>
Tax rebate from equity dividend income	146	136	128
<b>Embedded Value</b>	<b>14,673</b>	<b>14,156</b>	<b>13,696</b>
Estimated correction on mortality model	306	292	280
<b>Adjusted Embedded Value</b>	<b>14,979</b>	<b>14,448</b>	<b>13,976</b>
<b>Number of shares</b>	1,200 million shares		
<b>Embedded Value per share (baht)</b>	<b>12.5</b>	<b>12.0</b>	<b>11.6</b>

*Return on Investment assumption = 5.25%*

## Value of New Business Results

Value of One year New Business Sold in 2009 (in million baht)	Risk Discount Rate		
	9%	10%	11%
Present Value of Future Profit ("PVFP")	2,631	2,499	2,378
Corporate Tax ("Tax")	(741)	(703)	(677)
Cost of Target Required Capital ("CoC")	(248)	(275)	(298)
Tax rebate from equity dividend income	26	24	23
<b>Value of One year New Business</b>	<b>1,667</b>	<b>1,545</b>	<b>1,435</b>
Number of shares	1,200 million shares		
<b>Value of one year New Business per share (baht)</b>	<b>1.4</b>	<b>1.3</b>	<b>1.2</b>

*Return on Investment assumption = 5.25%*

## Embedded Value Results & Value of New Business Results

(Million Baht)

	Risk Discount Rate		
	9%	10%	11%
<b>Embedded Value (EV)</b>			
ROI = 5.00%	13,459	13,019	12,627
ROI = 5.25%	14,979	14,448	13,976
ROI = 5.50%	15,887	15,294	14,764
<b>Value of New Business (VNB)</b>			
ROI = 5.00%	1,421	1,342	1,225
ROI = 5.25%	1,667	1,545	1,435
ROI = 5.50%	1,861	1,748	1,601

Bangkok Life Assurance Public Company Limited  
23/115-121 Royal City Avenue  
Rama 9 Road, Huaykwang  
Bangkok 10310  
Thailand

Attention: Khun Chan Vathanakul  
President

Dear Sirs

## Background

Bangkok Life Assurance Public Company Limited ("BLA") has engaged PricewaterhouseCoopers FAS Ltd ("PwC" or "we") to perform a review of the Embedded Value ("EV") of BLA as at 31 December 2009. This report is a summary of the results and review findings from PwC for the Board of Directors of BLA.

Our engagement was conducted in accordance with your instructions, as confirmed in our letter of engagement dated 9 December 2009 (the "Engagement"). Our review was performed in accordance with internationally accepted actuarial practices.

In order to provide investors with additional parameters to evaluate the profitability and valuation of BLA, BLA has disclosed the Embedded Value and New Business Value to the market. The Embedded Value consists of the shareholders' adjusted net worth plus the present value of future expected profits to shareholders from the in-force business, less the Cost of Capital to support the in-force business. The New Business Value represents an actuarially determined estimate of the economic value arising from the new life insurance business issued during the past one year.

## Reliance and Limitations

Our work has been conducted solely for the Board of Directors of BLA. We accept no responsibility to any other parties. This report has been prepared on the condition that any third party to whom it is disclosed shall not rely upon it nor further disclose it to any other parties and we accept no liability whatsoever to any third parties.

In carrying out this review PwC has relied upon the integrity, completeness and accuracy of the data and information provided by BLA. We have not performed any audit or due diligence procedures or otherwise verify the truth or accuracy of the information provided to us during the review process.

We do not assume any responsibility and make no representations with respect to the accuracy or completeness of any information provided by BLA. We have relied on the accounts prepared by BLA.

This report relates to the position of BLA as at 31 December, 2009. No allowance has been made for changes in circumstances since that date unless explicitly mentioned in this report.

No assessment of the quality of BLA's assets has been made by us. In particular, no account has been taken of liabilities in respect of legal severance payments, service contracts, leases and breaches of legislation, regulatory rules or guidance.

The embedded values are dependent on the underlying assumptions. Different assumptions would give rise to different results.

This report must be read in its entirety. Individual sections of this report could be misleading if considered in isolation from each other. The report is intended to be read by person technically competent in the areas to which it relates.

