Information Content of Economic Value Added, Accounting Profit, and Operational Cash Flows

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ABSTRACT

Dissatisfaction with traditional accounting-based performance measures has spawned a number of alternatives, of which economic value added (EVA) is currently the most prominent. There is currently a heated among practitioners about whether the new performance have a higher correlation with stock values and their returns than do traditional accounting earnings. The paper seeks to examine in the claim of EVA advocates of its superiority as a financial metric compared with other measures. The paper uses a sample of 150 firm observations from Tehran stock exchange between years 1380 and 1387 and applies panel data regressions to test the relative information content of EVA and other accounting measures and the incremental information content of EVA components in explaining stock return. It is found that net income and net operating profit after tax outperform operating cash flow and EVA in explaining stock return. It is also found that accruals and operating cash flow have significant incremental information content in explaining stock return. Yet the paper concludes that other variables must be considered in order to capture the unexplained variation in stock return models.

INTRODUCTION

Stern company provider and main supporter of Economic value added (EVA) residual income symbol believes that EVA as criteria can be used to measure the internal and external performance rather than profit or operating cash flows. Stern Stewart company states that interest per share and interest growth are not acceptable representative of company performance, while EVA is considers the best criteria of evaluation company performance evaluation and it measures the real economic profit of company as compared to other evaluation criteria, and it is directly related to changes in shareholders' wealth [14] stern Stewart company [13] in a study indicated that EVA among its own contemporary criteria is the best measure of shareholders wealth creation learning per share, investment return and return on equity the changes of shareholders wealth. In 1995, stern Stewart also expressed that forget about "interest per share, investment return and return of shareholders wages". EVA directs cost of share [14].

EVA has appreciated in commercial and financial journals and it is of great interest to accounting pundits magazine has referred to EVA as the hottest daily financial idea, the real solution to create value and a new way to find customers. Peter Drucker believed that EVA is one of the efficient comprehensive criteria that its growing popularity reflects new demands of the information age [5] in theory; profitability of EVA has been discussed widely. Various studies on the relationship of EVA with stock return in comparison other performance assessment accounting criteria has been conducted, and different results have been reported. Results of some of these studies also demonstrated EVA (as an economic criteria for performance evaluations as compared to other accounting criteria of performance evaluation is an appropriate criteria for stock return explanation and inter attention [8]. The present study intended to investigate information content of EVA in relation to other accounting criteria of performance in Iran investment market, so that it could provide investors with required guidance based on results of studies and stock choice of different companies as well, and it could help them to select appropriate investment with desirable return.

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Explanation and statement of research subject:

Accounting return rates have always been criticized due to failure to measure the economic benefits. The main objections of these rates is the significant distortions, it can be identified using appropriate accounting methods to measure usual profitability. This fact result in conducting studies, in turn, they paved the way to the establishment of other performance criteria such as operating cash flow and economic profit criteria. Eva is an economic benefit concept that created and supported by stern company as a result of modification on accepted accounting principles to gain significant interpretation of residual in come. Stern Stewart Company believes that EVA is driving shareholder value, and it reflects changes in shareholder value better than traditional accounting criteria of performance evaluation [9]. Since the main purpose of EVA is the enhancement in shareholder wealth, the shareholders obvious want to indicate its relevance to the stock returns. Because the main purpose of investors is raising wealth which is achieved through stock return. Therefore, the most important issue investors being confronted with is the evaluation of stock returns of different companies [15]. In this study, usefulness of performance measurement scales is assessed based on their ability to explain the behavior of stock returns. To this end, in formation content tests were made at two formats of relative information content and incremental information content. Relative information content test of EVA and other measurement criteria stated the explanation power of these criteria and determined which criteria has more explanation ability as compared to others. Incremental information content of EVA Elements also determines whether unique elements of incremental information content of EVA (accounting adjustments, capital costs, employed capital) provides better explanation of stock returns behavior as compared to residual elements [9].

Review of literature:

So far expense studies have been carried out on the stock returns and its explaining variables. The emergence of large corporations in the eighteenth century and separation of ownership from management lead to the establishment of several of ownership from management lead to the establishment of various performance evaluation models. But the selection of appropriate criteria out of other issues induced much research in finance literature.

Ismail [9] investigated the relationship between EVA, Net in came, Net operating profit after tax, and residual income with stock returns of accepted corporations in UK stock exchange. The results of study revealed that Net operating profit after tax ($R^2 = \%25/78$), Net income ($R^2 = \%25/3$), residual income ($R^2 = \%20/20$) have higher information content to explain stock return behavior as compared to EVA ($R^2 = \%20/20$). Accruals and operating cash flow have higher incremental in formation content in explaining stock returns behavior as compared to accounting adjustments. In a study Wortingon and West [16] examined EVA relative and differential information content (incremental) residual income, accounting income and operating cash flow of 100 Austrian corporations during 1992-1998.

