

# **Using Economic Value Added (EVA) to Measure and Improve Bank Performance**

**2006 Paper Writing Contest  
RMA – Arizona Chapter**

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## **Introduction**

Economic Value Added, or EVA<sup>1</sup>, is a tool that bankers can use to measure the financial performance of their bank. Since EVA has only been used in the U.S. banking industry since 1994 and is not as well known as other measures of bank performance, it is the objective of my paper to introduce EVA to those who are unfamiliar with it. To achieve this objective, my paper includes a hypothetical example using EVA to assess how the financial performance of a fictitious bank, ABC Bank, would change if its management decided to securitize a portion of its credit card loans in an effort to improve its capital adequacy.<sup>2</sup> This example is discussed further on pages 5 and 6 with analysis (i.e. spreadsheets) on pages 7 and 8.

## **Economic Value Added Explained**

EVA is the invention of Stern Stewart & Co., a global consulting firm, which launched EVA in 1989. As developed by Stern Stewart & Co., EVA is calculated as a company's "net operating profit after taxes"<sup>3</sup> (NOPAT) minus a dollar cost for the equity capital employed by the company. The dollar cost of equity capital employed by a company is equal to the company's equity capital (reported on its balance sheet) multiplied by a percentage return that the company's shareholders require on their investment. Expressed as a formula:

$$\text{EVA} = \text{"Net Operating Profit After Taxes"} - (\text{Equity Capital} \times \% \text{ Cost of Equity Capital})$$

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<sup>1</sup> EVA is a registered trademark of Stern Stewart & Co.

<sup>2</sup> My ABC Bank example is based on an example contained in the book Bank Management (Koch; 4<sup>th</sup> Ed., 185-190), with modifications made where I deemed it appropriate to do so.

<sup>3</sup> Note: While the term "net" as used in "Net Operating Profit After Taxes" may seem redundant as the word "net" generally means "after tax" in familiar accounting and finance nomenclature, Stern Stewart & Co.'s use of the word "net" refers to adjustments needed to make a company's after tax net income more representative of the current economic realities of the company. These adjustments will be discussed later in my paper.

The use of this formula will produce either a positive or negative EVA number. A positive EVA reflects that the company is increasing its value to its shareholders, whereas a negative EVA reflects that it is diminishing its value to its shareholders.

EVA is based on the principle that since a company's management employs equity capital to earn a profit, it must pay for the use of this equity capital. As management consultant Peter Drucker once said, "Until a business returns a profit that is greater than its cost of capital, it operates at a loss... The enterprise still returns less to the economy than it devours in resources... Until then it does not create wealth; it destroys it" (Ehrbar 2). Including a cost for the use of equity capital sets EVA apart from more popular measures of bank performance, such as return on assets (ROA), return on equity (ROE) and the efficiency ratio, which do not consider the cost of equity capital employed. As a result, these measures may suggest a bank is performing well, when in fact it may be diminishing its value to its shareholders.

### **Step 1: Calculating NOPAT**

The first step in calculating EVA is to make adjustments to a company's net income in order to produce its NOPAT. These adjustments are necessary as the company's net income is calculated under generally accepted accounting principles (GAAP), which often distort the current economic realities of the company. The disparity between a company's GAAP net income and its current economic realities is largely attributable to the conservative bias that characterizes GAAP. (Examples of this conservative bias include recognizing unrealized losses when they occur but delaying recognition of unrealized gains, stating assets at their historic cost value rather than at their market value, and writing down long-lived assets when they are impaired, but not writing them up in response to their appreciation.) GAAP's conservative bias

is for the benefit of the company's shareholders and creditors; however, it may produce financial statements that are not truly reflective of the company's performance.

Stern Stewart & Co. has identified more than 120 potential adjustments that a company can make to its net income. However, most companies require no more than about ten adjustments to produce a sufficiently accurate EVA figure. The general rules for deciding on what adjustments to make to a company's net income include: 1) the materiality of the adjustments, 2) the effect they will have on management's behavior, 3) how easily they are understood and 4) the degree to which they will impact the company's market value.

