

THE INVESTIGATION OF THE IMPACT OF OWNERSHIP CONCENTRATION ON FINANCIAL PERFORMANCE MEASUREMENT CRITERIA AND MARKET VALUE ADDED

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ABSTRACT

Financial performance measurement of companies in decision-making process is one of the most important subjects in financial and economic scope regarding development and importance of market role. Economic value added (EVA) and refined economic value added (REVA) are among the most important criteria of financial performance measurement. Several researches have been conducted internationally consistent with the view that REVA has most correlation with market value than other traditional financial performance measurement. The most important purpose of the present research is to make clear the theoretical indices of financial performance measurement, test these indices and offer necessary evidences in order to help the Iranian capital market participants to make rational decision in investment process. This study is applied and correlation type research and the relationship between REVA and other new and traditional criteria of financial performance with market value added (MVA) is studied using simple and multivariable regression. Findings show that REVA has more correlation with MVA than EVA and other indices of traditional financial performance measurement during 1384-1389. These results suggest that all creditors, shareholders and activities of the capital market that use these criteria for measuring financial performance of companies and their managers use these criteria along other criteria in evaluating companies. The results are consistent with the results of Bacidore et al. (1997).

Keywords: *Ownership concentration, Financial performance, Economic value added (EVA), Refined economic value added (REVA), Market value added (MVA).*

INTRODUCTION

Concept of EVA became a topic of considerable interest resulting in wide financial economics literature research from various perspectives in the 1990s. Stewart (1991) proposed EVA as a firm's performance measurement and as executives' performance evaluation tool by arguing that EVA represents a firm's true performance because EVA reflects only incremental values added to a firm after considering cost of capital (Lee and Kim, 2009:439). Stern Stewart & Company (1989) argue: Abandon earnings per share. Earnings, earnings per share, and earnings growth are misleading measures of corporate performance. The best practical periodic performance measure is EVA. Forget EPS, ROE and ROI. EVA is what drives stock prices. (Biddle et al., 1996:302). Later fires on EVA led to introduce REVA adjusting EVA. Bacidore et al. (1997) argue that REVA provides an analytical framework for evaluating operating performance measures in the context of shareholder value creation and EVA performs quite well in terms of its correlation with shareholder value creation, but REVA is a theoretically superior measure for assessing whether a firm's operating performance is adequate from the standpoint of compensating the firm's financiers for the risk to their capital. They show that REVA statistically outperforms EVA in this regard. This argument totally rejected by Ferguson and Leistikow (1998) in the same journal when they say, "EVA is well-known and widely used measure of operating performance. Bacidore, Boquist, Milbourn and Thakor (1997) claimed in a recent financial analysts journal article that modified version of EVA, REVA is theatrically superior to EVA. Actually, EVA is superior to REVA". This

was not the end, in 1999, Bacidore, Boquist, Milbourn and Thakor in a letter to the editor rejected this point. Moreover, de Villiers (1997) studied as to the extent to which EVA is distorted by inflation, and found that it cannot be used under inflation to estimate actual profitability. He developed an adjusted EVA (AEVA) calculation procedure providing a better estimate of actual profitability under inflation. He suggests that AEVA be used instead of EVA for financial decision-making under inflation. Further, he asserts AEVA also provides an alternative to inflation accounting, and could be used under inflation to estimate actual profitability from conventional historical cost accounts. These arguments all have been continuing up to now without tying the loss ends.

On the other hand, nowadays there is a separation between ownership and control. By gradually decreasing direct governance of owners on firms, control is delegated to other groups such as board of directors and managers. Therefore, it is expected that changes in ownership structure lead to changes in the route of their strategy and performance and also increasing or decreasing agency cost (Mazlouni, 2005). In addition, EVA and REVA are introduced as a true measurement of management performance to address agency cost. However, with respect to mentioned debates, in the present study, the impact of ownership concentration on financial performance measurement criteria and MVA is investigated.

