THE RELATIONSHIP BETWEEN ECONOMIC VALUE ADDED (EVA®) AND MARKET VALUE ADDED (MVA) WITH REPORTED EARNINGS: AN EMPIRICAL RESEARCH OF 40 LISTED COMPANIES IN INDONESIA STOCK EXCHANGE FOR THE YEAR 2004-2007

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ABSTRACT

This thesis is made to examine the relationship between Economic Value Added (EVA®) and Market Value Added (MVA) with the reported earnings. Thus, the purpose is to gain better understanding in the use of EVA and MVA in relation to the reported earnings in certain purposes from different regression models.

With the sample of 40 Indonesian listed companies in Indonesia Stock Exchange from year 2004 to 2007, the hypothesis testing is used to find the relationships among variables. The author use formula for calculating EVA and MVA to be use in four models of regression analysis against reported earnings.

This study found evidence in the relationships between EVA and MVA with reported earnings, and the highest correlation among the models is relationship within the same year period, which can be used for evaluation purposes. Only the relationship of the EVA in the previous year and reported earnings changes is proved not significant. Still, MVA is more significant in explaining its relationship with reported earnings rather than EVA.

The author concludes that in general, Indonesian listed companies still produces negative EVA. On the other hand, while the EVA and MVA are proved to have correlation with reported earnings, the result for EVA is lower than MVA. Therefore, there is still not enough evidence that EVA can be used to explain the reported earnings effectively other than MVA.

***Keywords**: relationship, economic value added (EVA), market value added (MVA), reported earnings, indonesia Stock Exchange.*

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INTRODUCTION

Advancement of the nature of business and management performance has pushed the need of people to build a more effective and structured financial measurement. According to the article of The Chartered Institute of Management Accountants (CIMA), *Latest Trends in Corporate Performance Measurement* (1992), many companies experienced difficulties in implementing measurement frameworks. The issues from the 1990s are still relevant today related to variables to measure, ways to access data, and so on. Effective performance measurement is believed to be of key importance in ensuring the successful implementation of an organization's strategy. The result of the performance measurement will help the managers to produce effective decision-making processes whether at the operational or strategic level.

EVA is a method for conducting performance analysis and a registered trademark by Stern Stewart & Co. It has been justified by financial theory and has been seen consistent with the valuation principles, which are so important to any investor's analysis of a company. De Kluyver & Pearce II (2006) stated that EVA is a value-based financial performance measure that focuses on economic value creation, which comes from its use of cost of capital that is generally, refers to financial wealth used to start or maintain the business. On the other hand, Market Value Added (MVA), is defined as the difference between the equity market valuation of a listed/quoted company and the sum of the adjusted book value of debt and equity invested in the company. It is equal to the present value of future expected EVA. The higher the MVA means the better the company has created substantial wealth for the shareholders.
In measuring past performance, according to Pettit (2000), EVA is the only operating measure to account for the many income statement balance sheet trade-offs involved in creating value since it simultaneously focuses on both profit and capital. However, regarding the company's present and future performance, it can be seen from many variables, such as stock price performance, reported earnings, or market share of the company.

In this study, the author then will link the EVA and MVA with their relationship to reported earnings. High reported earnings might lead to boost the stock price and company's market value, which is the aim of EVA and MVA method. So, supposedly, if a company reports high EVA and MVA, it shall also have high reported earnings. As Stickney & Brown (1999) mentioned that the reported earnings number is important when it both accurately measures current economic value-added and is a good predictor of the economic value likely to be added in the future; the author wants to reveal the relationship between EVA and MVA with reported earnings using correlation and linear regression. In addition, the author is also interested in developing a better understanding of EVA and MVA besides the use of EVA as a popular method for measuring companies in various sector of industry. Thus, the title of this thesis is:
"The Relationship between Economic Value Added (EVA®) and Market Value Added (MVA) With Reported Earnings: An Empirical Research of 40 Listed Companies in Indonesia Stock Exchange for the Year 2004-2007"

THEORETICAL FRAMEWORK

Horngren (2002) stated that reported earnings or net income is the famous "bottom line" in an income statement – the remainders after all expenses have been deducted from revenues. While it indicates the profitability of the company, it also reflects the return to equity holders for the period under consideration, and the line items of the statement detail how earnings are determined. Reimers (2007) also describes net income as the difference between revenues and expenses when revenues exceed expenses for a specific period of time.

