Study of the correlation of economic value added, net income, and operational earnings with the stock market value of companies accepted to Tehran stock exchange

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Abstract

Recently, one of the common criteria of performance evaluation is the economic value added (EVA). The present research aims to study on the capability of EVA in representing suitable information relating to the value of the company and also to compare it with the other criteria such as operating profit and net profit. The statistical population is all the Iranian companies admitted in Tehran stock exchange between the years 2006 to 2011, excluding the investing and financial intermediary corporations, which are totally 89 corporations. Hypotheses test was fulfilled through correlation technique and shows that although the correlation of EVA with market value is considerable, but it has less ability in comparing with net profit and operating profit.

Key words: CAPM, WACC, NOPAT, EVA

1. Introduction

One of the main issues of the businesses within the economic circumstance is the performance evaluation of them. Taking into account the different criteria for performance evaluation, using a suitable criterion can present more suitable information to the owners, shareholders, investors, and also the customers. Designing and defining the comprehensive patterns of identifying the value of the economic units based on the information content contained in the financial statements is a sensitive issue which has been of high importance through the last decades in a way that the employees within the accounting cycle area are continually searching for the new methods of valuating the companies. Economic value added is the newest performance evaluation criterion which endeavors to focus on the expense of all financing resources.

2. Background of the research

Stern Stewart introduced the concept of EVA to the world in 1982. EVA that is based on the theory of economic profit is a criterion which considers the opportunity cost of all resources used within a firm. In other words, the positive economic value added shows the optimum allocation of the resources, value enhancement of the company, and increasing of the shareholders’ wealth. On the other hand, negative economic value added shows the wasting of the resources and inefficient allotment of the resources of the company leading to the decrease of shareholders’ wealth. Currently, economic value added is considered as an efficient criterion in financial management and its main goal is to measure the increasing rate of shareholders’ wealth. It is also...
considered as a base for setting financial objectives, budgeting- especially the capital budgeting- and motivating the managers through bonus.

3. The history of the research

In 1997, Melbourn et al studied the correlation between two criteria of EVA and REVA under the research “searching for the best financial performance criterion”, which the findings showed that the efficiency of REVA is much more than the efficiency of EVA in anticipating the creation of more value.

4. Research hypotheses

The main aim is to review the significant relationship between EVA, net profit, and operating profit with the stock market value of the company. The market value is the dependent variable and EVA, net profit, and operating profit are the independent variables. Taking into account that the simple regression method is used in the present research in order to analyze the data, therefore the hypotheses of the research are as follows:
1- EVA is a better index than the operating profit in relation with the stock market value of the company.
2- EVA is a better index than the net profit in relation with the stock market value of the company.

5. Variables of the research

The independent variables in the present research are the net profit, operating profit, and economic value added. The net profit and operating profit were exploited from the income statement of the sample companies and the EVA was calculated from the income statement, balance sheet and the accompanying notes of the sample companies as mentioned below:
\[ \text{EVA} = \text{NOPAT} - \text{WACC} \times \text{CAPITAL} \]
NOPAT means the profit after tax resulted from the operation of the business. In this calculation the effect of non-cash entries will be eliminated and the tax saving out of the financing expenses will be deducted from the profit. On the other hand, NOPAT is a substantial parameter showing the profit which is available in a form of cash return for the shareholders and creditors and shows the accessible return for all of the investors within the business.

6. Weighted average cost of capital (WACC)

From the conceptual point of view, the cost of capital for a company is the investor’s opportunity cost for investing in that company. The estimation of the weighted average of the cost of capital in a company is the effort to quantify the average return expected by all of the investors of the company, including the liability relating to the short and long term creditors which the interest will be accrued to them, the preferred and common shareholders. The cost of capital of the company will be calculated as the weighted average which the weights will be determined according to the values of different capital resources. It means:
\[ \text{WACC} = K_p \times W_p + K_e \times W_e + K_d \times W_d \]
\[ K_p: \text{ special cost of preferred stock} \]
\[ K_e: \text{ special cost of common stock} \]
\[ K_d: \text{ cost of debt after tax deduction} \]
\[ W: \text{ the relation of each of the resources to the whole} \]
The dependent variable in the present research is the market value of the companies calculated as follows:
\[ MV = \frac{\text{Capital} + \text{EVA}}{c} \times \left[ \frac{1 + 2c}{c} \right] \]
\[ C = \text{rate of capital cost} \]
7. The field of the research

The statistical population is the Iranian companies admitted in Tehran stock exchange excluding the investing and financial intermediary companies between the years 2006 to 2011. The sample volume is calculated through the below mentioned formula which consists of 89 corporations:

\[ n = \frac{NZ^2\alpha/2 \cdot pq}{\varepsilon^2(N - 1) + Z^2\alpha/2 \cdot pq} \]

8. Hypothesis test

First, we test the presence or absence of a significant linear relationship between EVA, net profit, operating profit with the market value.