LITERATURE REVIEW

EVA is a new measure of performance that is purported to better align managers' incentives to that of the shareholders. Firms that experience higher agency conflicts should be more inclined to use this performance evaluation system. Lovata and Costigan (2002) empirically analyzed adopters of EVA. They find that firms identified as prospectors (firms that apply a differentiation strategy) may be less likely to use EVA. In addition, their results indicate that firms using EVA exhibit a higher percentage of institutional ownership and a lower percentage of insider ownership than non-adopters (Lovata and Costigan, 2002: 215). Using different event study methodologies, Tortella and Brusco (2003) tested the market reaction to the introduction of EVA. They show that the introduction of EVA does not generate significant abnormal returns, either positive or negative. In addition, they show that firms adopt EVA after a long period of bad performance, and performance indicators improve only in the long run. Also, the adoption of EVA provides incentives for the managers to increase firm investment activity. Finally, they observe that EVA adoption affects positively and significantly cash flow measures. Lee and Kim (2009) find that REVA and MVA are valuable performance measures for evaluating hospitality firms. Biddle et al. (1996) investigated assertions that EVA is more highly associated with stock returns and firm values than accrual earnings, and evaluates which components of EVA contribute to these associations. Their tests reveal earnings are highly associated with returns and firm values than EVA, residual income, or cash flow from operations. Their tests suggest that EVA components add only marginally to information content beyond earnings. Their results do not support claims that EVA dominates earnings in relative information content, and suggest rather that earnings generally outperforms EVA. Kaviani et al. (2012) studied the relationship between the financial leverage and new performance metrics (EVA, MVA, REVA, SVA and CVA) in TSE. Their results indicate that there is not significant relationship between REVA and MVA, Cash Value Added (CVA) with financial leverage, while there is negative and weak relationship between EVA and Shareholder Value Added (SVA) with financial leverage.

METHODOLOGY

Present study is applied research regarding classification based on goal. The aim of the applied research is to develop applying knowledge in the given subject. In addition, the study is descriptive-correlation research. The aim of this sort of study is to determine the relationship between the research variables. The research data consists of all companies listed in TSE during the period of 2005 to 2010. The sampling method is the systematic elimination and the sample firms must have following conditions:

1. Information must be available for the past 6 years.
2. Fiscal year must be ended at the end of year.
3. Transaction intervals must not be more than 6 month.
4. Data must be available for testing hypotheses.

As a result of these conditions a sample of 108 firms (including 62 high concentrated and 46 firms low concentrated firms) was obtained. Literature and conceptual framework were gathered by documental method. Financial statement and notes issued by TSE were used as a research tool. In addition, Rahavarde Novin software was applied to extract the research data.

Model and variables measurement methods

$$MVA = \alpha\beta + \beta_1 REVA + \beta_2 EVA + \beta_3 ROE + \beta_4 ROI + \beta_5 GEPS + \beta_6 RI + \beta_7 ROS + \beta_8 P/E + \beta_9 DPS + e_i$$

1. Standardized MVA:

$$\text{Standardized MVA} = \frac{\text{Mean book value of equity} - \text{Mean market value of equity}}{\text{Mean book value of equity at the beginning of the period}}$$

Mean market value of equity equals the sum of market value of equity at the beginning and end of period divided by 2 and mean book value of equity equals the sum of book value of equity at the beginning and end of period divided by 2 (Hejazi, 2005).

2. Standardized REVA

To calculate REVA, market value is used instead of adjusted book value. Cost of capital rate in the market is applied to determine cost of capital and standardized REVA is REVA divided by mean book value of equity at the beginning of period (Dastegar, 2007).

$$\text{REVA Standardized} = \frac{\text{NOPAT} - (C \times M \text{ Capital}_{t-1})}{\text{Mean book value of equity at the beginning of period}}$$

Some adjustments must be made in the formulas of REVA and EVA regarding NOPAT (Net Operating Profit After Taxes) to eliminate deviations that stem from applying accounting principles and to converge accounting and economic income (Ganbari, 2002).