BLA is responsible for the accuracy and completeness of the information provided, including policy and cash flow data and product descriptions. This responsibility includes designing, implementing and maintaining internal control relevant to the maintenance of underlying data and information on the in-force business and preparation of the EV information which is free from material misstatement, whether due to fraud or error; selecting and applying appropriate methodologies; and making assumptions that are reasonable in the circumstances. Although we have assessed the internal consistency and reasonableness of the information provided, we cannot verify the accuracy and completeness of them.

We draw your attention to the above limitations and should the information proved to be different from those provided; the results shown in this report may be significantly different.

### **Cautionary Forward Looking Statement**

Certain of the statements contained herein are statements of future expectations and other forward-looking statements that are based on BLA's current views and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in such statements.

Future actual results, performance or events may differ materially from those in such statements due to, without limitation,

- a. General economic conditions,
- b. Performance of financial markets,
- c. Mortality and morbidity levels and trends,
- d. Persistency levels,
- e. Interest rate levels,
- f. Increasing levels of competition,
- g. Changes in laws and regulations including monetary convergence
- h. Changes in the policies of Bank of Thailand and/or government
- i. General competitive factors.

In addition, the financial information contained in this report, including the pro forma information contained herein, is unaudited and is provided for illustrative purposes only. It does not purport to be indicative of what the actual results of operations or financial condition of BLA would have been had these events occurred or transactions been consummated on or as of the dates indicated, nor does it purport to be indicative of the results of operations or financial condition that may be achieved in the future.

The illustrative discount rates used in this report of 9%, 10% and 11% are intended to represent three levels of shareholder returns which an investor might consider appropriate to reflect the underlying risk of the business of BLA. PwC makes no judgement or representation as to the appropriateness of those discount rates in evaluating the value of business of BLA.

## Summary of Embedded Value and Value of New Business Results

### Embedded Value as of 12/31/2009

Bangkok Life Assurance PLC Embedded Value as of 31 December 2009	Risk Discount Rate		
	9%	10%	11%
<b>Adjusted Net Asset Value ("ANAV")</b>	<b>8,870</b>	<b>8,870</b>	<b>8,870</b>
Present Value of Future Profit ("PVFP")	9,780	9,278	8,824
Corporate Tax ("Tax")	(2,735)	(2,588)	(2,455)
Cost of Target Required Capital ("CoC")	(1,387)	(1,540)	(1,671)
<b>Value of Inforce ("VIF")</b>	<b>5,658</b>	<b>5,150</b>	<b>4,698</b>
Tax rebate from equity divided income	146	136	128
<b>Embedded Value</b>	<b>14,673</b>	<b>14,156</b>	<b>13,696</b>
Estimated correction on mortality model	306	292	280
<b>Adjusted Embedded Value</b>	<b>14,979</b>	<b>14,448</b>	<b>13,976</b>

(in millions of baht)

**Note:**

- 1) ANAV is equal to the sum of:
  - (i) Shareholder's net assets of BLA as measured on OIC statutory basis;
  - (ii) Net of tax adjustment for the difference between market value of certain investment assets and the carrying value reported on an OIC statutory basis.
- 2) For adjusted net assets, we rely on the figures provided by BLA.

### Value of New Business

Value of One year New Business sold in 2009	Risk Discount Rate		
	9%	10%	11%
Present Value of Future Profit ("PVFP")	2,631	2,499	2,378
Corporate Tax ("Tax")	(741)	(703)	(677)
Cost of Target Required Capital ("CoC")	(248)	(275)	(298)
Tax rebate from equity dividend income	26	24	23
<b>Value of One year New Business</b>	<b>1,667</b>	<b>1,545</b>	<b>1,435</b>

(in millions of baht)

**Note:**

- 1) Numbers may not add up due to rounding.

### BLA Embedded Value Methodology

Embedded value ("EV") is the actuarially estimated economic value of a life insurance company. The methodology we have adopted for EV calculation is commonly known as the Traditional Embedded Value ("TEV") method. Under TEV, risk discount rate and investment income are set based on real-world expectations and may not be market-consistent.

