The Examination of Relation between Cash Dividends Changes and Quality of Earnings in the Listed Companies in Tehran Stock Exchange

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ABSTRACT: The current paper examines the relation between cash dividends changes and quality of earnings of the listed companies in Tehran stock exchange and investigates the relation between quality of earnings and cumulative abnormal return in the firms that their cash dividends have been increased (decreased). The related sample includes 50 companies during 1999 to 2011. Earning quality is measured based on earning persistence. To examine the relation between cash dividends changes and quality of earnings, two hypotheses have been examined. After controlling data environment, investment opportunities, cash dividends recipient's attitude and operational risk of a company, the findings demonstrate that market reaction is negative (positive) to cash dividends increase (decrease) based on persistence-based quality of earnings. Changes in securities' prices are an observable standard of changes in the investors' systematic beliefs that are influenced by changed information content of accounting earnings.

Keywords: Cash dividends Changes, Market Reaction (Cumulative Abnormal Return), Quality of earnings.

INTRODUCTION

Securities analysts, firms’ managers, investors and other stakeholders in capital market cast their most attention on net profit as the final data item of income statement. Overemphasis on profit demonstrates that the market ignores the other performance indicators (Saghafi & Kordestani, 2004). Profit which is regarded as the final outcome of the endless accounting process by users of accounting information is influenced by calculated accounting procedures selected by managers. Selecting the accounting procedures may enable a management to decide the identification time and measurement of costs and revenues. The management is motivated to stabilize the company’s earnings growth by applying non-conservative accounting procedures (Eskandari, 2004). This procedure may lessen the quality of accounting earnings, since, as the earning management increases, accruals and Interest on cash flow increase. The greater the distance between profit and cash flow, the quality of earnings is reduced and earnings ability is decreased to explain stock return changes (Mashayekhi et al., 2010). Therefore, the weak correlation between earnings and stock returns is attributed to low quality of earnings. Whatever earnings closer to cash flows, the accruals and quality of earnings are lower and higher, respectively. This paper is provided to answer this question whether the relation between earnings and returns in high quality of earnings companies is different from low quality of earnings companies? (Noravesh, Heidari & Nazemi, 2006). In this investigation, the reaction of participants in capital market toward cash dividends has been examined regarding to quality of earnings. Cash dividends payment provides the possibility of the future cash flow for investors regularly (Arab mazaryazdi & Hamidizadeh, 2011). Cash dividends changes help the capital market’s participants to reassess predictions about the future cash flow. They may reaction to the companies’ cash dividends changes and change the stock price based on it. Predicting the future cash flow based on reported timing earnings would enable the capital market’s participants to reaction toward the announcement of cash dividends changes concurrent with earnings report and change the stock prices (Haghighat & Homayoun, 2003). If reported earnings are persistent and have significant relationship with the company’s future cash flow, the earnings will have regarded high quality, and disclosure of high quality earnings with the investors’ reaction will have changed the stock prices (Khajavi & Nazemi, 2012).
When cash dividends changes is disclosed, it means that the investors have been achieved to an information source and have been predicted cash flows before cash dividends cash disclosure based on reported high quality earnings and applied it on the prices (Noravesh & Majidi, 2011).

Hence, Hejazi and Safarian (1999) examined the impact of earnings announcement on stock price and volume in Tehran stock exchange. The results of the investigation indicate that earnings announcement has information content and the highest turnover is done 2 weeks before annual financial report. Also, Koch and Sun (2008) studied cash dividends increase as a sign of the persistence of previous earnings change. They examined the market reaction toward cash dividends and previous earnings changes. The findings demonstrate that the investors review the reassessment of the previous earnings persistence based on cash dividends changes. Jahankhani and Saffarianiy (2003) investigated the stock price changes after cash dividends policy in Tehran stock exchange. The research findings indicate that stock price decrease is lower than cash dividends distribution and there is no significant relation between cash dividends policy and the correlation of tax rate. Babapour (2011) examined the effective factors on income smoothing. The results indicate that the listed companies in Tehran stock exchange don’t smooth their incomes. As well, smoothing income has no relation to the type of industry. Also, Fairfield, Whisenant and Yohn (2003) investigated the advantage of cash dividends on accrued interests. They reassessed the relation between accruals and the quality of earnings. The regression test of ROA, accrued interests, cash dividends and firm growth indicates that theaccruals have high correlation with operational assets growth and have negative correlation with the future profitability. The results demonstrates that total cash dividends is not higher than accrued interest for predicting profitability and analyzing by interests and cash dividends would not provide the information about the quality of cash dividends.

