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Informational value of fundamental accounting variables in asymmetric information environment

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Abstract

The present study was designed and carried out in order to investigate the relationship between operating profit and operating cash flow with reaction of investors under conditions of information asymmetry. The study models are in the form of operating profit changes and cash flow changes as dependent variable and changes in the stock price as dependent variable. The study population included companies accepted in Tehran Stock Exchange and the sample consisted of 97 firms that were selected using systematic deletion method. In this study, applied research method and descriptive/ correlational research methods were used in terms of objective and performance. The study was conducted from 2008 to 2012. Related data were analyzed using multiple regression technique based on panel data. Results indicated effect of operating profit and no effect of operating cash flows on investors' reaction.

Keywords: operating cash flow - operating profit – investors reaction- information asymmetry

Introduction

Dissemination of information helps investors to improve their decision-making process. Maybe profit information is a kind of information that is more considered and offered. In addition to several studies conducted in other countries, in Iran also some investigations are conducted to review the financial criteria affecting the decision made by investors in the Tehran Stock Exchange. The results indicate that the earnings per share is the most important criteria for investor's decision making (Vadiee and Shekohizadeh) (e.g.Vadiee and Shekohizadeh, 2013). In efficient financial markets, internal cash flows have no effect on investment levels. However, in inefficient markets, due to the phenomenon of asymmetric information, positive and significant relationship between investment and cash flow has been observed. Nowadays, there are great deals of analyses on net income as the main and valid factor for explaining corporate performance. Based on this simple approach, the company works better with increased net profit while works worse with reduced net profit. In general, it is said that a company with more net profit in the previous year has created more wealth and prosperity for its shareholders compared with a company with less net profits. Given the importance of the profit and cash flows for investment decisions (because a part of obtained profits will be paid to investors in the form of declared cash dividends) and related role of information asymmetry phenomenon, this study investigates the relationship between these variables and reaction of investors at different levels of information asymmetry. Therefore, purpose of the present study is to answer the question; is there a relationship between operating profit, operating cash flow and investment decision measured by stock price changes?

Review of Literature

Demory *et al.* (2009) study entitled "Investors excessive reaction to the patterns of the past performance of listed companies in Tehran Stock Exchange of Bahador". They concluded that stakeholders in the Tehran Stock Exchange Profit represented excessive reaction to variables of profit before extraordinary items , sales and stock returns, but they did not show too much reaction to cash flow. Motahari *et al.* (2011) examined the relationship between investors and the pattern of earnings per share adjustments**.** They found that investors conducted their investments before profit adjustment and observation of the small pattern (in this study, profit adjustment is considered important) and no significant activity

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of buying or selling was observed after the announcement of the profit adjustment. Talaneh and Mortazaei Shemirani (2012) study entitled "Dividend decision stimuli: Market inquiry" as the main objective investigated the dividend decision and effect of market-level variables on the dividend. The results of this investigation indicated that the share price returns in that year in the study group was considered in decision of reducing the dividend but efficiency of the previous year was not included. Rivandi *et al.*, (2013) investigated the effect of the equity value and operating cash flow on the variable of delay in the declaration of dividends. The results of this study showed that delay in the announcement of profits despite presence of bad news was related to associated reduced operating cash flow and there was a relationship between delay in the announcement of profits , operating cash flow and decreased value of shares. The results showed the market's negative reaction to such a situation and significant reduction of stock prices following the delay in the announcement of the news related to profits and cash flows. Sajjad *et al.* (2014) study entitled; "The relationship between commitment and cash components of stock prices and stock" investigated the companies listed in Tehran Stock Exchange and concluded that there was a significant and positive relationship between the components of cash dividends and stock prices. They found that increase in stock prices was higher in firms that had higher profit cash components while there was a significant and positive relationship between accruals , discretionary accruals, non-discretionary accruals and stock prices. Chambers and Penman (1984) & Kross and Schroeder (1984) investigated the relationship between the timing of profits announcements and stock returns. Their study showed that early declarations includes better news and led to greater unusual return. Dechow (1998) examined the relevance of accounting variables and stock prices. He suggested the measure of the relevance of a variable with the company's stock price changes as unpredictable changes of the variables. Thus, the more unpredictable variable changes will be caused more and better relevance of that variable with stock price and it will be considered as a better measure of relevance. This is due to company's value derived from the existing information while new information changes the value of the company and the stock price. In this study, he used the autocorrelation pattern, the four variables related to net income, operating cash flow, earnings before interest and taxes while investigated a combination of earnings and book value. Results of his study showed that changes in operating cash flow and net profit were more unpredictable than other variables. Bagnoli *et al.* (2002) investigated the market reaction to a delay in the reporting and concluded that the investors reacted to increased expected time of reporting while this reaction would be more prevalent in the next working day. Qi Sun (2006) investigated the effect of the timing of earnings announcements on the market reaction to unexpected earnings. Unlike other researchers, he found that the market indicated less reaction to early negative unexpected earnings. Cai *et al* (2007) defined the stock market as a place where the information of all the shareholders are gathered and some shareholders obtain this information by spending some expenses and others access the information freely. Therefore, with increased number of shareholders of a company the amount of available information will be increased that leads to reduced information asymmetry. Lakhal (2008) investigated the effect of quarterly earnings announcement on stock price reaction and the relative effect of difference between bid and offer prices considered as an indicator of information asymmetry and market liquidity. The results showed that information asymmetry reduced after quarterly earnings announcements.