Two of the most common adjustments for a bank to make involve its provision for loan losses and its provision for taxes. (The reasoning for making these adjustments is discussed in the two following paragraphs.) A bank may make other adjustments, especially if it has non-recurring items and unrealized gains and losses on trading securities during a given period. (For simplicity sake, my ABC Bank example includes only adjustments involving the bank's provision for loan losses and provision for taxes.)

Under GAAP, a bank has to write off a portion of each loan as soon as it makes it. A bank accounts for this by increasing its loan loss reserve (reported on its balance sheet) with an equal amount expensed as provision for loan losses (reported on its income statement). This practice distorts the performance measurement of the bank for a given period since the provision for loan losses impacts its net income for that period, even though any potential losses on loans could occur well into the future. Accordingly, to reflect current period losses rather than anticipated future losses, a bank's NOPAT is calculated using actual net charge offs for the period rather than its provision for loan losses.

Like its provision for loan losses, a bank's provision for taxes may distort its operating results for a given period. A bank's provision for taxes represents the income taxes on its income as calculated under GAAP. Since prescribed tax regulations and rules treat the accounting for various items differently than GAAP does, the bank's income figure reported to the taxing authorities may differ significantly from the income figure reported on its GAAP financial statements. As a result, a bank's provision for taxes for a given period would significantly vary from the actual income taxes it paid for that period. To better assess the current economic realities of the bank, the bank's actual tax payments paid in a given period are used in place of its provision for taxes in calculating its NOPAT.

### **Step 2: Calculating Dollar Cost of Equity Capital**

As previously noted, the dollar cost of equity capital employed by a company is equal to its equity capital multiplied by a percentage return that the company's shareholders require on their investment. In calculating a bank's EVA, the equity capital figure used is often based on its "total capital", which is the sum of its Tier 1 and Tier 2 capital<sup>4</sup>.

The percentage return that a company's shareholders require on their investment can be calculated under the assumption that they require both a return for just investing their money and a return that reflects the risk inherent in investing specifically into the company in question. Stated as a formula, which is known as the Capital Asset Pricing Model, the percentage return that a company's shareholders require is calculated as:

$$\text{Percentage Return Required} = \text{Risk-Free Rate} + (\text{Beta Coefficient} \times \text{Market Risk Premium})$$

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<sup>4</sup> A bank's Tier 1 capital is principally comprised of its shareholder equity less goodwill and other intangible assets. A bank's Tier 2 capital is principally comprised of its loan loss reserve and any subordinated debt it has. For simplicity sake, the ABC Bank example includes only shareholder equity as Tier 1 capital and loan loss reserve as Tier 2 capital.

The risk-free rate is the interest rate that can be obtained by investing in an investment with no risk. Although a truly "risk-free" investment exists only in theory, in practice short-term government bonds, such as U.S. Treasury bills, are used.<sup>5</sup> The beta coefficient is the level of risk inherent in investing in a specific company relative to investing in the overall stock market.<sup>6</sup> The market risk premium is the risk associated with investing in the stock market as a whole.<sup>7</sup>

### **Example Using EVA: ABC Bank**

ABC Bank, a fictitious \$5.0 billion bank, is currently not considered "well capitalized" as its total capital ratio is below 10%.<sup>8</sup> Since the bank historically has been "well capitalized", its management is eager to bring it back to being considered "well capitalized". One approach management might take to accomplish this would be to securitize a portion of the bank's outstanding credit card loans with the resultant proceeds used to pay off \$950 million of maturing CD's and buying back \$30 million of the bank's stock. (The bank's financial condition before the credit card securitization is presented on page 7 with its financial condition after the credit card securitization presented on page 8.)

As illustrated on pages 7 and 8, this decision would change ABC Bank's balance sheet by reducing outstanding credit card loans by \$1 billion and outstanding CD's by \$950 million. As a

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<sup>5</sup> As of April 21, 2006, the four-week Treasury bill had a rate of 4.46%, which is the risk free rate I used for the ABC Bank example.

