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   INTRODUCTION

   REVIEW OF LITERATURE

   NEED/IMPORTANCE OF THE STUDY

   STATEMENT OF THE PROBLEM

   OBJECTIVES

   HYPOTHESES

   RESEARCH METHODOLOGY

   RESULTS & DISCUSSION

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   ACKNOWLEDGMENTS

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   APPENDIX/ANNEXURE

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ECONOMIC VALUE ADDED VS. ACCOUNTING RESIDUAL INCOME: WHICH ONE IS A BETTER CRITERION FOR MEASUREMENT OF CREATED SHAREHOLDERS VALUE?

MOHAMADREZA ABDOLI
ASSOCIATE PROFESSOR
DEPARTMENT OF ACCOUNTING
SHAHROOD BRANCH
ISLAMIC AZAD UNIVERSITY
SHAHROOD, IRAN

MOHAMADREZA SHURVARZI
ASSOCIATE PROFESSOR
DEPARTMENT OF ACCOUNTING
NEYSHABUR BRANCH
ISLAMIC AZAD UNIVERSITY
NEYSHABUR, IRAN

AKRAM DAVOODI FAROKHAD
M. S. DEGREE STUDENT
DEPARTMENT OF ACCOUNTING
NEYSHABUR BRANCH
ISLAMIC AZAD UNIVERSITY
NEYSHABUR, IRAN

ABSTRACT

In this paper, the relationship between each independent variable including economic value added and residual income as the representatives of economic models with the shareholders' created wealth is studied. The research is inferential-inductive in terms of methodology and is cross-sectional correlation in terms of test statistical method. The studied statistical population consists of all the companies listed in Tehran Stock Exchange during 2006-2009, except for investment and holding companies. The statistical sample consists of 85 companies. Simple and multi-variable regression methods are used to test the hypothesis. The effect and importance of most independent variables are examined through Forward method. The results indicate that both economic value added and residual income have significant relationship with the shareholders' created wealth. However, the residual income criterion is more significant than the economic value added in relation with the created wealth for shareholders. The difference between the impacts of these two variables is due to accounting adjustments through which the effect of accrual accounting is eliminated, hence it is considered as a better criterion for performance evaluation and increase in shareholders' wealth.

KEYWORDS
Created Shareholders Value, Economic Value Added, Residual Income.

INTRODUCTION

At present, most financial analysts believe that companies should create a turnover higher than the capital cost (liability and equity interests) in order to create value. This concept has become operational using such models as economic value added and residual income. In 1980s, along with the changes Stewart applied to the concept of residual income, the economic value added developed as one of the new financial performance measurement tools(. Stewart believed that the economic value added should be used as an internal and external performance evaluation criterion instead of profits and cash from operation(Vakilian Aghu'e M., Vadi'e M. H., and Hussieni Ma'soom M. R., 2009). Stewart's study also indicated that the common accounting criteria, such as income, income growth, cash income growth, equity interests outcome and even cash flow cannot be considered as proper criteria, since none of them has correlation with the market value variations of selected companies(Hejazi R. and Husseini A, 2006). Accordingly, in this paper the relationship of each independent variable including economic value added and residual income as representatives of evaluation economic models, with the created wealth of shareholders is analyzed.

In article 47 of statement 1 of Financial Accounting Standards Committee, it is stated that income can be used for evaluation of profitability, capacity of dividends payment, predicting future revenues as well as assessment of investment risk. Thus, accounting income is one of the most important traditional performance evaluation criteria. But this criterion has got some deficiencies. The accounting income can be manipulated through different methods for evaluating inventory, R&D costs, depreciation and supplies. Also, the capital cost is not considered in calculating the accounting income. To overcome such deficiencies, a new criterion, namely economic value added, is introduced by Joel M. Stern and J. Bent Stewart in 1989. Economic value added is equal to operational incomes minus capital costs applied to create it. In performance evaluation based on accounting traditional income, the financing cost is only applied via liability while in calculating the economic value added, the financing cost is applied through both liability and stocks(Vakilian Aghu'e M., Vadi'e M. H., and Hussieni Ma'soom M. R, 2009).