Materials and Methods

Research method of this study was applied in terms of using expected results in the process of improving investors and stakeholders view while it was non-experimental and correlational method in terms of the researcher control on the study variables. The data of the present study were post-hoc based on historical information of the companies. Multiple regression technique based on panel data (panel) was used for evaluation and testing of the study hypotheses related to factors affecting the reaction of investors. Kolmogorov - Smirnov was used before regression test to investigate the data normality. F statistics was used to investigate the appropriateness of regression models and its corresponding significance level. T statistics and its significance level were used to investigate the relationship between independent and the dependent variables. Research population included companies listed in Tehran Stock Exchange and related sample consisted of 97 companies selected using systematic elimination method. This study was conducted annually from early 2008 to the end of 2012.

In this study, the following hypotheses were investigated:

Hypothesis 1: There is a significant relationship between changes in operating cash flow and reaction of investors.

Hypothesis 2: There is a significant relationship between changes in operating profit and reaction of investors.

Hypothesis 3: Information asymmetry influences the relationship between changes in cash flow and investors' reaction.

Hypothesis 4: Information asymmetry influences the relationship between changes in operating profit and reaction of investors.

Evaluation of variables and expanding of the research models

According to the research hypotheses analyzed using regression models, the research hypotheses suggested in three groups of dependent, independent and control variables explained in the following table.

Table 1. Research variables

Variable	Status in the model	Symbol in the model	Calculation method
Change in operating profit	Independent	ΔOP	Operating profit in the year t - Operating profit in the year t +1
Changes in operating cash	Independent	ΔOCF	Cash flow in the year t - Cash flow in the year t +1
Information asymmetry	Dependent	ASYMM	2 * (maximum suggested price for buying shares- lowest price suggested price for sale of shares) (maximum suggested price for buying shares+ lowest price suggested price for sale of shares)
Changes in dividend	Control	ΔDPS	Dividends in the year t - Dividends in the year t +1
Company size	Control	SIZE	(Total assets) log
Financial Leverage	Control		The total value of long-term debt/ The total value of assets
Ratio of book value to market value	Control		Book value per share/ Market value per share

The research models are presented as follows:

$$\Delta P = \alpha_1 + \alpha_2 \Delta OCF + \alpha_3 SIZE + \alpha_4 LEV + \alpha_5 \Delta DPS + \alpha_6 BTM \quad (1)$$

$$\Delta P = \alpha_1 + \alpha_2 \Delta OP + \alpha_3 SIZE + \alpha_4 LEV + \alpha_5 \Delta DPS + \alpha_6 BTM \quad (2)$$

$$\Delta P = \alpha_1 + \alpha_2 \Delta OCF + \alpha_3 SIZE + \alpha_4 LEV + \alpha_5 \Delta DPS + \alpha_6 BTM + \alpha_7 (ASYMM * \Delta OCF) \quad (3)$$

$$\Delta P = \alpha_1 + \alpha_2 \Delta OP + \alpha_3 SIZE + \alpha_4 LEV + \alpha_5 \Delta DPS + \alpha_6 BTM + \alpha_7 (ASYMM * \Delta OP) \quad (4)$$

Results

The results of the original model fitting are presented in Tables 2 and 3.

According to the above table, in the model 1 the Chow test was lower than 5% . This led to the selection of combined (panel data) data as fixed effects. F Fisher statistics and its significance should be considered in the regression model. Given the significance level of F statistics lower than 5%, the general regression model is significant. Therefore, it would be possible to discuss about partial relationship of the variables with the dependent variable. Given the significant level of T and variable of changes in operating cash flow equal to 0.732 or above 5%, the relationship between independent variable (change in operating cash flow) and dependent variable (investors reaction) is not confirmed and first hypothesis is completely rejected. Concerning the evaluation of relationship between independent variable (operating profit) and dependent variable (the reaction of investors) based on the significant level of t statistics of the variable of operating profit equal to 0.0014 and lower than 5%, relationship between two variables is verified and second hypothesis is confirmed. Among the control variables, dividend changes and financial leverage had a positive significant relationship with stock price changes. There was no

significant relationship between other variables and changes in stock prices. T statistics and its significance should be considered in investigation of information asymmetry in dependent variable (changes in operating cash flows) and independent variables (reaction of investors). Considering operating cash flows equal to 0.9041, above 5%, information asymmetry had no effect on the relation between changes in cash flow and reaction of investors . Therefore, third hypothesis is rejected. Finally, investigation of the impact of information asymmetry on relationship between independent variable (operating profit) and dependent variable (investors reaction), the significant level of t statistics of operating profit was equal to 0.0023 and lower than 5%. Therefore, relationship between two variables and information asymmetry is confirmed and the fourth hypothesis is confirmed. Among the control variables, dividend changes and financial leverage had a positive significant relationship with stock price changes. There was a negative and significant relationship between firm size and stock price changes. There was no significant relationship between other variables and changes in stock prices.

