

The Relationship between Earnings Persistence and Stock Market Reaction (Evidence from firms listed in Tehran Stock Exchange)

Mohammad Asadi Chaharborj¹, Mohammad Bagher Rostami²

1. Master of Accounting, Islamic Azad University, Tehran, Iran

2. Ph.D. student of Futures Studies, Farhangian University, Tehran, Iran

Abstract: Earning is one of the key factors firm managers incorporate into their decision-making. Earnings persistence and its components i.e. cash flows and accruals can significantly impact earnings quality and guide managers in their decision-making process. The purpose of the present research is to study earnings persistence, and persistence of cash flows and accruals and their impact on performance of market participants. To this end, the data from 100 production firms over the period 2008-2016 is examined and analyzed using F-test and multiple regression analysis. In this article, along with explanation of earnings quality, earnings persistence, and its cash and accrual components, their relationship with stock market reaction is also examined. The results indicate that earnings and its components have high persistence and stability; yet, they have no significant relationship with stock market reaction (abnormal return on stocks).

Keywords: *earnings persistence, earnings, operating cash flows, accruals, market reaction*

INTRODUCTION

Accounting earnings is important for decisions made by users of financial statements. The effect of accounting earnings on decisions of financial statement users has put it in the center of attention and brought forth different issues regarding the value of earnings. Earnings quality is one of these topic(s which have triggered a lot of discussions recently. Persistence of earnings depends on the persistence of its components i.e. cash and accruals (Saghafi & Kordestani, 2004).

In the process of evaluating a firm's value, not only should the financial analysts be concerned with the quantity of earnings, they should also pay attention to its quality as well. Earnings quality refers to the potential for earnings growth and probability of realization of future earnings. In other words, rather than depending on earnings per share in current year, a share's value depends on our expectation of firm's future, profitability, and certainty of future earnings. Financial analysts try to assess the earnings prospect in a firm. Earnings prospect refers to a combination of desirable and undesirable features of net earnings. For instance, a firm with stable items and elements in case of profits or losses would have higher earnings quality in comparison with a firm which lacks such stable items and elements. This allows analysts to forecast future earnings with higher certainty and reliability [Meshki & Nourdideh, 2012].

As the outcome of a long accounting process, and emphasized by users of accounting information, accounting earnings is affected by numerous factors such as judgments, allocations, and estimations. Presence of such factors has reduced the credibility and quality of earnings as an important and fundamental source of information which can contribute to decision making. On the other hand, ignoring the quality of earnings leads to making wrong and inappropriate decisions by investors and other users; this in turn would lead to inefficient allocation of limited resources and waste resources by allocating them to inefficient business units and ventures.

The findings of researches which study earnings quality indicate that firms with high earnings quality are better capable of attracting investment, reducing capital costs, and decreasing liability costs; and the direct relationship between earnings quality and return on equity is also confirmed. Therefore, in addition to the quantity of reported earnings, earnings quality is also important in decisions made by investors and users. The present research seeks to answer this question: is there a significant relationship between earnings quality and stock market reaction which can be evaluated based on criteria of earnings persistence and its cash and accrual components?

Research literature and background

Following the studies on earnings quality, in this article, earnings quality and its cash and accrual components and their relationship with stock market reaction is investigated:

Bozorg Asl & Salehzadeh (2015) study the relationship between managerial capability and earnings persistence focusing on accruals and cash flows in firms listed in Tehran Stock Exchange. In this research, the data of 75 firms in the period 2005-2011 is evaluated. The results confirm a positive relationship between management capability and earnings persistence as well as components of accruals and cash; however, the management capability has a stronger relationship with accruals rather than cash flows.

Talebniya et al. (2015) study The Relationship between Accruals Quality and Non-systematic Risk. In this study, data from 91 companies listed in Tehran Stock Exchange during the years of 2007 to 2012 has been collected. The results show that discretionary accruals, ability of accruals and the information content of accruals are significantly correlated with the Non-systematic risk.

Aflatouni (2015) studies the relationship between accruals quality and earnings persistence and speed of information reflection in stock price in the period 2003-2012 in 112 listed firms in Tehran stock exchange. The results indicate that the higher the quality of accruals and the persistence of earnings, the faster would the information be reflected in stock prices. Also the results reveal that there is a positive and significant relationship between risk of accounting and non-accounting information reflection and risk premium.

Nikoumaram et al. (2014) study Economic Consequences of Accounting Information Quality focused on Earnings persistence in a span of 12 years from 2000 to 2011. Results show that Accounting Information Quality- in some cases- has the positive relation only with the various measures such as the Tobin's q index, the market value to book value of owner's equity ratio, and price to earnings per share ratio. In fact, measure Earnings Persistence has the meaningful content and positive economic consequences in Tehran stock exchange.

Morshedzadeh et al. (2014) study Earnings persistence, economic conditions and the value of accounting information content in firms listed in Tehran stock exchange in the period 2005-2011. The results show that information content in non-traditional firms is more valuable than traditional firms, although through time their distance becomes less. Separation of persistent and non-persistent components of earning increases the content value of information. Also, there is no significant relationship between information content value of Iranian firms and economic conditions.