REVIEW OF LITERATURE

Hess et al (2009) investigated the discounted cash flow (DCF) and residual income (RI) valuation methods. In their research, the companies were grouped into 20 portfolios, including 69 companies listed in New York Stock Exchange (NYSE), American Exchange (AMEX), and National Association of Securities Dealers Quotations (NASDAQ) markets, and then the value of each company was evaluated using the above mentioned methods. The empirical results of the research indicate that the RI method robust than other valuation methods in most studied companies during 1988-1998.

El Mir, Seboui (2006) in their study on corporate governance and earnings management and the relationship between economic value added and shareholders' created wealth concluded that there are different case of convergence and divergence between the created wealth for shareholders and the economic value added which can be described using governance and earnings management mechanisms.

Worthington and West (2004) compared the information content of economic value added for 110 Australian companies during 1992-1998 with the information content of residual income, operational cash flow, and income before extraordinary items. In their study, income before extraordinary items and economic value added showed the highest and lowest relationship with the stock returns, respectively. Analysis showed that the economic value added had more increasing information content than RI and operational cash flow.

Lovata, Linda M., & Cochrane, Michael (2002) tried to compare companies which apply economic value added as a criterion for performance evaluation with companies which do not bring into play this criterion. In this study, 115 companies in the U.S which use this criterion were selected against 1,271 companies which do not use this criterion. The results of this study showed that companies with lower sole proprietorship percentage which most of their capital are by institutional investors try to use the economic value added criterion.

Also, Fernandes (2001) conducted a research on the relationship between economic value added and shareholders' created wealth and concluded that the economic value added is unable to measure the created wealth for shareholders.

Similarly Biddle,et al (1997) investigated the information content of economic value added, residual income and two common performance measurement criteria, i.e. income and operational cash flow, and also compared the relationship between the economic value added and accrual income with the company's stock returns. The results of analysis indicated that R2 for the net income was 128%, for residual income (refined economic value added) was 7.3%, for EVA was 6.5%, and for operational cash flow was 2.8%. In fact, the annual accounting income is two times more powerful in describing the annual returns variations than the economic value added.

Besides, Biddle and Valance (1997), studied the created changes in companies through application of economic value added. They compared the performance of companies which employ economic value added criterion with the performance of a control group. This control group includes companies which do not use the economic value added criterion. The authors believe that application of economic value added criterion causes changes in decisions regarding company's finance, operation and investment. Also, the economic value added criterion increases the RI and shareholders' wealth.

Moreover, Bacidore et al (1997) tried to study the correlation and explanatory power of economic value added (EVA) and refined economic value added (REVA) in predicting and creating wealth for shareholders. They extracted their information from the database of 1,000 companies provided by Stern and Stewart Institute. Their sample included 600 companies during 1982-1992. The results of this research showed that REVA has more correlation and capability in predicting the market value compared with the EVA.

Likewise, Obyrne (1996) investigated the relationship between EVA, net operating profit after tax (NOPAT), free cash flow (FCF), and market value. In this research the data of years 1983-1992 was used. It was concluded that EVA and NOPAT usually have similar explanatory capability. Also, the changes in EVA explain 31% of changes in market value, while NOPAT explains 17% of such changes.

Stewart (1993) compared the accounting general criteria with EVA. He believed that the EVA criterion is more general than other similar criteria, such as income, dividend, equity interest output as well as cash flow. It was also shown that the changes in market value of selected companies group (especially in their market value added) have weak correlation with accounting general criteria, while the maximum correlation is between EVA and market value added.