Table 2. Results of the fittings in the hypotheses 1 and 2.

Model 2: $\Delta P = \alpha_1 + \alpha_2 \Delta OP + \alpha_3$ SIZE $+ \alpha_4$ LEV $+ + \alpha_5 \Delta DPS + \alpha_6$ BTM			Model 1: $\Delta P = \alpha_1 + \alpha_2 \Delta OCF + \alpha_3$ SIZE $+ \alpha_4$ LEV $+ + \alpha_5 \Delta DPS + \alpha_6$ BTM		
Prob (Significant variables)	**Statistics t**	**Variable**	**Prob (Significant variables)**	**Statistics t**	**Variable**
0.0014	3.22	ΔOP	0.7328	0 .3417 -	ΔOCF
0.2026	1.28-	SIZE	0.2516	1.148-	SIZE
0.1187	1563	LEV	0.1661	1.387	LEV
0.0082	1.74	ΔDPS	0.0001	3.9768	ΔDPS
0.97	0.028	BTM	0.9	0.004	BTM
18:59		F Statistics	16/71		F Statistics
0.000000		Significant	./0000		Significant
1.78		Watson cameras	One. 817		Watson cameras
12:32		Adjusted coefficient of determination	12:32		Adjusted coefficient of determination

Table 3. Results of the fittings in the hypotheses 3 and 4

Model 4: $\Delta P = \alpha_1 + \alpha_2 \Delta OP + \alpha_3$ SIZE $+ \alpha_4$ LEV $+ + \alpha_5 \Delta DPS + \alpha_6$ BTM $+ \alpha_7$ (ASYMM * ΔOP)			Model 3: $\Delta P = \alpha_1 + \alpha_2 \Delta OCF + \alpha_3$ SIZE $+ \alpha_4$ LEV $+ + \alpha_5 \Delta DPS + \alpha_6$ BTM $+ \alpha_7$ (ASYMM * ΔOCF)		
Prob (Significant variables)	**T Statistics**	**Variable**	**Prob (Significant variables)**	**T Statistics**	**Variable**
0.0023	3.063	ΔOP	0.9041	-0.12	ΔOCF
0.1831	-1.33	SIZE	0.1757	-1.356	SIZE
0.0919	1.69	LEV	0.1689	1.38	LEV
0.1153	1.578	ΔDPS	0.003	3.64	ΔDPS
0.6505	-0.453	BTM	0.613	-0.506	BTM
0.1579	1.414	ASYMM * ΔOP	0.7544	-0.031	ASYMM * ΔOCF
16.71		F Statistics	15:14		F Statistics
0.000000		Significant	./0000		Significant
1.98		Watson cameras	1.962		Watson cameras
12:24		Adjusted coefficient of determination	12:22		Adjusted coefficient of determination

Conclusion

In the first hypothesis, the relationship between changes in cash flows and investors' reaction is proposed and the results indicate that there is no significant relationship between changes in cash flows and investors' reaction. Disapproval of the first hypothesis indicates the lack of attention of capital market to operating cash flows. Results of this study are not consistent with Rivandi *et al.* (2013) study. Second hypothesis investigates a relationship between changes in operating profit and investor reaction. Results indicate that there is a positive significant relationship between changes in operating profit and investor reaction. By confirmation of the above significant relationship, it can be inferred that investors in the capital market of Iran are continuing to paying special attention to operating profit as a fundamental factor. The third hypothesis suggests the impact of information asymmetry on the relation between changes in cash flows and investors' reaction. Results indicate that information asymmetry has no effect on the relationship between changes in cash flows and investors reactions. Among the control variables, dividend changes and financial leverage had a positive significant relationship with stock price changes. There was a negative and significant relationship between firm size and stock price changes. There was no significant relationship between other variables and changes in stock prices. Fourth hypothesis suggests the impact of information asymmetry on the relationship between changes in operating profit and investor reaction. Results indicate that information asymmetry affects the relationship between changes in operating profit and investors' reactions. Among the control variables, dividend changes and financial leverage had a positive significant relationship with stock price changes. There was a negative and significant relationship between firm size and stock price changes. There was no significant relationship between other variables and changes in stock prices

Recommendations

1.According to the conducted study, investors do not consider the factor of operating cash flow in their decisions while it is an important factor in the success or failure of investors decisions. Therefore, it is suggested that brokers and financial analysts provide better advices to investors in Stock Exchange.

2.Significant negative relationship between firm size and stock price changes indicate that larger size of company leads to less reaction of investors (price changes) too changes in the accounting items and vice versa. Therefore, smaller size of company causes more investors reaction and investors will invest in large companies.

Suggestions for further research

According to statistical data and obtained results, there are other factors that can influence the investment decision. Therefore, these factors are suggested for future studies:

1. Factors affecting investors based on industry.
2. Investigation of other factors such as financial literacy, geographical location of company, returns on assets, the company's life

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