On the other hand, Zarif (2012) has investigated the identification of effective factors on earnings quality of Iranian companies. In this paper, the related desirable and undesirable properties of each effective elements on earnings quality is provided and it is emphasized that the quality of reported net profit of each company is a function of an amount and degree of accounting and financial desirable and undesirable properties of the elements forming earnings quality in a special time. Also, Lo & Neysim (2013) have investigated taxable income as an index for earnings quality. The result indicated that the accruals which are not considered in taxable incomes are correlated with higher persistent earnings. Assuming the results, policymakers have believed that disclosure of acceptable taxable income by companies would improve the investors and policymakers’ decisions. And, Cohen (2013) has studied the economic results and the factors related with selection of financial quality reports of companies. The results indicated that reporting quality is not necessarily an additional factor for firm’s systematic risk, but rather a special factor for a company which is related to uncertainty and inaccuracy, in the investors underrate them and it doesn’t increase the firm.s capital. Finally, Qem and Debbozorgi (2013) have studied the relation between earning quality by accruals and it’s forming elements with normal/abnormal stock returns. The results indicate the firms’ stock returns are influenced by the amount of accruals and related elements. In other words, there is a significant difference between the lowest and the highest accruals of companies.

The main purpose of the study is to determine the relation between quality of earnings and cumulative abnormal return in the companies which their cash dividends have been increased (decreased). In fact, as quality of earnings getting increased, it is expected that the market is reluctant to cash dividends cash increase, because the major idea of the current paper is that the market reaction to new data is changed conversely with the accuracy of published information. The previous information about the quality of earnings corresponds with new information about cash dividends and both of them indicate the future cash flow increases. Regarding to related news were reflected in previous financial statements and led to the market reaction, it is expected that the market is not reacted seriously to cash dividends increase. The quality of earnings is measured based on the persistence of the earnings.

**METHODOLOGY**

**Research hypothesis**

This research has two hypotheses. The hypotheses have been provided to testing the question of research based on the effect of reported earnings as a predictive variable of the future cash flow on market reaction to disclosure of information related to cash dividends changes as another predictive variable of the future cash flow:

**First hypothesis:** There is a negative relation between earnings quality and market reaction (abnormal stock return) to cash dividends increase.

**Second hypothesis:** There is a positive relation between earnings quality and market reaction (abnormal stock return) to cash dividends increase.

**Research method**

This article is a kind of empirical investigation which cannot be pure empirical regarding the lack of control of all unrelated variables. According to previous analyzing, the current investigation is a kind of quasi-experimental. Some of needed information is extracted from the financial statements of the studied companies to test the hypotheses and the information includes cash flow related to operations, annual earnings before abnormal accruals, operational profit and other net incomes and costs. Additionally, cash dividends changes, firm market value, cash dividends, price-to-book-
ratio, and cash flow coefficient of variation has been calculated. The other part of the obtained information like cumulative abnormal return of companies was taken based on market information. The research population is composed of the listed companies in Tehran stock exchange. The companies were selected as statistics sample which studied related information to operational cash flow, stock price and cash dividends changes were available during (1999-2011). To analyze the information, a invariant regression and multivariate regression test were applied. Firstly, the needed information were taken to perform the calculating test and then regression tests were done to measuring earnings quality and studying the effect of earnings on abnormal stock returns for all studied companies. The major models of the research which selected to estimating earnings quality include (1) (to) measuring earnings and model quality (2) (to) examining the relation between abnormal stock return and cash dividends changes regarding earnings quality.

The research regression model

Model (1): the related model to earnings quality

To evaluating earnings quality based on earning persistence, this model has been used. Earning persistence means repeatability (continuation) of current earning. The coefficient of explanatory variable, i.e. $\beta_1$ is the yield of model (1) estimation:

$$\text{Earn}_{it} = \beta_0 + \beta_1 \text{Earn}_{j,t-1} + \varepsilon_{it}$$

$\text{Earn}_{it}$ = annual earnings before abnormal accruals for the company $j$ in the year $t$ or $t-1$.