Accordingly, Tariverdi and Daghani (2010) focused on the relationship between RI, discounted cash flow (DCF), and refined income in determining company's market value. It was concluded that the value indicated by RI method is 14% closer to the average value for the initial public offering (IPO) than DCF method. Also, the value obtained from DCF is in line with values obtained from the refined income method, but the assessments on both RI and refined income methods showed different results. Finally, the RI method significantly helps investors and analysts in determining the impartial value of a business unit.

In this context, Vakilian, Vadi'e, and Husseini Ma'ssoum (2009) investigated the relationship between EVA and RI in predicting the earnings per share for the next year and concluded that there is no significant relationship between EVA and earnings per share and it has no prediction capability and RI is effective on investors' decisions as the representative of economic model of performance evaluation.

In their research titled "comparing market added value and EVA with accounting criteria in Tehran Stock Exchange (TSE)" Hejazi and Husseini (2006) concluded that the EVA criterion is more connected to market values than other accounting criteria and it can be referred as the best internal performance evaluation criterion which is an index of external performance criteria, i.e. market value added.

Noravesh et al. (2004) studied the relationship between operating cash flows, operating income, and EVA with created wealth of shareholders. The results of research indicated that EVA is a better index for predicting the shareholders' created wealth and represents the management's capability in increasing the company's value (shareholders' wealth).

Moreover, Nazarieh (2000) investigated the relationship between earnings per share and EVA in non-metal mineral products companies listed in Tehran Stock Exchange during 1993-1998. The information analysis illustrated that there is no relationship between EVA and earnings per share, and accordingly the EVA is a better criterion in evaluating the effectiveness of non-metal mineral companies' performance than earnings per share. The factors such as inefficient capital market and higher income cost than the acquired output are the reasons for lack of relationship between EVA and earnings per share.

IMPORTANCE OF THE STUDY

The importance of execution of this research is that it has investigated the relationships of economic components with created shareholders value. Through this research, it becomes clear that value added, as an important economic measure, can show improvement and created shareholders value. In addition, meaningfulness of measure relation of residual income also is specified and explained. Therefore, given these two measures, stockholders can evaluate the level of their wealth improvement and not merely rely on accounting measures.

STATEMENT OF THE PROBLEM

The main problems of the study are that: Can economic value added, which is based on economic concepts, show created shareholders value in Tehran Stock Exchange? And how much is the intensity of their relationships? And can the measure of residual income report improved shareholders value of Tehran Stock Exchange and how much is the intensity of their relationships?

OBJECTIVES

The objectives of the research are:

The relationship between income value added with the level of created shareholders value for companies accepted in Tehran Stock Exchange is explained.

The relationship between the measure of residual income and created shareholders value for companies accepted in Tehran Stock Exchange is explained.

Moreover, meaningfulness of the relations of value added and residual income with created shareholders value is investigated.

HYPOTHESES

In order to conduct this research and to answer the proposed questions, and taking into consideration the results of other studies, the following hypotheses are defined:

First Hypothesis: there is a significant relationship between the EVA criterion and shareholders' created wealth.

Second Hypothesis: there is a significant relationship between the RI criterion and shareholders' created wealth.

Third Hypothesis: the impact of EVA is more significant than RI's in calculating the shareholders' created wealth.

RESEARCH METHODOLOGY

The research method is inferential-inductive in terms of style and is cross-sectional correlation in terms of test statistical method. The statistical samples are selected through simple random method and based on the following conditions:

1. The companies should be listed in Tehran Stock Exchange during the research period.
2. Their fiscal year must end in mid-March.
3. They should not be listed as investment and holding companies.

The statistical sample of research includes 85 companies. The data needed for research are obtained from Rahavard Novin information software, Tadbir Pardaz as well as the website of Islamic Research Development Center of Tehran Stocks and Securities Organization.