The equation for net income:

Net income or Net loss = Revenue – Cost of goods sold – Expenses + Non operating income – Non Operating expense – Income Taxes.

Economic Value Added (EVA)

EVA is not actually a new discovery. The concept of EVA has been described in the first theoretical basis of capital structure and company value was presented in the academic papers by two financial economists, Franco Modigliani and Merton H. Miller in 1958, later has been known as M&M (Modigliani-Miller) theorem. The basic theorem states that the value of a firm is unaffected by how the firm is financed, whether by issuing stock or selling debt. However, Modigliani and Miller did not provide a technique to measure economic income in a firm. (Stern et al., 2001). In the following years, the term Economic Value Added was popularized by G. Bennet Steward III who is the co-founder and senior partner of Stern Steward & Co. with his book titled "The Quest of Value" (1991). The EVA concept itself was developed and registered to the global consulting firm Stern Stewart & Co. management services in 1989.

Stern et al. (2001) stated that EVA is the measure of the true economic performance of a company and a strategy for creating shareholder wealth. Through his book "The EVA Challenge: Implementing Value Added Change in an Organization", he proposes that the EVA program encompasses three things essentially, which are a measurement system, an incentive system and a system of financial management. In measuring performance, EVA's key ingredient is recognition of 'capital charges' – the cost of capital in a company, in a division, in a branch store, or in a product.

EVA focuses on managerial effectiveness in a given year (Brigham and Ehrhardt 2002). Therefore, EVA basic formula is calculated using NOPAT to reflect firm's return from its operations:

EVA = NOPAT – After-tax dollar cost of capital used to support operations

= NOPAT – (Total net operating capital x WACC)

Where,

NOPAT = Net Operating Profit After Taxes

WACC = Weighted Average Cost of Capital

Total Net Operating Capital is another term of Invested Capital (IC)

From this formula, it can be seen that EVA represents the residual income that remains after the cost of all capital, including equity capital, so that it shows an estimate of a business's true economic profit for the year. Positive EVA indicates value creation (wealth creation); in contrast, negative EVA means that there is value destruction (consuming capital).

Market Value Added (MVA)

Brigham and Ehrhardt (2002) stated that MVA represents the difference between the total market of a firm and the total amount of investor-supplied capital. If market values of debt and preferred stock equal their values as reported on the financial statements, then MVA is the difference between the market value of a firm's stock and the amount of equity its shareholders have supplied. Therefore, MVA is a tool in determining how much money investors have made on their investment and the level of value a company has accumulated over time (company's wealth). The positive MVA indicates that the value and investment created by the manager is more than the capital supplied by the investors, vice versa. Formula of MVA is proposed by Brigham and Ehrhardt (2002):

MVA = Total Market Value – Total Capital
= (MV of Stock + MV of Debt) – Total Capital

Where,

MV of Stock	=	Market Capitalization = Shares Outstanding x Stock Price
MV of Debt	≈	Book Value of Debt (as an estimate to the MV)
Total Capital	=	Total Book Value of Debt and Equity

In the formula above, the market value of debt is deemed to be equivalent with the book value of debt since there is no active secondary debt market in Indonesia; therefore, it is hard to estimate the market value for the debt.

MVA is deemed to have the highest relationship with EVA rather than other financial measures. There are two observations of EVA and MVA stated by Brigham and Ehrhardt (2002): First, there is a direct relationship between MVA and EVA. If a company has a history of negative EVAs, then its MVA will probably be negative, and vice versa if it has a history of positive EVAs. Second, when EVAs or MVAs are used to evaluate managerial performance as part of an incentive compensation program, EVA is the measure that is typically used. Besides that, Keown et al. (2005) also stated that the relationship between the future EVAs and MVA is an important one, since the managing for shareholder value entails increasing MVA. MVA is the present value of all future EVAs over the life of the firm. Thus, managing the firm in ways that increase EVA will generally lead to a higher MVA.

This study aims in analyzing relationship between EVA and MVA with reported earnings using financial statements and other related data from 40 samples of JSX/IDX companies within the time frame (year 2004 to 2007). EVA is an integrated measurement tool to estimate the company's economic performance through the value created by management. The performance is determined through the positive (value creation) or negative (value destruction) EVA that the company earns for one year. Meanwhile, MVA is a wealth measurement tool in determining the return on the money invested in the company. Therefore, positive MVA reflects that the money invested by the shareholders yield returns, while the negative MVA is the vice versa.