<sup>6</sup> For the ABC Bank example, I catalogued the beta coefficients for 80 publicly traded banks or bank holding companies. The average beta coefficient for these 80 banks / bank holding companies was 0.42, which is used in the ABC Bank example.

<sup>7</sup> While a range of various market risk premiums can be derived using differing assumptions and models, I chose a market risk premium of 5.60% for the ABC Bank example. I chose 5.60% as it is the geometric average of the historical market risk premium for the S&P 500 over the 30-year U.S. bond for the years 1926-2003 (Fernández 2).

<sup>8</sup> Regulatory requirements for a bank to be classified as "well capitalized" include, but are not limited to, a total capital ratio (total capital / risk-weighted assets) of 10% or more and a Tier 1 capital ratio (Tier 1 capital / risk weighted assets) of 6% or more. Ratios below these levels require the bank to be classified as "adequately

result of buying back a portion of its stock, the bank's equity declines by \$30 million to \$290 million. With the reduction in loans, the example assumes that the bank's loan loss reserve falls by \$20 million, with an offsetting adjustment of the same amount made to its loan loss provision. Actual net charge-offs for the period are assumed to decline by \$8 million.

As a result of this decision, net interest income would decline by \$57.3 million. Other changes to the bank's income statement include the assumption that non-interest income would decline by \$40 million and that non-interest expense would decline by \$60 million. The resultant change to net income would be a decline from \$92.6 million to \$82.2 million.

In terms of reaching its objective, the bank's total capital ratio improves to 11.18%, allowing it to be classified as "well capitalized" (assuming it meets all other requirements for being classified as "well capitalized"). Additionally, its Tier 1 capital ratio improves to 8.76% from 7.42% and its return on assets (ROA) improves to 2.05% from 1.85%. From its improved total capital ratio, Tier 1 capital ratio and ROA, it appears that the securitization of a portion of the bank's outstanding credit card loans would be an appropriate decision for the bank's management to make. However, ABC Bank's EVA decreases from \$62.7 million to \$36.9 million, suggesting that the bank's shareholders are worse off as a result of this decision. Accordingly, the bank's management should investigate other ways it can improve its capital adequacy without significantly diminishing the bank's value to its shareholders.

## **Conclusion**

As I have illustrated in this paper, EVA can be an important tool that bankers can use to measure and improve the financial performance of their bank. Since EVA takes the interest of

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capitalized", "undercapitalized", "significantly undercapitalized" or "critically undercapitalized", depending on the aforementioned ratios and / or other factors.

the bank's shareholders into consideration, the use of EVA by bank management may lead to different decisions than if management relied solely on other measures.



<b>Before securitization of credit card loans</b>			
<b>ABC Bank</b>			
<b>Balance Sheet</b>			
as of 12/31/XX			
(in \$000's)			
<b>Assets</b>		<b>Liabilities</b>	
Cash	150,000	Demand Deposits	800,000
Fed Funds Sold	800,000	MMDA's	1,800,000
Commercial Loans	2,000,000	CD's	1,300,000
Credit Card Loans	1,900,000	Savings Accounts	680,000
Loan Loss Reserve	(100,000)	Deferred Taxes	100,000
Other Assets	250,000	<b>Total Liabilities</b>	<b>4,680,000</b>
<b>Total Assets</b>	<b>5,000,000</b>	<b>Equity</b>	<b>320,000</b>
		<b>Total Liabilities &amp; Equity</b>	<b>5,000,000</b>
<b>ABC Bank</b>			
<b>Income Statement</b>			
Year ending 12/31/XX			
(in \$000's)			
Interest Income	408,000	<b>Tier 1 Capital Ratio</b>	<b>7.42%</b>
Interest expense	148,700	<b>Total Capital Ratio</b>	<b>9.74%</b>
<b>Net interest income</b>	<b>259,300</b>	<b>ROA</b>	<b>1.85%</b>
Provision for loan losses	(25,000)	<b>ROE</b>	<b>28.93%</b>
Noninterest income	185,000	<b>Efficiency Ratio</b>	<b>59.64%</b>
Noninterest expense	(265,000)	<b>EVA</b>	<b>62,698</b>
<b>Pre-tax income</b>	<b>154,300</b>		
Provision for taxes	(61,720)		
<b>Net income</b>	<b>92,580</b>		
<b>Calculating EVA:</b>			
(in \$000's)			
<b>NOPAT</b>		<b>Dollar cost of equity</b>	
Net income	92,580	Total capital equity	420,000
Provision for loan losses	25,000	Shareholders' required return	6.81%
Actual net chargeoffs	(22,000)	Dollar cost of equity	<b>28,602</b>
Provision for taxes	61,720		
Actual cash taxes paid	(66,000)		
<b>NOPAT</b>	<b>91,300</b>	<b>EVA</b>	<b>62,698</b>
<b>Assumptions used:</b>			
Income tax rate	40%	<b>Pricing:</b>	
		Fed Funds Sold	4.75%
<b>Shareholders' required return inputs:</b>		Commercial Loans	9.00%
Risk-free rate	4.46%	Credit Card Loans	10.00%
Beta coefficient	0.42	Demand Deposits	0.00%
Market risk premium	5.60%	MMDA's	3.50%
		CD's	4.50%
		Savings Accounts	4.00%