NOPAT = Net operating profit after taxes + (financial, trainings, research and development and advertising costs + changes in allowance for bad debts, employees termination provision and provision for tax + earnings from investments) \times (t-1).

C (cost of capital): cost of capital rates in market. In this study, the average cost of capital rates in the market for the period of study is used.

Market capital = (market value of common stock + book value of debt - noninterest-bearing current debts)

3. Standardized EVA

$$\text{EVA Standardized} = \frac{\text{NOPAT} - (WACC \times IC)}{\text{Mean book value of equity at the beginning of the period}}$$

NOPAT: as was in the formula 3.

WACC (weighted average cost of capital): this is used to calculate cost of capital as following:

$$WACC = (W_s \times K_s) + [W_d \times K_d (1-t)]$$

W_s and W_d are weight of common stockholders and debt, respectively, calculated by dividing book value of common stockholders and debt by sum of their weights, respectively (Fernandez, 2001).

K_s and K_d are rate of capital and debt cost, Respectively. In the present study K_s is cash dividend, which company paid to stockholders, divided by the book value of common stock holders. K_d is company's financial costs divided by interest-bearing debts since there is no disclosure on the cost of individual interest-bearing debts.

IC (adjusted invested capital) = (reserves + legal capital + other interest-bearing debts + loans + long-term debts + retained earnings + employees termination provision)

3. Return on Equity (ROE)

$$ROE = \frac{NOPAT}{Equity}$$

ROE is NOPAT in the given year divided by book value of equity at the beginning of the period.

4. Return on Investment (ROI)

$$ROE = \frac{NOPAT}{IC}$$

This measure is NOPAT divided by IC (total assets excluding non-bearing interest).

5. Residual Income (RI)

$RI = NOPAT - (\text{expected return} \times \text{investments})$

Residual income is NOPAT minus sum of expected return (derived from Rahavardeh Novin software) multiple investments (firms total assets).

6. Growth of Earnings per Share (GEPS)

$$GEPS = \frac{EPS_1 - EPS_0}{EPS_0}$$

EPS_1 is real earnings per share at the end of period.

EPS_0 is real earnings per share at the end of previous period.

7. Return on Sale (ROS):

$$ROS = \frac{NOPAT}{\text{Firm's total sales}}$$

8. Price/Earnings Ratio (P/E)

$$P/E = \frac{P}{E}$$

P (share price) is price of per share at the end of period.

E (earnings) is attributed earnings to per common share at the end of period.

9. Dividend per Share (DPS): is attributed cash dividend to common stock holders.

$$DPS = \frac{\text{Cash dividend per share}}{\text{Earning per share}}$$

Control variable

Ownership concentration: Ownership concentration refers to the amount of stock owned by individual investors and large-block shareholders, less stockholder, more concentration. In this research, firms with more than 20 percent large-block shareholders (shareholders with more than 5 percent of firm's stock) are considered concentrated firm and other firms are considered diffused firms.

Hypothesis development

H₁: there is a relationship between REVA and MVA in TSE.

H₂: there is a relationship between EVA and financial performance measures (e.g., ROE, ROI, RI, GEPS, ROS, P/E and DPS) with MVA in TSE.

H₃: Compared to other financial performance evaluation measures, REVA and MVA have the most correlation in TSE.

H₄: the level of ownership concentration affects the relationship between financial performance evaluation measures and MVA.

Empirical results

Since the normality of dependent variable leads to the normality of the model, the normality of dependent variable should be controlled before regressing the model. Therefore, null and alternative hypothesis is presented as followings:

$$\begin{cases} H_0 : & \text{Data distribution of MVA is normal} \\ & \text{Data distribution of MVA is not normal} \\ H_1 : & \text{To test above hypothesis Kolmogorov-Smirnov test is conducted} \end{cases}$$

Table 1. Kolmogorov-Smirnov Test (K-S) for MVA

observations	mean	Std. deviation	Absolute value of the most Std. deviation	Most positive deviation	Most negative deviation	Kolmogorov-Smirnov Test	Sig.
648	0.678082	0.85818	0.056	0.056	-0.046	1.109	0.094

According to the Table 1, significance level for MVA is more than 5 percent (sig > 0.05) so null hypothesis showing the normality of dependent variable is accepted.