In order to prove the relationship, the result of EVA and MVA as the independent variables will then be analyzed using regression and correlation with reported earnings as the dependent variable. Reported earnings as the profit reflected in the financial statements, is calculated by subtracting the income with the operating and other expenses.

HYPOTHESIS DEVELOPMENT

Research Questions

This thesis is basically prepared for testing hypotheses to present a general idea of the use of EVA and MVA in its relationship with reported earnings with the data from the years 2004 - 2007. There are several questions that need to be answered in this research focusing on the relationship of the variables, which are:

RQ1. How is the relationship between EVA and reported earnings?
RQ2. How is the relationship between MVA and reported earnings?
RQ3. How is the simultaneous relationship between EVA, MVA and reported earnings?
RQ4. What regression model produces strongest relationship for EVA, MVA and reported earnings?

Research Hypotheses Development

Most of the research done about EVA and MVA has focused on the comparison between EVA and MVA to the traditional methods in its relationship with the share price. For instance, Lehn and Makija (1996) did research to find the correlation of EVA and MVA with other performance measures such as ROE (Return on Equity), ROA (Return on Assets), ROS (Return on Sales) and also with share returns. In the study, EVA showed a slightly better correlation with the share returns than with other measures. However, in this thesis, the author wants to emphasize the relationship between EVA and MVA with the reported earnings. Such thinking was influenced by the studies held by some researchers previously:

Stickney & Brown (1999) mentioned that reported earnings are important to accurately measure current economic value-added. However, Biddle et al. (1999) showed that they found a better correlation between net income (reported earnings) and firm value (MVA) rather than with EVA regression. Therefore, the hypotheses are made to provide a reasonable argument for stating the relationship of EVA and MVA with reported earnings:

H1: *There is a relationship between EVA and reported earnings.*
H2: *There is a relationship between MVA and reported earnings.*
H3: *There is simultaneous relationship between EVA and MVA and reported earnings.*

After the hypotheses are developed, the author will test them in four regression models. Based on these four models, the one producing the strongest relationship for EVA, MVA and reported earnings will be assessed.

$$Y_t = a + b_1 (X_{1\,t}) + b_2 (X_{2\,t}) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

$$Y_t = a + b_1 (X_{1\,t-1}) + b_2 (X_{2\,t-1}) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

$$\Delta Y_{t-t-1} = a + b_1 (X_{1\,t-1}) + b_2 (X_{2\,t-1}) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

$$\Delta Y_{t-t-1} = a + b_1 (\Delta X_{1\,t-t-1}) + b_2 (\Delta X_{2\,t-t-1}) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (4)$$

Y represents the dependent variable (reported earnings), while X_1 is the independent variable 1 (EVA), X_2 is the independent variable 2 (MVA), a is a constant number, and b is the slope of the independent variable(s).

The independent variables will be used consecutively and simultaneously. First model which explains the relationship between EVA and/or MVA with reported earnings in the same year, could be used for evaluation purposes. Second model which explains the relationship between EVA and/or MVA in previous year with reported earnings in the present year could be used

for prediction purposes. Third one explaining the relationship of EVA and/or MVA in present year with reported earnings changes, could be used for growth prediction. And the last model covering the relationship of EVA changes and/or MVA changes with reported earnings changes, could be used for growth evaluation.

Two independent variables (X variables) in this study are:

1. The Economic Value Added (EVA)
   EVA is the performance measurement that estimates the company's economic performance through the value created by the management by taking into account the net operating profit after-tax minus the cost of capital employed.
2. The Market Value Added (MVA)
   The method used in this thesis to calculate the MVA and EVA is similar with Lefkowitz (1999) and is cited in Grant (1996) which divides annual MVA (or MVA changes) by capital to adjust for the firm size in order to produce a percentage return that is comparable across companies. But since the author wants to point out the MVA itself, the author will not divide annual MVA by the capital. MVA represents the market value of a company less the capital supplied. The result of MVA subsequently will be the one that tied to the reported earnings for the year.

Furthermore, the independent variables above will be tested in relation with the dependent variable, which is the reported earnings. Reported earnings or net income is the remainders after all expenses have been deducted from revenues.