<b>After securitization of credit card loans</b>			
<b>ABC Bank</b>			
<b>Balance Sheet</b>			
as of 12/31/XX			
(in \$000's)			
<b>Assets</b>		<b>Liabilities</b>	
Cash	150,000	Demand Deposits	800,000
Fed Funds Sold	800,000	MMDA's	1,800,000
Commercial Loans	2,000,000	CD's	350,000
Credit Card Loans	900,000	Savings Accounts	680,000
Loan Loss Reserve	(80,000)	Deferred Taxes	100,000
Other Assets	250,000	<b>Total Liabilities</b>	<b>3,730,000</b>
<b>Total Assets</b>	<b>4,020,000</b>	<b>Equity</b>	<b>290,000</b>
		<b>Total Liabilities &amp; Equity</b>	<b>4,020,000</b>
<b>ABC Bank</b>			
<b>Income Statement</b>			
Year ending 12/31/XX			
(in \$000's)			
Interest Income	308,000	<b>Tier 1 Capital Ratio</b>	<b>8.76%</b>
Interest expense	105,950	<b>Total Capital Ratio</b>	<b>11.18%</b>
<b>Net interest income</b>	<b>202,050</b>	<b>ROA</b>	<b>2.05%</b>
Provision for loan losses	(5,000)	<b>ROE</b>	<b>28.36%</b>
Noninterest income	145,000	<b>Efficiency Ratio</b>	<b>59.07%</b>
Noninterest expense	(205,000)	<b>EVA</b>	<b>36,853</b>
<b>Pre-tax income</b>	<b>137,050</b>		
Provision for taxes	(54,820)		
<b>Net income</b>	<b>82,230</b>		
<b>Calculating EVA:</b>			
(in \$000's)			
<b>NOPAT</b>		<b>Dollar cost of equity</b>	
Net income	82,230	Total capital equity	370,000
Provision for loan losses	5,000	Shareholders' required return	6.81%
Actual net chargeoffs	(14,000)	Dollar cost of equity	<b>25,197</b>
Provision for taxes	54,820	<b>EVA</b>	<b>36,853</b>
Actual cash taxes paid	(66,000)		
<b>NOPAT</b>	<b>62,050</b>		
<b>Assumptions used:</b>			
Income tax rate	40%	<b>Pricing</b>	
		Fed Funds Sold	4.75%
<b>Shareholders' required return inputs:</b>		Commercial Loans	9.00%
Risk-free rate	4.46%	Credit Card Loans	10.00%
Beta coefficient	0.42	Demand Deposits	0.00%
Market risk premium	5.60%	MMDA's	3.50%
		CD's	4.50%
		Savings Accounts	4.00%

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