Model (2): The related model to earnings quality

To testing the first and the second hypotheses which examine the relation between earnings quality and market reaction to increase (decrease) cash dividends, the following model has been used:

$$\text{CAR}_{it} = \beta_0 + \beta_1 \Delta \text{DIV}_{it} + \beta_2 \text{LMV}_{it} + \beta_3 \text{DIVYLD}_{it} + \beta_4 \text{PR}/\text{BV}_{it} + \beta_5 \text{CFO\_CV}_{it} + \beta_6 \text{QUAL}_{it} + \varepsilon_{it}$$

The model variables are:

$\text{CAR}_{it}$ = the company’s cumulative abnormal return

$\text{LMV}_{it}$ = Logarithm of the market value of the company

$\text{PR}/\text{BV}_{it}$ = price-to-book-ratio of each company

$\text{CFO\_CV}_{it}$ = the coefficient of change of the company’s operational cash flow.

$\text{QUAL}_{it}$ = the company’s earning quality which is obtained by the related model estimation.

$\Delta \text{DIV}_{it}$ = the company’s cash dividends changes.

$\text{DIVYLD}_{it}$ = the company’s cash dividends earnings.

The research variables

Cash dividends changes

A company’s cash dividends may become increase or decrease during the current years compared with the previous year. The following formula is used to calculate the cash dividends changes:

$$\Delta \text{DIV}_{it} = \frac{(\text{DIV}_{it} - \text{DIV}_{i,t-1})}{\text{DIV}_{i,t-1}}$$

Where,

$\Delta \text{DIV}_{it}$ = cash dividends changes of the company $j$ in the year of $t$.

$\text{DIV}_{it}$ = cash dividends of the company $j$ in the year of $t$.

$\text{DIV}_{i,t-1}$ = cash dividends of the company $j$ in the year $t-1$.

The firm size

The firm size is considered as the replacement for the firm information environment. To control the effect of this variable on abnormal stock return, the logarithm of the market value of each company at the beginning of the year which cash dividends has been changed.
Firm size = the logarithm of the market value of each company at the beginning of the year which cash dividends has been changed.

The return of cash dividends

The return of cash dividends is calculated by:
The return of cash dividends—the company’s cash dividends divided by stock price average 30 days before cash dividends announcement which is selected to adjust the vast changes in the market of stock returns. It is assumed that to 30 days before earning announcement, stock price suffers many changes which average price is used to adjust these fluctuations.

Price-to-book-ratio

Price-to-book-ratio is used to control the impact of total investment opportunities of the company on abnormal stock returns. The expected relation between market reaction to cash dividends and Price-to-book-ratio is formed based on free cash flow theory. This ratio is calculated through:
Price-to-book-ratio = the price of per share at the beginning of a year of a cash dividends changes cash dividends by book value of per share of a firm.

The coefficient of variation of cash flow

The coefficient of variation of cash flow has been used to control the influence of the firm’s operational risk on abnormal stock return about cash dividends announcement. To calculate the operational risk, the coefficient of variations of cash flow has been calculated during the measuring of earning quality. In addition, the coefficient of variation of operational cash flow has been calculated through dividing standard deviation of cash flows by the average of cash flows during the study.

Abnormal stock returns

In this article, a short period distance (7 days) is used to calculate returns, that’s because stock return changes during long period distance (one season, for example) is not solely the reflection of earnings information. There are two methods for calculating the cumulative abnormal return during one trading week about cash dividends announcement:

The first method: Using Market Model

Market model describes the relation between rate of return of an asset \( R_{it} \) and return on assets \( R_{m,t} \) statistically:

\[
R_{it} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{it}
\]

\[
R_{it} = \frac{P_{it} - P_{it-1} + D_{it}}{I_{t-1} - I_{t-1}}
\]

\[
R_{m,t} = \frac{I_{t-1} - I_{t-1}}{I_{t-1} - I_{t-1}}
\]

\( R_{m,t} \) = Stock market’s rate of return
\( I_t \) = the index number of stock market price in time t
\( P_{it} \) = the company i share price in the time t.
\( D_{it} \) = the distribution of the ownership interests of share i in the time t which includes cash dividends, value of bonus share and priority.
\( R_{it} \) = the share i rate of return in the time t.
\( D_{it} \) = related to bonus share is calculated as:
\( D_{it} \) = percent of bonus share *
\( D_{it} \) = related to priority is calculated as:
\( D_{it} \) = percent of bonus share – (percent of priority * nominal price)