The independent and dependent variables will be tested using regression models and correlation analysis. The regression will then be divided into simple (only one variable; EVA or MVA consecutively) and multiple regression (using two variables; EVA and MVA simultaneously). All the variables used were derived from the chosen IDX listed companies' annual reports based on the biggest market capitalization in 8 sectors for the year 2004 until 2007.

DATA AND RESEARCH METHODOLOGY

The purpose of the study is to investigate the relationship between EVA and MVA and the reported earnings in several different regression models. The author developed several hypotheses to be tested statistically and will explain and describe the results. Therefore it is descriptive and inferential (hypothesis testing). The type of investigation is correlational study since the researcher is concerned with defining the association of the variables with the problem statement. The data used in the research is secondary data, which are 2003- 2007 financial reports of the listed companies from the database and internet and was collected by the author at one point of time (April to May 2008), while the method used to collect the data is library research and academic literature in obtaining secondary data from secondary sources. The sample size is 40 listed companies and the author uses a purposive sampling design because there are several criteria that should be met, which are:

1. The company should have been listed in the Indonesia Stock Exchange (before was Jakarta Stock Exchange) in the years covered by the research (financial data is required from 2003 to 2007).
2. The company should have a complete set of financial statements and variables used in the research from 2003 to 2007.
3. The company should not come from the financial services industry, since it has a different nature and approach in the financial statement processes and interpretation comparing to other industries.
4. The five biggest companies by market capitalization in each industry sector (except for financial services) based on the JSX Fact Book 2007 are chosen to represent other companies in that industry. The market capitalization is taken as the criteria since it is used to calculate the MVA of the company. For MVA itself, as stated in Chapter 2 is present value of all future EVAs over the life of the firm.

FINDINGS AND DISCUSSION

The study has found that, from the sample of 40 Indonesian listed companies from the year 2004 to 2007, EVA has a minimum value of Rp -13 trillion, PT. Indah Kiat Pulp and Paper, and a maximum of Rp 9,7 trillion ,PT. Telekomunikasi Indonesia Tbk. The mean is Rp -305,309 million. Therefore, in general, Indonesian listed companies are still not generating positive EVA from its operations. Only 4 companies out of 40 sample companies produced positive EVA from the years 2004 to 2007.

Almost the same with EVA, the maximum value of MVA Rp 180 trillion came from PT. Telekomunikasi Indonesia Tbk, and the minimum value Rp -14 trillion from PT. Indah Kiat Pulp and Paper. The mean for MVA is Rp 12 trillion which is much higher than the EVA. This result shows that generally the market value of Indonesian listed companies are is higher than their book value.
Reported earnings which is the bottom line of the income statement of the company, shows a mean of Rp 1,092,038 million. The maximum value is Rp 12,857,018 million from PT. Telekomunikasi Indonesia Tbk and the minimum is Rp -1,764,027 million coming from PT. Indah Kiat Pulp and Paper.

Hypothesis 1: There is a relationship between EVA and reported earnings
This hypothesis will be analyzed using regression and correlation analysis between EVA and Reported Earnings. Four models to be used in the analysis:

$$\textit{Reported Earnings}_t = a + b\ (EVA_t) \quad \text{(a)}$$
$$\textit{Reported Earnings}_t = a + b\ (EVA_{t-1}) \quad \text{(b)}$$
$$\Delta\textit{Reported Earnings}_{t-t-1} = a + b\ (EVA_{t-1}) \quad \text{(c)}$$
$$\Delta\textit{Reported Earnings}_{t-t-1} = a + b\ (\Delta EVA_{t-t-1}) \quad \text{(d)}$$

The Pearson correlation for model 1-a is strong and positive between EVA and Reported Earnings in the same year (.556); while 1-b is weak positive between EVA in previous year and Reported Earnings in present year (.358); 1-c is not significant (.401) and very low (.077)

between EVA and Reported Earnings Changes; and 1-d is moderate positive correlation between EVA Changes and Reported Earnings Changes (.482).

The analysis of regression model 1-a, 1-b, 1-c and 1-d show R Square of 0.309, 0.358, 0.06, and 0.233 respectively. Model 1-a has the highest R Square which means 30.90% of variability of Reported Earnings can be explained by the EVA in the same year. Meanwhile, model 1-c has the lowest R Square of 0.06 and insignificant p-value and F-stat; which means that EVA in previous year only can explain 6% of the variability in Reported Earnings Changes in present and previous year, and has the lowest evidence that the independent variable can be used to explain the relationship in the regression model.