The findings of the research were obtained by SPSS statistical software program with 95 percent of reliability:

There exists a significant linear relationship between EVA and the market value.
There exists a significant linear relationship between operating profit and the market value.
There exists a significant linear relationship between net profit and the market value.

Pearson correlation coefficient

After becoming sure of the significant linear relationship between the variables, we will be able to measure Pearson correlation coefficient for them. It gives us the opportunity to comment about the hypothesis and also to accept or deny it.

The result of the test is presented by using SPSS software program:

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Significant linear Relationship</th>
<th>F</th>
<th>R</th>
<th>R²</th>
<th>R² Regulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating profit</td>
<td>Positive</td>
<td>97/42</td>
<td>0/697</td>
<td>0/476</td>
<td>0/471</td>
</tr>
<tr>
<td>EVA</td>
<td>Positive</td>
<td>87/54</td>
<td>0/662</td>
<td>0/426</td>
<td>0/421</td>
</tr>
<tr>
<td>Net profit</td>
<td>Positive</td>
<td>103/27</td>
<td>0/712</td>
<td>0/457</td>
<td>0/452</td>
</tr>
</tbody>
</table>

In the above shown table the existence or non-existence of the significant linear relationship and also the correlation between the independent variables and the dependent variable (market value) is reviewed.

8.1. Analysis of the first hypothesis

The result shows that:

1- There exists a significant linear relationship between operating profit and the market value.
2- There exists a significant linear relationship between EVA and the market value.
3- The correlation rate between operating profit and the market value is more than 69 percent, and it shows that there is a direct relation and the model more than 47 percent justifies the dependent variable shifts.
4- The correlation rate between EVA and the market value is more than 66 percent, and it shows that there is a direct relation and the model more than 42 percent justifies the dependent variable shifts.

Decision making

According to the findings of the research we conclude that although EVA has got a direct relation with the market value, but it has got less correlation rate in relation with the operating profit, and it has less ability in making contact with the market value. Therefore, the first hypothesis is not accepted.

Analysis of the second hypothesis

The findings show that:

1- There exists a significant linear relationship between net profit and the market value.
2- There exists a significant linear relationship between EVA and the market value.
3- The correlation rate between net profit and the market value is more than 71 percent, and it shows that there is a direct relation and the model more than 45 percent justifies the dependent variable shifts.

4- The correlation rate between EVA and the market value is more than 66 percent, and it shows that there is a direct relation and the model more than 42 percent justifies the dependent variable shifts.

9. Decision making

According to the findings of the research it can be inferred that although EVA has got a direct relation with the market value, but it has got less correlation rate in relation with the net profit, and it has less ability in making contact with the market value. Hence, the second hypothesis is not accepted.

10. Conclusion

Taking into account the aforementioned matters, we expected that the EVA correlation with the market value is more than the net profit and operating profit correlation with the market value, but the findings of the research shows that although EVA has got good and great relation with market value and the correlation is 66 percent, but it was specified that the correlation between the operating profit and net profit with market value was more than the EVA and the measures were respectively 69 and 71 percent. In order to reveal the contradiction between theoretical concepts and what we reached practically in this research, we can state the rational justifications as follows:

- In Iran, corporations for capital increase sell their shares at the nominal price which its main reason is the tax issues. On the one hand, the cost of capital affects the price. Therefore, the calculated cost of capital doesn’t have any influence on financing of the company. It can be the reason of the EVA deficiency in contrast with net profit and operating profit.

- As we know, the market value of the stock is determined by the transactions in the market and the shareholders. Shareholders often refer to their thought paradigms for setting the shares’ price. In the market of Iran, the P/E ratio is mostly used in determining the market value of the company, so the numerator of the fraction is nothing but the accounting profit. Therefore, the price of the stock has got high correlation with accounting profit because accounting profit is basically one of the variables existing in ascertaining the value of the stock price. On the other hand, EVA is not known well in Iran’s market yet. We hope that by the passage of time and gaining more knowledge about this index, the use of EVA in decision making models for determining the value of companies in Iran’s market become widespread. By achieving this important objective, according to the mentioned subjects in the second chapter about EVA and the existence of the exact factors in calculation method, we will obtain more reliable and better results, and finally the evaluations, forecasts, identifications and decision makings would be fulfilled more accurately and literally.

- The other reason that the hypotheses are not accepted is the lack of using the cost of capital by Iranian managers in decision making. It is because the cost of capital is one of the main variables in calculating EVA. NOPAT is considered as one of the most important features of economic value added. Since NOPAT is the net profit obtained by doing some adjustments we can say that the difference of the correlation rate between EVA and net profit with market value of the companies is about other variables which are added to or subtracted from the NOPAT. On the other hand, many articles and researches developed in the field of economic value added face problem when calculating the cost of capital because the large amount of equations are concluded and that the value of the company depends on the rate of investment, the cost of investment, and the risk of the company. In other words, each company shall take into consideration the cost of capital according to the financing resources and also the risk when deciding to generate value.

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