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The Information Content of Accounting Variables in Companies Accepted in Tehran Stock Exchange (TSE)

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Abstract

Various researches have been carried out about benefits of accounting information and their influence on decision making of financial statements users. For example, many researches have examined the relationship between accounting variables and stock returns or stock price. This study determines and compares the relative and incremental content of accounting variables, too. For this purpose, the relationship between stock return and accounting variables is examined for production companies accepted in Tehran Stock Exchange (TSE)**,** during period of 2000 through 2004. Independent variables, in this study, are Net Income (NI), Operational Profit (OP) and Cash Flows from Operations (CFO) and dependent variable is annual Stock return. In order to eliminate the effect of company size, we choose total asset as control variable. The results show that OP has related information content in comparison with other variables and NI and OP have incremental content beyond each other, but CFO doesn't have incremental content.

Keywords: Stock Return, Relative Information Content, Incremental Information Content.

1- Introduction

When someone decides to invest in stock exchange, the selection of stock is the first issue that he is faced with it. If we are going to remain investors in this market, we should prepare some sort of facilities that can be logical or informative.

Because investors have a little information about stock exchange, many studies should be carried out to find a criterion that helps them with their investment. By doing so, they can decide and investigate very carefully and fast.

Because of this reasons, in this study, we are going to find the relative and incremental information content of accounting variables in companies accepted Tehran Stock Exchange (TSE) to find out that which of them is applied by Iranian investors in their decision making and which of them can be a preferred their variable.

2- Literature review

2-1- Relative versus Incremental Information content

Incremental information content comparisons assess whether one accounting measure (or set of measures) provides information content beyond what is provided by another. Relative information content comparisons ask a subtly different question, which is whether one measure provides greater information content than another.

Incremental comparisons assess whether the information content of X and Y together is greater than that of one variable alone; if so, then the other variable provides incremental information content. Relative comparisons instead ask whether the information content of X alone is greater than, equal to, or less than the information content of Y alone.

We compare relative and incremental information content of X and Y in figure1. The left column of this figure portrays the three relative information content outcome conditions that are possible for X and Y: info content (X) = info content (Y), info content (X) > info content (Y) and info content (X) < info content (Y). The right column portrays corresponding incremental information content conditions for X and Y: neither X nor Y incremental, both X and Y incremental, only X incremental and only Y incremental. In relative comparisons, only the relative sizes of the circles matter. In incremental comparisons, only the areas beyond the circle intersections matter, where (holding circle sizes constant) the size of an intersection depends on the correction (r_{xy}) between X and Y.

As it is shown in figure 1, the mapping between relative and incremental comparisons is not one-to-one. Each relative information content condition maps into two incremental outcome conditions. In Panel A, equal relative information content for X and Y is consistent with either incremental information content for neither X nor Y, or Y, or for both X and Y. In Panel B, larger relative information content for X than for Y maps into incremental information content only for X, or for both X and Y. In panel C, smaller relative information content for X than Y maps into incremental information content only for Y, or for both X than Y.

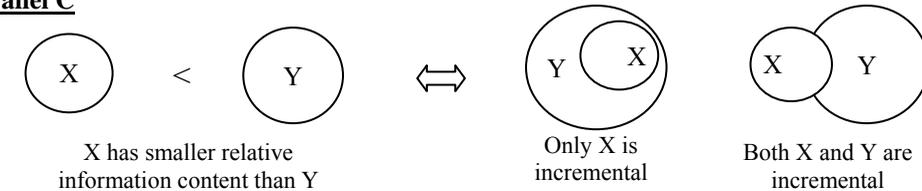**Figure1. Relative versus incremental information content**

Panel A
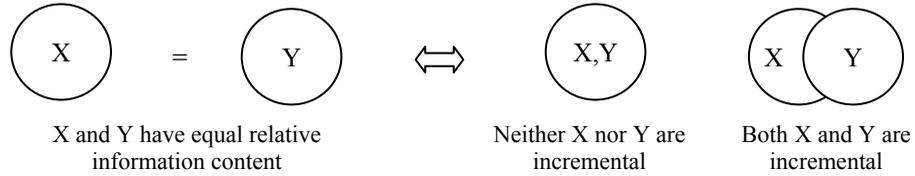
Panel B
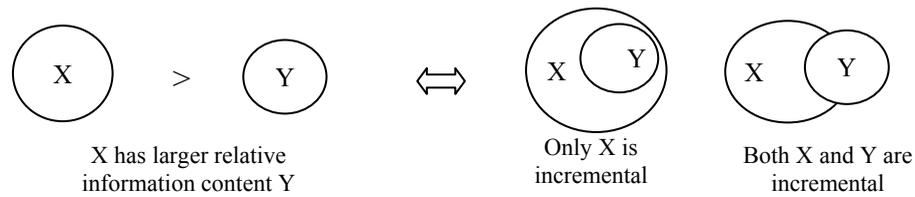
Panel C

2-2- Research Back Ground

Raybourn (1986), Bowen et al. (1987), Ali (1994) and Dechow (1994) evaluated the incremental information content of cash flows. They realized that both cash flows and accruals provide incremental information relative to each other.