Hypothesis 2: There is a relationship between MVA and Reported Earnings

The hypothesis two is related to the relationship between MVA and Reported Earnings. Four models to be used in the regression analysis:

$$\textit{Reported Earnings}_t = a + b\,(MVA_t) \ldots\ldots\ldots\ldots\ldots \text{(a)}$$

$$\textit{Reported Earnings}_t = a + b\,(MVA_{t-1}) \ldots\ldots\ldots\ldots\ldots \text{(b)}$$

$$\Delta\textit{Reported Earnings}_{t-t-1} = a + b\,(MVA_{t-1}) \ldots\ldots\ldots\ldots\ldots \text{(c)}$$

$$\Delta\textit{Reported Earnings}_{t-t-1} = a + b\,(\Delta MVA_{t-t-1}) \ldots\ldots\ldots\ldots\ldots \text{(d)}$$

The Pearson correlation for model 2-a is strong positive correlation between MVA and Reported Earnings in the same year (.898); model 2-b has strong positive correlation between MVA in previous year and Reported Earnings in present year (.802); model 2-c has weak positive correlation between MVA in previous year and Reported Earnings Changes in present and previous year (.346); and the last, model 2-d has a strong enough positive correlation between MVA Changes and Reported Earnings Changes in the same period (.735).

The analysis of regression model 2-a, 2-b, 2-c and 2-d show R Square of 0.806, 0.644, 0.120, and 0.541 respectively. All of these regression models have proven that there is relationship between MVA and Reported Earnings. The highest R square is in model 2-a; which shows that 80.60% of the variability in Reported Earnings can be explained by MVA in the same year. While the lowest R Square is in model 2-c with only 12% of variability in Reported Earnings Changes in present and previous year can be explained by MVA in the previous year.

Hypothesis 3: There is a simultaneous relationship between EVA and MVA and Reported Earnings

The hypothesis three is related to the relationships between EVA and MVA with Reported Earnings. Four models to be used in the multiple regression analysis:

$$\textit{Reported Earnings}_t = a + b_1\,(EVA_t) + b_2\,(MVA_t) \ldots\ldots\ldots\ldots \text{(a)}$$

$$\textit{Reported Earnings}_t = a + b_1\,(EVA_{t-1}) + b_2\,(MVA_{t-1}) \ldots\ldots\ldots\ldots \text{(b)}$$

$$\Delta\textit{Reported Earnings}_{t-t-1} = a + b_1\,(EVA_{t-1}) + b_2\,(MVA_{t-1}) \ldots\ldots\ldots\ldots \text{(c)}$$

$$\Delta\textit{Reported Earnings}_{t-t-1} = a + b_1\,(\Delta EVA_{t-t-1}) + b_2\,(\Delta MVA_{t-t-1}) \ldots\ldots \text{(d)}$$

The Pearson correlation for model 3-a for EVA and MVA in the same year with sample size n=160 is .574, while correlation between EVA and Reported Earnings, and MVA and Reported Earnings in the same year are same with model 1-a (.556) and model 2-a (.898)

respectively; model 3-b has moderate positive correlation between EVA and MVA in the same year with sample size n=120 (.490), and correlation between EVA in previous year and MVA in previous year with Reported Earnings in present year are equal to model 1-b (.358) and 2-b (.802) respectively; correlation of model 3-c between EVA and MVA in the same year with sample size n=120 is same with model 3-b (.490), while EVA in previous year with Reported Earnings Changes in present and previous year is equal as in Hypothesis 1-c, which is not significant at the 1% level (.077), and correlation between MVA in previous year with Reported Earnings Changes in present and previous year resembles Hypothesis 2-c (.346); and the last, model 3-d correlation between EVA Changes and MVA Changes in the same period is not significant (.136), on the other hand, the correlation between EVA Changes with Reported Earnings Changes in the same period is equal to the result in hypothesis 1-d (.482), and correlation between MVA Changes and Reported Earnings Changes in the same period also resembles the result in hypothesis 2-d (.735).