VARIABLES AND VARIABLES CALCULATION METHOD

Economic Value Added (EVA)

EVA is an independent variable which presents the residual income after covering the capital costs by operating incomes (Azad M. 2007). Some adjustments are performed on net operating profit after tax (NOPAT) and the entire used capital which go against the conservation and continuity principles in implementing the accepted accounting principles. In EVA model, we have:

$EVA= (ROIC – WACC)\times(IC)$ (Equation 1)

Where,

EVA = Economic value added

ROIC = Return on invested capital (total capital return)

WACC = Weighted average cost of capital

IC = Investment capital

Return on Invested Capital (ROIC)

To calculate this, the operating profit after tax is divided to the invested capital. The operating profit after tax is obtained as follows:

The expenses of R&D, advertising, marketing, training as well as rental fees which are extracted from the notes of financial statements, are added to the operating profit after tax [operating profit × (1-22.5%)] as accounting adjustments. Also, increase in supplies, bad debt receivables, decline of inventory value, and pensions extracted from notes of financial statements are added to the operating profit after tax. In order to determine and measure the weighted average cost of capital, the following equation is used:

$WACC = W_e\times K_e+W_s\times K_s+W_d\times K_d$ (Equation 2)

In order to determine the company's cost of capital, it is essential to independently calculate the cost of each component of capital, and based on their ratio in the total structure, the average company's cost of capital can be obtained.

Where,

W_e= cost of capital

W_s = weight of retains and reserves earnings

W_d = cost of debt

K_e = cost of equity

K_s = retains and reserves cost of income

K_d = rate of debt

Any of the abovementioned rates are calculated as follows:

Rate of debt = (interest expense / interest debt)× (1-tax rate)

Cost of equity = dividend per share / market value of each share

In calculating the cost of retains and reserves earnings, the dividend approach or the Gordon model was used:

g = (interest per share / market value of each share) + (undivided earning percentage)

Undivided earning percentage = 1 – (profit paid per share / profit per share)

Residual Income (RI)

The residual income is another independent variable and is equal to the difference between the incomes of investing centers and the cost of application opportunity (Rahnama Rudposhti, F, 2008). In RI evaluation model (Robert F.Halsey, 2000), we have:

(Equation 3)

$RI=I-(r\times BV)=$

$(I/BV-r\times BV/BV)\times BV = (ROE-r)\times BV$

RI = Residual income

I = net profit after tax

ROE = return on equity

r = cost of capital

BV = Book value of stock during the first period

Created Wealth for Shareholders

This variable is a dependent variable. In order to obtain the created value for shareholders, we should first define the increase in market value of equity interest, increase in market value of stockholder, and expected return on equity. These definitions are presented in the following equation:

CSV= created shareholders value – (market value of equity× Ke) (Equation 4)

CSV= created shareholders' wealth

Ke= company's capital cost rate (expected return)

Increase in market value of equity= market value of equity in the first period - market value of equity at the end of period

RESULTS & DISCUSSION

According to Table 1 which shows the descriptive statistics of research, it could be observed that:

The skewness coefficient of shareholders wealth, RI, and EVA variables are 0.792, 3.395, and 2.654, respectively. Given that the shareholders' wealth variable is closer to 0.5 (proportion of symmetry), therefore its skewness coefficient is smaller than the other two variables. But these two variables are slightly skewed to the right. Also, the kurtosis coefficient of these three variables is 0.834, 17.139, and 10.022, respectively. This indicates that since the shareholders' wealth variable is closer to 0.5 (proportion of kurtosis), therefore it is less scattered and is closer to normal. The other two variables are longer than the normal distribution, that is, they are less scattered.