There are two main components that make up EV:

- The adjusted net worth ("ANW");

**Adjusted net worth** is defined as the reported **value of free surplus** and **required capital**. The value of free surplus is equal to the market value of the assets supporting this surplus.

- The value of in-force business ("VIF");



**Value of in-force covered business** is defined as the discounted value of projected future distributable earnings of the business in force on the valuation date.

**Future distributable earnings** are defined as the after-tax future regulatory book profits emerging from the business in force on the valuation date less the change in required capital plus the after-tax investment income on required capital.

**After-tax future regulatory book profit** consists of the following parts:

- + Premium income due;
- + Investment income;
- Benefit payments (claims, surrenders and maturities);
- Expenses (including commission);
- Increase in statutory reserves;
- Income Tax;
- Cost of holding required capital ("CoC").

**Cost of holding required capital ("CoC")** is the present value of the future releases in required capital and the present value of after-tax investment income on assets backing required capital less the required capital at the valuation date.

**The EV = ANW + VIF**

### **BLA New Business Value Methodology**

The new business value is expressed by discounting the distributable earnings back to the issue date.

An overriding principle in reporting the new business value is that the value accurately reflects **expectations as of the valuation date**. This implies that the value of new business assumptions should be **best estimates at the valuation date** and that there should not be an assumption change component to the movement analysis for new business.

As stated in the definitions, the new business value is the value that is added to the company by the business written during the current period, assuming that the company is a mature going concern in normal conditions.

New business value is expressed at point of sale. This value is the present value of distributable earnings on business issued in the current period. The assumption that the company is a mature going concern in normal conditions is meant to convey that the acquisition expense and commission underruns (or overruns) should not be included when determining the value. Only those expenses included in pricing the products should be considered.

The pricing assumptions are the same as best estimate assumptions at the valuation date.

Acquisition expense and commission underruns (or overruns) should be **expressed after-tax**.

New Business Value (NBV) is the value of 2009 new business as at issue date rather than 31st December 2009. In addition, the 2009 acquisition expense overrun is also considered in NBV.

The projection of cash flow after the end of year 2009 is the same as that for embedded value calculation except the amount is discounted by half of a year based on the assumption that all the new business is evenly acquired during 2009.

Manual adjustments of expense overrun, tax and impact on solvency are also considered for cash flow after 2009 year-end.

## **BLA Key Economic Assumptions**

The key assumptions that were used by BLA in the Embedded Value calculation were:

Investment income	: 5.25% per annum
Risk discount rate	: 10.0% per annum
Income tax rate	: 25% for 2010-2012 and 30% thereafter
Solvency margin	: 4% of statutory reserve

Mortality, morbidity, surrender, expenses and other related actuarial assumptions can be found in a full version report.

## **Comments from PwC Review**

We have conducted our review in relation to the embedded value cash flow from BLA. We concluded that nothing has come to our attention to cause us to believe that BLA's embedded value cash flow is not correctly calculated in material respects using BLA's documented assumptions

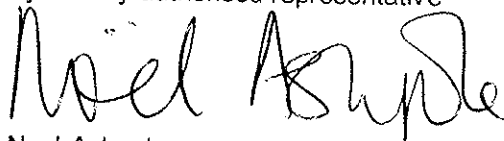
The documented assumptions used by BLA in calculating the embedded value are reasonable in material respects based on BLA's experience, industry benchmark and financial trends as of 31 December 2009.

Based on the procedures we have performed, nothing has come to our attention to cause us to believe that BLA's embedded value is not consistent with generally accepted international actuarial practice. We have identified some issues where the accuracy of the embedded value calculation could be improved in the future.

Although in our opinion the embedded value methodology adopted by BLA is consistent with generally accepted actuarial practice. BLA's embedded value does not necessarily comply with all aspects of the "European Embedded Value Principles" ("EEV Principles").

The work performed was based on data available to PwC at, or prior to 15 March 2010, and takes no account of developments thereafter.

Yours sincerely,  
For and on behalf of  
PricewaterhouseCoopers FAS Limited  
by its duly authorised representative



Noel Ashpole