Results of relative information content test indicated that EVA ($R^2 = \%25/68$ adjusted) is related to stock returns more than residual return ($R^2 = \%18/53$ adjusted), accounting income ($R^2 = \%14/42$) and operating cash flow ($R^2 = \%13/51$). Results of their incremental information content showed that accounting adjustments are of paramount importance in explaining stock returns behavior. Operating cash flow, interest expense after tax, accruals and capital expense are also in following preferences.

Biddle, et al. [5] studied relative and incremental in formation content of EVA, residual income, accounting income and operating cash flow during 1984-1993. Results of their relative information content revealed that residual income ($R^2 = \%12/8$) is related to stock returns more than residual income ($R^2 = \%7/3$), EVA ($R^2 = 6/5\%$) and operating cash flow ($R^2 = \%2/8$). Findings of their differential information content test (incremental) demonstrated that operating cash flow and accruals have significant differential in formation content (incremental) in explaining stock returns behavior as compared to unique elements of EVA.

Chen & Dodd [6] provide evidence that EVA ($R^2 = \% 23$) has less explanations ability that traditional evaluation measurements such as residual income ($R^2 = \% 5$), net operating income after tax ($R^2 = \% 62$) statistic analysis also indicated that there is no significant difference between each of these criteria with stock returns and all of these criteria are significantly related to stock returns.

Results of his study suggested that EVA changes in pervious period accounted for %78 of the following period changes in stock return. In another study entitled “relationship between Gash from operations and accrual income with stock returns of accepted corporation in Tehran stock exchange”, Tehrani el al., [15] concluded that significant relationship exists between cash from operations and accrual interest with stock returns, But accrual interest in comparison with cash from operations still has higher information content to predict stock return.

Norvesh and Mashayekhi has also investigated the relationship among four variables in Iran stock exchange market including economic value added (EVA), cash value added (CVA), operating cash and accounting profit with stock return. They came to conclusion that incremental information content of accounting profit is high for investors in comparison with other three variables but cash as a result of operation in some cases has not a significant relationship with stock return.
**Research hypotheses:**

The hypotheses of the research are the following:

**H1:** the relationship between EVA and stock return is significant.

**H2:** the relationship between accounting profit and stock return is significant.

**H3:** the relationship between operating net flow and stock return is significant.

**H4:** the incremental information of EVA is more than incremental information of accounting profit in relation to the description of stock return behavior.

**H5:** the incremental information of operating net flows is more than the incremental information of accounting profit in relation to the description of stock return behavior.

**H6:** the unique components of EVA have the incremental information in relation to the description of the stock return behavior in comparison to its remaining components.

**The population and sample of the study:**

In this research, the accepted companies in Tehran stock exchange are selected as the population of the study from 2002 to 2009.

To select the sample of the study, the accepted companies in stock exchange are selected by considering the following conditions:

Those companies which are accepted in exchange market before 2002 and their stocks have been traded in exchange market from the beginning of year 2002.

Those companies that don’t have than 3 months trade halt from 2002 to 2009.

The activity of company should not be financial operation and investment.

Those companies that their fiscal year ending leads to the end of December in every year and they should not have and changes in their fiscal year in the interval of 2002 to 2009.

There should be necessary access to their financial statements and descriptive notes accompanying them.

Therefore, the companies that lack the aforementioned conditions are considered out of the research population.

So, among the accepted companies in the beginning of 2002, 150 companies that have the above-mentioned conditions are determined as the sample of the research.

**Data collection method:**

In this research, two field and library methods are for data collection. In library section, the theoretical framework of study has been extracted from specialized Latin and Persian journals and books, digital libraries, and the sites. In field section of research, the necessary data have been used from the compute files of Tehran stock exchange organization, Rah Avar software’s, TadbirPardaz, and the related sites to Tehran stock exchange especially the site “research, progress, and Islamic studies management”. The gathered data are calculated with Excel software and are analyzed by SPSS and Eviews soft wares.

**Research Method:**

This research is correlational- descriptive. The past data have been used. The research methodology is ex-post facto research.

In this research, descriptive statistic methods are used to analyze the data. The normality test of dependent variable is investigated by using Ln (Return) in 2002- 2009. Since, p-value in different years is more than %5 (p>%5) for log of this variable, it is necessary to use the log of this variable in the evaluation of the models instead of PLS. OLS causes to have incorrect evaluation research hypotheses are the following.