First hypothesis analysis

H₁: there is a relationship between REVA and MVA in TSE.

$$\begin{cases} H_0 : & B=0 \text{ there is not a significant relationship between REVA and MVA in TSE.} \\ H_1 : & B \neq 0 \text{ there is a significant relationship between REVA and MVA in TSE.} \end{cases}$$

The results of testing data for the first hypothesis are illustrated in Table 2.

Table 2. Summary of the Results for the First Hypothesis

Statistic variable	Pearson's coefficient of correlation	R ²	Adjusted R ²	Durbin-Watson	F-Statistic	T-Statistic	Observations	α	β	Sig.
relationship between REVA and MVA	0.564	0.319	0.315	1.951	128.51	13.16	648	0.302	0.743	0.00

Table 2 illustrates that, adjusted R² regarding the relationship between REVA and MVA is 0/315 which shows 0/315 of changes in MVA is determined by REVA. Also, the number of Durbin-Watson Test is 1/951 which shows that there is not auto correlation problem. With respect to significance level and the number of F and T statistic, H₀ hypothesis is rejected and significance of the regression model is accepted. This means there is a significant relationship between REVA and MVA in TSE.

Second hypothesis analysis

In the second hypothesis, we claim that there is a relationship between EVA and financial performance measures (e.g. ROE, ROI, RI, GEPS, ROS, P/E and DPS) with MVA in TSE.

The results of data testing for the second hypothesis are illustrated in Table 3.

Table 3. The Results of Data Testing for the Second Hypothesis

Variables	Statistics	Reasons Coefficient of Correlation	R ²	Adjusted R ²	Durbin Watson (D.W.)	F-Statistic	T-Statistic	Observations	β	Sig.	Accepted Hypothesis
Relationship between EVA & MVA		0.413	0.171	0.169	1.808	82.899	9.105	648	0.623	0.00	H1
Relationship between ROE & MVA		0.373	0.139	0.137	1.998	65.143	8.071	648	0.476	0.00	H1
Relationship between ROI & MVA		0.337	0.114	0.111	1.858	51.503	7.177	648	0.594	0.00	H1
Relationship between GEPS & MVA		0.276	0.076	0.074	1.702	33.261	5.767	648	0.202	0.00	H1
Relationship between RI & MVA		0.291	0.084	0.082	1.796	37.064	6.088	648	0.219	0.00	H1
Relationship between ROS & MVA		0.106	0.011	0.009	1.752	4.557	2.135	648	0.003	0.03	H1
Relationship between P/E & MVA		0.038	0.001	0.001	1.752	0.557	0.770	648	0.006	0.44	H0
Relationship between DPS & MVA		0.223	0.050	0.047	1.758	21.062	4.589	648	0.145	0.00	H1

As we see in Table 3, adjusted R² is significant regarding the relationship between MVA and other variables of the second hypothesis other than P/E. Also, the number of Durbin-Watson Test is close to 2 which shows that there is not auto correlation problem. With respect to significance level and the number of F and T statistic, null hypothesis is rejected for all the variables other than P/E and also for all the variables other than P/E, significance of the regression model is accepted. As a result, MVA and all the variables in the second hypothesis other than P/E have relationships.

Third hypothesis analysis

According to the third hypothesis, we claim that compared to other financial performance evaluation measures, REVA and MVA have the most correlation in TSE.

Analysis of adjusted R² regarding the relationship between MVA and other variables (Tables 2 and 3) indicates that adjusted R² of REVA is significantly more than other variables. Therefore, we conclude that REVA and MVA have the most positive relationship in TSE and it determinates %27.5 of MVA. To sum up the loose ends, we can say MVA is the best performance evaluation measure, so our third hypothesis is accepted.