Where is the trading share price after meeting?
To calculate the abnormal stock returns, firstly, expected return of shares \( R_{it} \) is calculated using the market model, then, expected return was compared with real rate of return to calculate abnormal return:
\[ r_{it} = r_{it} - R_{it} \]

\[ \varepsilon_{it} = \text{abnormal stock i return in the time t} \]
\[ r_{it} = \text{real stock i return in the time t} \]
\[ R_{it} = \text{The expected return of stock i in the time which is calculated based on the market model.} \]

If the special factor of the firm (except the general factors of market) causes the increase in stock returns, \( \varepsilon_{it} \) would have value. In other words, as \( \varepsilon_{it} \) has non-zero value, it indicates that the returns are abnormal which is limited to that firm. \( \alpha \) and \( \beta \) are the model parameters that are different based on each share. The following model is used to calculate the model parameters of each firm:

\[ R_{it} = \alpha + \beta_i R_{mt} \]

The firm monthly gain and monthly stock market gain are calculated for 36 months and the above regression model is estimated to obtain the market model parameters (\( \alpha \) & \( \beta \)) for each firm. Using 36 months data in the above regression model would give partly reliable estimations about \( \alpha \) and \( \beta \). For data more than 48 or 60 months, availability to stock price market would face with limitation.

**The second method: The backwardation of real stock returns with the market return**

Using market model has limitation for calculating abnormal stock return. For example, \( R_2 \) which is obtained from regression for estimating the market model parameters, i.e. \( \alpha \) and \( \beta \) is very low in Iran and the results face with ambiguity. Hence, the real market return has been used rather estimating the expected stock return based on the market model.

\[ R_{it} = R_{mt} \]

\( R_{it} \) = the expected stock returns i seven trading days before and after general assembly.
\( R_{mt} \) = the real stock returns i seven trading days before and after general assembly.

The abnormal stock return is calculated:

\[ r_{it} = r_{it} - R_{it} \]

\( r_{it} \) = abnormal stock i return in the time t
\( R_{it} \) = real stock i return in the time t
\( R_{it} \) = expected stock i return in the time t which is assumed equally with the real market return.

After calculating the abnormal stock return, the following formula is used to estimate the cumulative abnormal return in 1 trading week around earning announcement:

\[ CAR_{it} = \prod_{t=7}^{7} (1 + \varepsilon_{it}) \]

The cumulative abnormal return \( (CAR_{it}) \) is calculated based on the above formula and it is placed as the dependent variable in the research model to test the hypotheses.

**RESULTS**

To measure the quality of earning, in this article, the model (1) is estimated at first. Then, the model (2) has been used to test the hypothesis which its results are mentioned below.

**The first hypothesis’ test result**

The first hypothesis states that there is a negative relation between earnings quality and market reaction to cash dividends decrease. Table 1 is shown the result of this theory based on model (2) estimation.
Table 1. The first hypothesis’ test result.

<table>
<thead>
<tr>
<th>Explanatory variable</th>
<th>Predicted sign</th>
<th>Coefficient of variation</th>
<th>Estimated t</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash dividends increase</td>
<td>+</td>
<td>0.014</td>
<td>0.145</td>
<td>0.887</td>
</tr>
<tr>
<td>Firm size</td>
<td>-</td>
<td>-0.109</td>
<td>-0.637</td>
<td>0.535</td>
</tr>
<tr>
<td>The effect of shareholders’ behavior</td>
<td>+</td>
<td>0.984</td>
<td>8.449</td>
<td>0.000</td>
</tr>
<tr>
<td>Set of investment opportunities</td>
<td>+</td>
<td>0.070</td>
<td>0.403</td>
<td>0.693</td>
</tr>
<tr>
<td>Operational risk</td>
<td>+</td>
<td>0.050</td>
<td>0.455</td>
<td>0.656</td>
</tr>
<tr>
<td>Earnings quality</td>
<td>-</td>
<td>-0.179</td>
<td>-1.783</td>
<td>0.033</td>
</tr>
</tbody>
</table>

$R^2 = .896$ adjusted $R^2 = .851$

As it can be seen in graph 1, the effect of shareholders’ behavior (cash cash dividends return) has positive and significant association with cumulative abnormal return. Cash dividends changes and sets of investment opportunities have positive but insignificant relation with the cumulative abnormal return. Firm size (logarithm of market value) has negative and insignificant association with the cumulative abnormal return, as we expected.