In the equation above:

\[ \text{Ln Return} \rightarrow \text{yearly stock Return} \]

\[ \text{EVA} \rightarrow \text{Economic value added} \]

\[ \text{NI} \rightarrow \text{net income} \]

\[ \text{OCF} \rightarrow \text{operational cash flow} \]

\[ \text{WACC} \rightarrow \text{weighted average capital cost} \]

\[ \beta_i \rightarrow \text{Fixed factor specific to company i} \]

\[ \epsilon_i \rightarrow \text{random factor for company in year t} \]

\[ \text{NOPAT} \rightarrow \text{Net operational profit after tax} \]

\[ \text{ACCAJ} \rightarrow \text{Accounting adjusted} \]

It is necessary to mention that models 1, 2, and 3 are used to test EVA relative information test and accounting profit, models 2, 3, and 4 are used to test accounting profit of relative information content and operational cash flow, and the model 5 is used to test EVA components of incremental information content.
Definition of terms:

EVA is a method of measuring economic value of trade after taking into consideration the capital cost including long term debt cost and shareholders cost. Stern company calculated EVA as the following [9].

\[
\text{EVA} = \text{ANOPAT} (\text{Adjusted NOPAT}) - K \times \text{total capital}
\]

Net profit is the final profit that belongs to the companies’ shareholders. In another hands, because of not having performed stock, it is yearly loss and profit statements of the companies [3].

NOPAT is a criterion for measuring the profit as a result of operation that using loan or not using it does not have effect on it. To reach operational net profit after tax, it needs some adjustments in order to EVA measures the real economic profit [11].

Operational cash flow refers to cash input and output flows that are as a result of companies’ operational activities. Those cash flows do not have any relationship, in essence, to the operational [15]. This number is provided through the cash flow directly which is based on the standard number- 2 of Iran accounting standards.

Annual stock Return:

The return an investment provides over a period of time, expressed as a time weighted annual percentage. Sources of returns can include dividends, returns of capital and capital appreciation. The rate of annual return is measured against the initial amount of the investment and represents a geometric mean rather than a simple arithmetic mean.

Annual return is the de facto method for comparing the performance of investments with liquidity, which includes stocks, bonds, funds, commodities and some types of derivatives. Different asset classes are considered to have different strata of annual returns.

\[
R_t = \frac{D_t + P_t(1+\alpha + \beta) - (P_t - 1 + C\alpha)\times 100}{P_t - 1 + C\alpha}
\]

Where

- \(D_t\): gross profit of each share
- \(P_t\): cost of each share at the end of period
- \(P_{t-1}\): cost of each share at the beginning of period
- \(C\): nominal value of each share
- \(\alpha\): the percent of increased capital
- \(\beta\): the percent of increased capital

Relative information content ranks the performance evaluation criteria based on their information content. This test is used at the time of selecting the unique criteria among some performance evaluation criteria [5].

Incremental information content evaluates the results in addition to the other results that are provided by the other criteria. This test is applicable when additional information content or information content be one part of the needed criteria [5].

Research Findings and conclusion:

H1 test:

H1 states that there is significant relationship between EVA and stock Return.

\(H_0: \beta_1 = 0\)

\(H_1: \beta_1 \neq 0\)

In the case of rejecting \(H_0\), \(H_1\) will be supported. It means that there is significant relationship between EVA and stock return. The result of the above test shows that there is significant relationship between EVA and stock Return with \(p\) value of \(95\%). This result leads to the supporting of the first hypothesis. The correlation coefficient between EVA and stock return is 0/444. The result of \(R^2\) shows that 5 percent of stock returns changes are to EVA and the rest relates to the other factors.

Ismail [9], Worthingon & west [16] Biddle et. al. [5], Chen & Dodd [6], and Noravesh & Mashayekhi by doing some researches showed that there is significant relationship between EVA and stock return.

H2 Test:

The second hypothesis states that there is significant relationship between accounting profit and stock return.

\(H_0: \beta_1 = 0\)

\(H_1: \beta_1 \neq 0\)

In the case of rejecting \(H_0\), \(H_1\) will be supported. It shows that there is significant relationship between accounting profit and stock return. The result of above test shows that there is significant relationship between accounting profit (net profit and operational net profit and stock return with the confidence level of \(95\%). This result leads to the support of the second hypothesis.
H3 Test:
The third hypothesis states that there is significant relationship between operational cash flow and stock return.