Model 3-a, 3-b, 3-c and 3-d have adjusted R Square of 0.806, 0.639, 0.116 and 0.684 respectively. In these models, the p-value of EVA as independent variable X_1 are not significant except in the model 3-d. The highest R Square is model 3-a, which means that 80.6% of variability of Reported Earnings can be explained by the EVA and MVA in the same period. Lowest R Square goes to model 3-c with only 11.6% of variability of Reported Earnings Changes can be explained by EVA and MVA in previous year.

A lot of studies have been done to investigate EVA compare to other measures. Consistent with the result of the correlation in EVA and MVA in this thesis, the study held by Finegan (1991:36) revealed that EVA has the highest correlation with MVA rather than other conventional measures, such as ROC and EPS growth.

Also consistent with the findings of this thesis, which shows that MVA has better correlation to the reported earnings rather than EVA; previous study by Biddle et al. (1999:69) shows that when they applied some adjustments in a consistent manner, they found a better correlation between net income (reported earnings) and firm value (MVA) than with EVA regression. Stickney and Brown (1999) states that a connection between reported earnings and EVA may be missing for any of the variety of reasons, which are:

1. Inclusion in reported earnings of revenues, expenses, gains and losses not expected to recur in the future.
2. Inadequacy of accounting system to measure the EVA by a firm's operating activities accurately and reliably during a reporting period.
3. The opportunity for management to manage, or perhaps manipulate, the level of the trend of reported earnings to its advantage.

CONCLUDING REMARKS

Based on the calculations and statistical analyses, there are some conclusions which should be highlighted:

- Indonesian listed companies have negative average of EVA in 4 years of the research scope (year 2004 to 2007). It shows that generally, Indonesian listed companies still have not generated value-added from its operations.
- The highest correlation between EVA and Reported Earnings is achieved in model a, which correlates EVA and Reported Earnings in the same year. The regression analysis states that 30.90% of variability in Reported Earnings can be explained by EVA in the same year. The result is quite understandable since EVA is calculated from financial information of the company after the year-end.
- The highest correlation between MVA and Reported Earnings is achieved in model a, which correlates MVA and Reported Earnings in the same year. The regression analysis states that 80.60% of variability in Reported Earnings can be explained by MVA in the same year. The result reflects that the Reported Earnings is also affected from the value that companies have created from the market point of view in the same year.
- In the multiple regressions, the model that shows highest correlation is also model a; which correlates EVA, MVA and Reported Earnings in the same year. It shows that although 80.60% of variability in Reported Earnings can be explained by EVA and MVA in the same year, MVA is more significant in explaining Reported Earnings than EVA. Therefore, there is still not enough evidence that EVA can be used as effectively as MVA in evaluating the Reported Earnings.
- Based on the results, this thesis has proved that there are relationships between EVA and MVA with Reported Earnings, especially when it is used in evaluation purposes. While it may also be used for other purposes, the relationships are not as high as in the evaluation purpose model particularly in the growth prediction model. Thus, the author does not recommend the growth prediction model to be used since it may produce bias results.

Recommendations

The limitations of this study are relatively simple calculations of EVA and not all of the Indonesian listed companies are used as the sample. However, from this study it can be suggested that; Indonesian listed companies should improve its economic value-added to the shareholders by considering the cost of capital invested. Because positive reported earnings not always provide additional value. As for the shareholders, need to be aware of the value created by the management of the company. Companies in higher EVA should provide benefits in the long-run; that is, while the capital invested by the shareholders produces value, the company also generates more profit from its operation.

REFERENCES

Biddle, GC., Bowen, RM., & Wallace, JS. (1999). Evidence on EVA, *Journal of Applied Corporate Finance,* vol. 12, no.2. Retrieved July 5, 2008, from SSRN database.

Brigham EF., & Ehrhardt, MC. (2002). *Financial Management: Theory and Practice.* 4th Ed. United States of America: Harcourt College Publishers.

Chartered Institute of Management Accountants 2002, *Latest Trends in Corp Performance Measurement*. Retrieved January 22, 2008, from www.cimaglobal.com/cps/rde/xbcr/SID-0AAAC544-FE0A65F7/live/tech_techbrief_latest_trends_0702.pdf

De Kluyver, CA., & Pearce II, JA. (2006). *Strategy A View From The Top: An Executive Perspective.* New Jersey: Pearson Education Inc.