TABLE 1: DESCRIPTIVE STATISTICS

Variance	Median	Kurtosis	Skewness	Variables
5.257E22	108932461480.50	10.022	2.654	Economic Value Added
4.511E21	24333580693.00	17.139	3.395	Residual Income
1.392E21	17236307199.50	.834	.792	Created Wealth for Shareholders

THE STATISTICAL RESULTS OF FIRST HYPOTHESIS

The first hypothesis states that there is a significant relationship between the EVA criterion and created shareholders' wealth. In order to test this hypothesis, Pearson's correlation coefficient and simple linear regression is used. According to the obtained relationships, it is signified that there is a correlation between

EVA and created shareholders' wealth. The coefficient of determination in this case is 0.336, i.e. about 0.336 of changes in the created shareholders' wealth variable can be determined by EVA.

SIGNIFICANCE TEST OF COEFFICIENTS

This test, in addition to determining the significance of coefficients, specifies their impact direction of those coefficients on dependent variable. The statistic related to the significance of coefficients is the t statistic, instead of which the Sig column can be used. After confirmation of coefficients significance, both direction and amount of each independent variable effect on the dependent variable can be determined using the calculated coefficients in Beta column.

$H_0: \beta = 0$ EVA has no effect on created shareholders' wealth.

$H_1: \beta \neq 0$ EVA has effect on created shareholders' wealth.

In the Sig column of Table 2, it can be observed that the amount of Sig statistic for EVA is 0.000. Given that the considered error level for this study is 5%, Sig < 0.05 and t statistic > 2, therefore the variable is significant and the first hypothesis of research is confirmed. Thus, EVA has a significant impact on created shareholders' wealth. So, the equation can be as follows:

$\hat{y} = 85260000000+0.094x_1$

Where; x_1 = EVA.

STATISTICAL RESULTS OF SECOND HYPOTHESIS

Second hypothesis: there is a significant relationship between the RI criterion and created shareholders' wealth.

The Pearson's correlation coefficient and simple linear regression are used to test this hypothesis. The squared coefficient of correlation, R2, or coefficient of determination, states that 0.516 of changes in the created shareholders' wealth can be determined by RI.

SIGNIFICANCE TEST OF COEFFICIENTS

$H_0: \beta = 0$ RI has no impact on created shareholders' wealth.

$H_1: \beta \neq 0$ RI has impact on created shareholders' wealth.

In Sig column in table 2, it could be observed that the amount of Sig of the t statistic for EVA is 0.000. Given that the considered error level for this research is 5%, Sig < 0.05 and t statistic > 2, therefore the variable is significant and the second hypothesis of research is confirmed. Thus, RI has a significant effect on created shareholders' wealth.

STATISTICAL RESULTS OF THIRD HYPOTHESIS

Third hypothesis: the impact of the EVA criterion is more significant than the RI's in calculating the created shareholders' wealth.

$H_0: r1 = r2 = 0$ the relationship between EVA and RI with created shareholders' wealth is not linear.

$H_1: r \neq 0$ at least one of the r's is not zero (linear).

Based on the above tables it can be concluded that since the Sig amount for the general hypothesis (multivariable regression) is 0.000 and lower than 5%, H_0 is rejected and H1 is accepted. Therefore, the significance of the regression model for the general hypothesis can be confirmed, and the regression model is able to describe the changes in dependent variable (created shareholders' wealth) through independent variables (RI and EVA).

SIGNIFICANCE TEST OF COEFFICIENTS

$H0: \beta1 = \beta2 = 0$ EVA and RI have no impact on created stockholders' wealth.

$H1: \beta1 \neq \beta2 \neq 0$ EVA and RI have impact on created shareholders' wealth.

Given that the considered error level for this research is 5% and the values of Sig statistic < 0.05 and the t statistic > 2, therefore the RI variable is significant in the model, and based on this the third hypothesis is rejected. However, according to Sig > 0.05 for the EVA variable and t < 2, therefore it has no significant impact on shareholders' wealth. Thus, the regression model equation is as follows:

$\hat{y}=6060000000+0.332X_1+0.030X_2$

X_1: RI

X_2: EVA

THIRD HYPOTHESIS TEST USING FORWARD METHOD

To specify the impact and significance of most independent variables are investigated through Forward method. In this research, Forward method is used to examine the control variables.