H0: $\beta = 0$

H1: $\beta \neq 0$

In the case of rejecting H0, H1 will be supported. It shows that there is significant relationship between operational cash flow and stock return. The result of above test shows that there is significant relationship between operational cash flow and stock return with the confidence level of %95. This result leads to the support of the third hypothesis.

The correlation coefficient of accruals is 0.857, operational cash flow (OLF) 0.743, and Ln capital cost, and capital). The result leads to the rejection of the third hypothesis.

The correlation coefficient of accruals is 0.857, operational cash flow (OLF) 0.743, and Ln capital cost. The result leads to the rejection of the third hypothesis.

H4 test:
In this hypothesis, the ratio of EVA information content to the accounting profit of information content in relation to description of stock return behavior is going to be evaluated. Each of these variables that has high $R^2$, it has high information content it can describe the performance of the business very well. According to the table 1, EVA $R^2$ is less than coefficient of net profit and NOPAT. It means that accounting profit has high information content about the description of stock return behavior in comparison to EVA. This result leads to the rejection of the fourth hypothesis.

<p>| Table 1: Coefficient of NOPAT, NI, EVA. |</p>
<table>
<thead>
<tr>
<th>NI</th>
<th>NOPAT</th>
<th>EVA</th>
<th>Adj $R^2$</th>
</tr>
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<tbody>
<tr>
<td>0/11</td>
<td>0/09</td>
<td>0/05</td>
<td></td>
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</table>

Ismail [9], Worthingon & West [16], Belkaoui, Tehrani et al. [15], Yaghobnegad [17] and Arabmazaryazdi et al., came to conclusion that there is significant relationship between operational cash flow and stock return.

H5 test:
In this hypothesis, the ratio of EVA information content to the accounting profit of information content in relation to description of stock return behavior is going to be evaluated. Each of these variables that has high $R^2$, it has high information content and it can describe the performance of the business very well. According to the table 2, $R^2$ of operational cash flow is less than coefficient of net profit and NOPAT. It means that accounting profit has high information content about the description of stock return behavior in comparison to EVA. This result leads to the rejection of the fifth hypothesis.

<p>| Table 2: Coefficient of NOPAT, NI, OCF. |</p>
<table>
<thead>
<tr>
<th>NI</th>
<th>NOPAT</th>
<th>OCF</th>
<th>Adj $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0/11</td>
<td>0/09</td>
<td>0/04</td>
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H6 test:
The sixth hypothesis states that the unique parts of EVA in comparison to the other parts has incremental information content in relationship with the description of stock behavior.

In the case of rejecting H0 (null hypothesis), H1 will be supported that indicates there is significant model. The result of the above test shows that there is significant relationship among the variables with the error level of %95. Since the T- value for WACC and accounting adjusted (AccAdj) variables unable to reject the null hypothesis, these variables are not significant but other variables are significant in the model. The gradation method is used to find the appropriate model. The correlation coefficient of accruals is 0/857, operation cash flow (OLF) 0/743, and Ln capital - %75.

So, it becomes clear that operation cash flow and accruals have incremental information content about to the unique parts of EVA (accounting adjusted, capital cost, and capital). The result leads to the rejection of the sixth hypothesis.
The incremental information content test of Biddle et al., [5] and Ismail [9] showed that accruals and operation cash flows in comparison to accounting adjusted have created important incremental information content in the description of stock return behavior.

In contrast to these findings, the incremental information content test of Wortigon & West [16] in Australia showed that accounting adjusted on comparison to other parts of EVA have incremental information content.

Conclusion:
EVA index is created by stern to state the challenges that companies encounter with them in measuring their financial performance the question whether EVA acts better than accounting criteria in the description of stock return behavior leads to different studies in this area. In this research, the relative information content of EVA, accounting criteria, and the incremental information content of EVA parts are tested by the panel regression. The result of this research indicates that net profit, operation net profit after tax, EVA, and operation cash flows have significant relationship with stock return.

On the other hand, accounting profit (net profit and operation net profit after tax) have more information content in the description of stock return behavior in comparison EVA and operation cash flows.

Therefore, accounting profit also has more information content in the prediction of stock return for investors in comparison to EVA and OCFS. They considered the main accounting variables in financial decisions and investment of decision makers in stock exchange market. Accruals and operational cash flows also have important incremental information content in comparison to the unique parts of EVA. In sum, our finding doesn't support the claim of stern who introduces EVA more prominent than other criteria of performance evaluation in the description of stock return behavior. The findings of this research are completely consistent with the result of Biddle et al., [5] and Ismail [9] studies.

REFERENCES