Finegan, PT. (1991). Maximizing shareholder value at the private company. *Journal of Applied Corporate Finance,* vol. 4(1), p. 30-45. Retrieved July 5, 2008, from ABI/INFORM Global database.

Horngren, CT., Sundem, GL., & Elliott, JA. (2002). *Introduction to Financial Accounting.* United States of America: Pearson Prentice Hall.

Keown, AJ., Martin, JD., Petty, JW., & Scott, Jr. DF. (2005). *Financial Management: Principles and Application* .10th Ed. USA: Pearson Prentice Hall.

Lefkowitz, SD. (1999). The Correlation Between Economic Value Added and The Market Value of Companies. *Master Thesis*, California State University. Retrieved April 6, 2008 from ABI/INFORM Global database.

Lehn, K., & Makhija, AK. (1996). EVA and MVA: As Performance Measures and Signals for Strategic Change. *Strategy and leadership,* vol. 24 May/June, p. 34-38. Retrieved July 5, 2008, from ABI/INFORM Global database.

Pettit, J. (2000). EVA & Strategy. *Stern Stewart Research.* Retrieved February 17, 2008, from http://www.sternstewart.com/research/studies2.aspx?ID=1291

Reimers, JL. (2007). *Financial Accounting,* New Jersey: Pearson Education, Inc.

Stern, JM., Shiely, JS., & Ross, I. (2001). *The EVA Challenge: Implementing Value-added Change in an Organization.* John Wiley & Sons, Inc.

Stickney, CP., & Brown, PR. (1999). *Financial Reporting and Statement Analysis: A Strategic Perspective.* 4th Ed, South Western, Ohio.

APPENDICES

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
EVA	160	-1.3E+07	9700576	-305309	2165065.108
MVA	160	-1.4E+07	1.8E+08	1.2E+07	26767481.961
R. Earnings	160	-1764027	12857018	1092038	2106058.211
Valid N (listwise)	160				

Correlation Matrix between EVA, MVA and Reported Earnings

	Reported Earnings$_t$	Reported Earnings$_t$	ΔReported Earnings
EVA$_t$	.556* (.000)	-	-
EVA$_{t-1}$	-	.358* (.000)	.077 (.401)
ΔEVA	-	-	.482* (.000)
MVA$_t$	.898* (.000)	-	-
MVA$_{t-1}$	-	.802* (.000)	.346* (.000)
ΔMVA	-	-	.735* (.000)

Correlation Matrix between EVA and MVA

	MVA$_t$	MVA$_{t-1}$	ΔMVA
EVA$_t$	.574 (.000)	-	-
EVA$_{t-1}$	-	.490 (.000)	-
ΔEVA	-	-	.136 (.137)

Regression Analysis:

1. **Reported Earnings = α + β (EVA)**

	α	β	F-stat	R Square
Model a	1,248,522 (0.000)	0.579 (0.000)	70.664 (0.000)	**30.90%**
Model b	1,308,211 (0.000)	0.426 (0.000)	17.315 (0.000)	12.80%
Model c	306,407 (0.004)	0.045 (0.401)	0.710 (0.401)	0.60%
Model d	271,324 (0.003)	0.276 (0.000)	35.794 (0.000)	23.30%

2. **Reported Earnings = α + β (MVA)**

	α	β	F-stat	R Square
Model a	219,615	0.071	655.740	**80.60%**
	(0.008)	(0.000)	(0.000)	
Model b	428,789	0.084	213.163	64.40%
	(0.002)	(0.000)	(0.000)	
Model c	134,598	0.018	16.074	12.00%
	(0.197)	(0.000)	(0.000)	
Model d	(37,685)	0.060	138.984	54.10%
	(0.615)	(0.000)	(0.000)	

3. **Reported Earnings = α + β1 (EVA) + β2 (MVA)**

	α	β1	β2	F-stat	Adjusted R Square
Model a	270,937	0.064	0.068	331.093	**80.60%**
	(0.003)	(0.153)	(0.000)	(0.000)	
Model b	390,889	(0.055)	0.086	106.434	63.90%
	(0.008)	(0.464)	(0.000)	(0.000)	
Model c	86,159	(0.071)	0.021	8.825	11.60%
	(0.438)	(0.222)	(0.000)	(0.000)	
Model d	(31,171)	0.223	0.056	129.957	68.40%
	(0.615)	(0.000)	(0.000)	(0.000)	