The above Table indicates that the RI variable is the first variable inputted to model and the other variable (EVA) is not inputted to model, because by adding it to the model, R2 is not changed sufficiently. The advantage of this method is that each variable with observed significance level of lower than 5% would not be inputted to the model. The other advantage is that it is possible to determine how much the coefficient of a variable changes by adding other independent variables.

TABLE 2: STATISTICAL RESULTS

Results	Beta	Sign	F-Test	Sign	T- Test	R^2	R	Description
confirm	0.58	0.000	42.491	0.000	6.519	O.336	0.58	Hypothesis.1
confirm	0.718	0.000	89.542	0.000	9.463	0.516	0.718	Hypothesis.2
Reject		0.000	47.646			0.534	0.731	Hypothesis.3
	0.597			0.000	5.590			Residual Income
	0.182			0.073	1.816			Economic Value Added
Reject	0.718	0.000	89.542	0.000	9.463	0.516	0.718	Forward Method

SUMMARY OF HYPOTHESES

FINDINGS

The results of the research showed that there has been a positive and meaningful relationship between income value added and created shareholders value and this factor can explain about %33 of the changes of shareholders value. What is more, in the second hypothesis, the relationship between residual income and the level of shareholders value showed that this variable can show 45 percent of the changes in created shareholders value. In addition, it was clarified in the third hypothesis that meaningfulness of residual income is more in comparison with economic value added. In justification of this topic, it can be referred to omission of the effect of accrual accounting adjustments from residual income. The omission resulted in quality improvement of the reported income and its closeness to accounting interests. So it has shown a higher level of created shareholders value and welfare.

RECOMMENDATIONS

1. Given the results of this research, it is suggested that standard development authorities recommend companies to compute and reveal also the measure of residual income and economic value added in their annual report for stockholders.
2. In addition, independent auditors (CPA_s) also in their investigations of adjustments and reserves for renewal, which companies compute at the end of the year and register in documents and ledgers, have adequate supervision and take great professional care.

CONCLUSIONS

The results indicate that the EVA and RI variables have significant relationship with created shareholders' wealth. Now it must be determined that which one is more effective. In this research it was expected (third hypothesis) that the relationship between EVA and created shareholders' wealth is more significant, but the results showed that RI is more effective on created shareholders' wealth. The applied Pearson's correlation coefficient and multivariable regression as well as Forward method in determining the impact and significance of most independent variables (EVA and RI) on dependent variable (created shareholders' wealth) indicated that RI has more impact on created shareholders' wealth. This can be due to the fact that one of the most important components of EVA is net operating profit after tax (NOPAT). NOPAT is a net profit which is obtained through some adjustments, and the only difference between RI with EVA is in accounting adjustments applied to EVA. Therefore, this model (RI) provides a situation for accountants to analyze the company's performance in accrual accounting conditions. As shown, the correlation between RI and created shareholders' wealth is more than EVA. It is remarkable that the historical information effective on the invested equity and WACC has created deviations in the amount of EVA.

It should be noted that companies did not report any created economic value. On the other hand, EVA is not reported by companies and is not used in investors' decisions. However, considering the limitations of capital resources in Iran and given that the managers do not consider the cost of capital in their decisions, it is recommended to pay more attention to the criterion of RI in evaluating managers' performance

SCOPE FOR FURTHER RESEARCH

1. In this research, the created shareholders wealth model was used, and in using this model, the expected rate of return should be calculated. In doing so, the company's cost of equity is used here, but also the capital asset pricing model (CAPM) can be applied. It is suggested that this model (CAPM) can be used for future researches in calculating the expected rate, and the results can be compared with the results of present study.
2. Several methods as well as models are defined for the RI model. It is suggested to look into this relationship using other models.
3. In order to make this issue practical in different industries, this research can be tested separately for different industries and the results can be analyzed.

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