Wilson (1986) examines the incremental information of accruals over total cash flows for 1981-1982, and finds that current accruals (but not long term accruals) are significantly associated with returns, controlling for cash flows.

Also, using cash flows defined as earnings before extraordinary items plus non-current accruals, Wilson (1987) finds no incremental content of cash flows over earnings, but when current accruals are added, the resulting metric shows significant additional explanatory power.

Beaver, Griffin and Landsman (1982) examined the incremental information of the same measure of cash flows relative to earnings, and find that at the years 1977 and 1978 the coefficient relating cash flows to returns is significant in the presence of earnings.

In- Mu Haw, Daqing Qi and Woody Wu (2001), by investigating the nature of information in accruals and cash flows in the emerging capital market of china figured out that the earnings coefficient during 1995-1998 was positive and statistically significant. The

results indicate that earning has incremental information content over operating cash flows, but not vice versa.

Francis, Schipper and Vincent (2001), analyzed the ability of earnings and non-earnings performance metrics to explain Stock returns for various industries. They choose the Standard & Poor's (S&P) Industry Surveys as their source of preferred metrics. They found that earnings (EARN) dominates cash from operations (CFO) and earnings before interest, taxes, depreciation and amortization (EBITDA) in explaining security returns in industries where EARN is the preferred metric.

Furthermore, they found that neither CFO nor EBITDA dominates earnings or each other in explaining stock returns in industries where these metrics are preferred. In fact, in industries where CFO is the preferred metric, they found weak evidence that EARN dominates CFO in terms of explanatory power.

Ball and Brown (1968) and Beaver and Dukes (1972) by defining operating cash flows as earnings plus depreciation, depletion and amortization, found that earnings explains more of the variation in returns than cash flows.

Noravesh and Mashayekhi (2004) investigated Incremental Information Content of Economic Value Added (EVA) and Cash Value Added (CVA) beyond Earnings and Operating Cash Flows in Tehran Stock Exchange during 1996-2002. They found that earning is the most important accounting index in the investing and financing decision making process of Iranian investors, and its information is dominated EVA, CVA and operating cash flows. In other words, it has incremental information content beyond the others. Furthermore, EVA and CVA are used in decision making models of investors of Iranian stock market, and they sometimes have incremental information content beyond earnings, operating cash flows and each other. But operating cash flows neither has meaningful relationship with stock returns, nor can supply some of explanatory power of stock returns beyond earnings, EVA and CVA.

Noravesh and Heidari (2004) examined the information content of CVA against Operating Profit (OP) and Operating Cash Flow (OCF) during 1999-2003 in TSE within 110 companies. Results confirmed meaningful correlation between CVA and Stock Returns. Relative information content tests revealed Returns to more closely associated with CVA than OCF. Incremental information content tests suggested that CVA adds more explanatory power to Returns than OP and OCF.

Hejazi and Maleki Oskouei (2007) by investigating the information content of Cash Value Added (CVA) and P/E ratio in industrial companies in Tehran Stock Exchange during 1999-2003, found that returns is more closely associated with CVA than P/E ratio. In other words, CVA has relative information content than P/E ratio. Incremental information content tests suggest that both of CVA and P/E ratio have incremental information content beyond each other.

3- Research's main objectives and its hypotheses

Stock return is widely accepted as the best measure of external value creation and the one to measure corporate performance. So, this research examines, at first the relationship between this measure and accounting variables. Two main objectives of this research are as follows:

1) Determination and comparison of relative information content of net income (NI), operational profit (OP) and cash flows from operations (CFO).
2) Determination and comparison of incremental information content of above variables and determination the best mix of them.

To achieve these objectives, we developed six hypotheses as follow:

Three of these hypotheses are related to the issue of relative information content of research's variables:

H_1: NI outperforms OP and CFO in explaining the stock returns in production companies accepted in Tehran Stock Exchange.

H_2: OP outperforms NI and CFO in explaining the stock returns in production companies accepted in Tehran Stock Exchange.

H_3: CFO outperforms NI and OP in explaining the stock returns in production companies accepted in Tehran Stock Exchange.

The other hypotheses related to the issue of incremental information content of research's variables are as follows:

H_4: NI provides incremental information beyond that contained in OP and CFO in production companies accepted in Tehran Stock Exchange.

H_5: OP provides incremental information beyond that contained in NI and CFO in production companies accepted in Tehran Stock Exchange.

H_6: CFO provides incremental information beyond that contained in NI and OP in production companies accepted in Tehran Stock Exchange.

4- Empirical Methodology

The objective of this research is to examine the correlation between dependent and independent variables. Assuming that equity markets are efficient, Stock returns may be used to compare the information content of performance measures in a regression based approach.

The first methodological requirement is to specify the sample selection method. In this research, population is all Iranian companies that are accepted in Tehran Stock Exchange (TSE) until 20/03/1999. Therefore, population consists of 314 companies. Samples of this research are all above companies that have these specifications:

1) The fiscal year-end of the firm is March 20
2) During the period of the research the firm doesn't change the fiscal year
3) Firm's stocks have been traded during these years
4) Firm is not an investment company

  5) The relevant data is not missing.