Fourth hypothesis analysis

H₄: the level of ownership concentration affects relationship between financial performance evaluation measures and MVA.

Table 4. findings of research hypotheses segregating ownership concentration

ownership Statistic Variables	concentrated ownership							Diffused ownership						
	R ²	Adjusted R ²	Observations	F-Statistic	T-Statistic	Sig.	Accepted hypothesis	R ²	Adjusted R ²	Observations	F-Statistic	T-Statistic	Sig.	Accepted hypothesis
REVA	0/604	0/364	372	13/64	5/68	0/000	H ₁	0/532	0/284	276	5/96	4/44	0/000	H ₁
EVA	0/428	0/182	372	11/02	3/07	0/000	H ₁	0/408	0/167	276	4/459	2/244	0/000	H ₁
ROE	0/374	0/137	372	8/213	2/46	0/000	H ₁	0/352	0/124	276	4/035	2/659	0/000	H ₁
ROI	0/351	0/122	372	7/304	2/06	0/001	H ₁	0/319	0/102	276	3/717	1/966	0/000	H ₁
GEPS	0/286	0/081	372	5/621	3/46	0/002	H ₁	0/209	0/044	276	3/364	2/604	0/001	H ₁
RI	0/279	0/078	372	4/420	1/99	0/001	H ₁	0/246	0/061	276	2/037	2/019	0/000	H ₁
ROS	0/105	0/011	372	3/323	2/56	0/000	H ₁	0/077	0/006	276	1/804	-1/9	0/064	H ₀
P/E	0/083	0/007	372	1/206	1/074	0/068	H ₀	0/109	0/012	276	3/001	0/11	0/007	H ₁
H ₁	0/282	0/079	372	4/98	2/23	0/031	H ₁	0/284	0/081	276	8/49	2/914	0/003	H ₁

The results of Table 4 show that in firms with concentrated ownership, the relationship between REVA and MVA have more adjusted R^2 amount compared to other variables. With respect to F and T statistic, null hypothesis is rejected for all the variables other than P/E and also for all the variables other than P/E, significance of the regression model is accepted. Also, In diffused firms the relationship between REVA and MVA have more adjusted R^2 amount compared to other variables. With respect to F and T statistic, null hypothesis is rejected for all the variables other than P/E and also for all the variables other than ROS, significance of the regression model is accepted. This means that there is a significant relationship between REVA and MVA in TSE controlling ownership concentration. However, it can be concluded that ownership concentration affects the relationship between dependent and independent variable so our fourth hypothesis is accepted.

RESULTS

In summary, the relationship between REVA and MVA have more adjusted R^2 amount compared to other variables. However, REVA is related to MAV more than other than other variables and it can be considered as supreme criterion in financial performance measurement. In addition, the results show that ownership concentration affects the relationship between dependent and independent variable. Finally, we conclude that what Stern Stewart and Consultant Company (1989) purport about REVA and MEA is proved in TSE. This conformation explains that: traditional system and measures used up to now are inadequate and will not tolerate increasingly challenging environment of the capital market. In addition, REVA is more timely and reliable for evaluation of the created wealth to stockholders.

SUGGESTION REMARKS

Considering the results of the study, following remarks are suggested:

1. With respect to the first hypothesis; managers and stockholders to acquaint with REVA and use it in the decision-making.
2. With respect to the second hypothesis; managers to utilize EVA along with other measure to evaluate firms' financial performance and to make the sound decisions about investments.
3. With respect to the third hypothesis; managers and all activists of the capital market to use REVA along with other measure and consider EVA and REVA in firms' financial performance measurement.
4. With respect to the fourth hypothesis; ownership concentration to be considered in firms' financial performance measurement and in the decision making because it has a significant effect on the relationships between financial performance evaluation measures and MVA.

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