The second hypothesis’ test result

The second hypothesis states that there is a positive relation between earnings quality and market reaction to cash dividends decrease. Table 2 shows the hypothesis’ result test based on model (2) estimation. As it can be seen in Table 2, there is a positive and significant relation between the cumulative abnormal return and the companies which cash dividends have been changed, and the hypothesis is confirmed at 5% error level.

Table 2. The second hypothesis’ test result.

<table>
<thead>
<tr>
<th>Explanatory variable</th>
<th>Predicted sign</th>
<th>Coefficient of variation</th>
<th>Estimated t</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash dividends decrease</td>
<td>+</td>
<td>0.034</td>
<td>0.149</td>
<td>0.884</td>
</tr>
<tr>
<td>Firm size</td>
<td>+</td>
<td>0.169</td>
<td>0.524</td>
<td>0.613</td>
</tr>
<tr>
<td>The effect of shareholders’ behavior</td>
<td>-</td>
<td>0.745</td>
<td>8.449</td>
<td>0.009</td>
</tr>
<tr>
<td>Set of investment opportunities</td>
<td>-</td>
<td>-0.032</td>
<td>-0.637</td>
<td>0.271</td>
</tr>
<tr>
<td>Operational risk</td>
<td>-</td>
<td>-0.261</td>
<td>-1.172</td>
<td>0.271</td>
</tr>
<tr>
<td>Earnings quality</td>
<td>+</td>
<td>0.350</td>
<td>2.532</td>
<td>0.016</td>
</tr>
</tbody>
</table>

$R^2 = .655$ adjusted $R^2 = .424$

As it can be seen in graph 2, the effect of shareholders’ behavior (cash cash dividends return) has positive but significant association with cumulative abnormal return. Cash dividends decrease and sets of investment opportunities have positive but insignificant relation with the cumulative abnormal return. Sets of investment opportunities and operational risk have negative but insignificant relation with the cumulative abnormal return, as we expected.

CONCLUSIONS AND DISCUSSION

In essence, as earnings quality is high, it is expected that the market reacts coldly to the cash dividends increase, because the main purpose of the research is to examine the market reaction to new information is conversely changed to disclose information accuracy. The old news about earnings quality and recent news about cash dividends increase are corresponded together and both indicate future cash flows. Regarding the related news to earnings quality was reflected in previous financial statements and were led in market reaction, it is expected that the market would not seriously react to cash dividends increase. When cash cash dividends are decreased, the investors may come to a conclusion that the company’s future profitability is decreased. On the other hand, reported high quality cash dividends demonstrate the company’s capacity for keeping future profitability and future cash flow increase which this expectation wouldn’t be met. Hence, the previous news about high quality cash dividends which indicates keeping or increasing the future cash flows are corresponded with the recent news about cash dividends decrease which indicates the future cash flow decrease. It is expected that market has positively reacted to the recent news, and decreases stock return simultaneously as cash dividends decrease is announced. According to the findings, these expectation are met in Tehran stock exchange and earnings quality in market reaction to cash dividends changes are considered as the general reliable information, that’s because the basis for earning persistence has been positively increased as the quality criteria of quality in the relation between earning quality and abnormal stock return of companies which their cash dividends have been significantly increased (decreased). This finding is correlated with results of the previous researches. Finally, the following suggestion is offered based on the obtained results:
1. In this research, earning persistence is used for measuring earning quality. In addition, the other criteria such as earnings predictability, relation between earning and operational cash flow, relativity of earnings to stock assessment and information content of earnings.

2. In related hypotheses to quality earnings, the coefficient of variations of cash flow is used as operational risk alternative which statistically is not significant in 5% error level. Variability of profit can be used for controlling operational risk. To calculate variability of profit, standard deviation of ROA can be applied. Also, price-to-book-ratio is used to control the sets of investment opportunities. To do so, P/E is applied.

REFERENCES