Finally, 85 industrial companies accepted in Tehran Stock Exchange (TSE) are selected as sample.

The second methodological requirement is to specify collecting data. All data used in this research are gathered from financial statements.

We classify research's variables into 3 groups: Independent variables, dependent variable and control variable. NI, OP and CFO are independent variables, Stock return is used as dependent variable and total assets is control variable.

The third methodological requirement is to specify the models used to calculate the relative and incremental content of the independent variables. For this, the models that relate these variables to stock returns are used to examine the hypotheses. All equations used in this research to examine the hypotheses are shown in table 1.

Table 1- Models used to examine the hypotheses

Model's number	Model	Hypothesis
1	$R_{i,t} = \beta_0 + \beta_1 NI_{i,t} + \varepsilon_{i,t}$	1,2 and 3
2	$R_{i,t} = \beta_0 + \beta_1 OP_{i,t} + \varepsilon_{i,t}$	1,2 and 3
3	$R_{i,t} = \beta_0 + \beta_1 CFO_{i,t} + \varepsilon_{i,t}$	1,2 and 3
4	$R_{i,t} = \beta_0 + \beta_1 OP + \beta_2 NI + \varepsilon_{i,t}$	4,5 and 6
5	$R_{i,t} = \beta_0 + \beta_1 CFO + \beta_2 NI + \varepsilon_{i,t}$	4,5 and 6
6	$R_{i,t} = \beta_0 + \beta_1 OP + \beta_2 CFO + \varepsilon_{i,t}$	4,5 and 6

To use these models and examine the hypotheses, at first we should calculate the changes in dependent and independent variables for each year. Then, for omission of the effect of company's size, the figure calculated divided by total assets.

5- Empirical Results

As it was illustrated, the first three hypotheses investigate the relative information content of independent variables. We use models NO. 1, 2 and 3 and adjusted correlation coefficient for examining these hypotheses. The results are shown in table 2.

Table 2- The results of examination of the first three hypotheses

Independent Variable	Coefficient of determination(R^2)	Adjusted-R^2	F-Statistics	Coefficient of regression	Significant level
ΔCFO	0.001087	-0.011	0.090	0.00007	0.764
ΔOP	0.017413	0.006	1.470	0.000454297	0.228
ΔNI	0.017445	-0.012	0.727	0.000467263	0.485

As shown in table 2, significant level of F-Statistics for all variables is above 0.05. It indicates that none of these variables alone can explain dependent variable, annual stock returns. However, according to adjusted-R^2, ΔOP has more explanatory power than ΔCFO and ΔNI. In other words, it has relative information content. Although, ΔCFO has higher adjusted-R^2 than ΔNI; we can't say it has more explanatory power than ΔNI. Because if adjusted-R^2 is negative, we consider it zero. So, H_1 and H_3 are rejected and H_2 is confirmed.

To examine the other hypotheses we use models NO. 4, 5 and 6 and adjusted correlation coefficient. Then, by comparing these adjusted-R^2s with adjusted-R^2s of previous models we judge about incremental information content. For example, we compare adjusted-R^2s of model 1 and model 4. If the adjusted-R^2 of model 4 is greater than that of model 1, OP has incremental information content over NI and so on. The results of incremental information content tests are shown in table 3.

Table 3- The results of examination of the second three hypotheses

Dependent Variable	Independent Variables	Model No.	Coefficient of determination (R^2)	Adjusted-R^2	F-Statistics	Standard coefficient of regression	Significant level
Stock Return	ΔCFO & ΔOP	6	0.0261	0.003	1.1112	0.0722	66.60%
	ΔCFO & ΔNI	5	0.0110	-0.013	0.4609	0.0985	36.77%
	ΔOP& ΔCFO	6	0.0261	0.003	1.1112	--0.1297-	66.60%
	ΔOP & ΔNI	4	0.0305	0.007	1.3050	-0.2445	72.33%
	ΔNI & ΔCFO	5	0.0110	-0.013	0.4609	-0.0309	36.77%
	ΔNI & ΔOP	4	0.0305	0.007	1.3050	0.1386	72.33%

As shown in table 2, with arrival of OP in regression related to NI (model NO. 4) adjusted-R^2 increases. In other word, adjusted-R^2 of new model (0.007) is greater than that of old model (0.00). So, it can be said that OP has incremental information content over NI. Therefore, attention to these variables (OP & NI) at the same time has the more information content than consideration of one of them.

Furthermore, we can understand from this table that OP has incremental information content over CFO. But CFO and NI don't have incremental information content over each other and OP. Also, the combination of NI and OP is the best.

6- Conclusions

The results indicate that the relationship between selected variables is weak. However, OP has relative information content. In other words, Iranian investors pay attention to OP in comparison with CFO and NI. As we know, OP is the most important income that could help people to assess the operational efficiency. Also, it has incremental information content over them.

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