Jamalianpour & Saghafi (2013) use information from 280 firms in the period 2008-2010 to study Abnormal Accruals, Earning Instability and Financial Distress. The results of study demonstrated that in the majority of cases there is meaningful correlation between financial distresses to earning quality. The results of the study showed that the degree of using the accrual items in different portfolios that ranked with regard to the possibility of bankruptcy is various. At the end, the study obtained similar results with evaluating the distribution method of exploiting of accrual items in the classified companies according to article no.141 of business legislation. Therefore the distribution of utilization degree of accruals in the bankrupt companies is skewed.

Meshki & Nourideh (2012) study The Effect of Earnings Management on the Earnings Persistence of Companies Listed in Tehran Stock Exchange by using the financial data of 95 firms listed in Tehran Stock Exchange during 2005-2010. The results show that earnings persistence in the firms that do earning management is higher than other firms. The results also demonstrated that there is a positive relationship between earnings smoothing and earning per share persistence.

Saghafi & Kordestani (2004) examine earnings quality using three criteria i.e. relationship between operating cash flows and earnings, earnings predictability, and earnings persistence. The results suggest that: 1- concerning earnings quality based on earnings persistence, market reaction to increase of cash earnings is positive despite predictions; 2- concerning earnings quality based on relationship between earnings and operating cash flows, market reaction to reduction of cash earnings is positive; 3- concerning earnings quality based on earnings predictability, market reaction to variance of cash earnings and unexpected variance of earnings is positive and statistically significant.

Bahramfar (2004) studies the effect of accounting variables on abnormal future return on stocks in Tehran stock exchange. He concludes that accounting variables (financial leverage, accruals, return on investment ratio, fixed assets growth, change in operating cash flows, firm's market value, debt to equity ratio, borrowing cost, and cash dividend distribution) affect abnormal future return on stocks.

Atashband, Moeinadin, and Tabatabaenasab (2014) compare and examine the Role of Earnings Persistence and Its Components in Explaining the Future Profitability in Tehran Stock Exchange. Statistical sample in this study is comprised of 114 listed firms on the Tehran Stock Exchange over the years from 2006 to 2011. The findings reveal that the distributed earnings significantly impact the future profitability; and the components of the net income are directly associated with the future profitability.

Hong-Bok & Gee-Jung (2010) study earnings information content, its cash and accrual components, and their impact on investors' decision-making. They conclude that earnings and its components have high persistency and affect the decisions made by investors.

Jennifer Francis et al. (2004) examine the relation between the cost of equity capital and seven attributes of earnings: accrual quality, persistence, predictability, smoothness, value relevance, timeliness, and conservatism. Research findings indicate that firms with the least favorable values of each attribute, considered individually, generally experience larger costs of equity than firms with the most favorable values.

In their research, Schipper & Vincent (2003) define high quality earnings as ones which affect the decisions of users; they study the relationship between criteria of earnings quality evaluation and their benefits in decision-making. They conclude that in addition to usual criteria, earnings quality also depends on type and extent of business deals based on accounting information, ability to analyze data by the users, and non-financial information. Kenan (2001) studies stock quality, earnings, and return and concludes that accruals have a negative relationship with future return on stocks. On that basis, weak relation between earnings and return is attributed to low quality of earnings. The researcher also indicates that if the earning is closer to cash flow, accruals would be less and earnings quality and future return on stocks would be higher.

Richardson et al. (2001) study the relationship between accruals and future earnings. The results indicate that future earnings are more probable to decrease in firms with more accruals rather than firms with less accruals; also, components of distributed earnings has a direct relationship with future earnings.

Research hypotheses

1st hypothesis: there is a significant relationship between current period earnings and next period earnings.

2nd hypothesis: there is a significant relationship between operating cash flows and next period earnings.

3rd hypothesis: there is a significant relationship between current accruals and next period earnings.

4th hypothesis: there is a significant relationship between earnings persistence and market participants' performance.

5th hypothesis: there is a significant relationship between cash flow persistence and market participants' performance.

6th hypothesis: there is a significant relationship between accruals persistence and market participants' performance.

RESEARCH METHOD

The present research is a deductive study and uses both field and library approaches. In alignment with research questions, the data regarding research variables is collected from information presented in financial statements of audited firm in Tadbir database. Afterwards, each independent variable is examined by corresponding equations using SPSS software programs.

In this stage, the obtained information and data is studied in order to examine research hypotheses. In the process of data analysis, it is important that the researcher analyzes the data in alignment with research objectives and in order to answer research questions and examine research hypotheses. To that end, the hypotheses are examined by F-test using multiple regression method. Below, a summary of statistical methods used is presented. The following equation is used to assess earnings persistence:

Equation 1:
$$E_t = y_0 + y_1 E_{t-1} + \epsilon_t$$

The explanatory coefficient E_{t-1} indicates that in earnings persistence model which is a 1st order auto-regression model, y_1 represents earnings persistence. When the obtained value for y_1 is closer to 1, earnings persistence is more; and when that value is closer to 0, the earnings would be more temporary and volatile.

In order to determine whether earnings persistence is more associated with accruals or cash flows, the following equation is used.

Equation 2:
$$E_t = y_0 + y_1 CFO_{t-1} + y_2 ACC_{t-1} + \epsilon_t$$

CFO_{t-1} is current operating cash flows and ACC_{t-1} is current accruals. If y_2 is larger than y_1 then earnings persistence would be more due to cash components rather than accrual components. This means that investors put more emphasis on cash components for expected earnings and predicted future potential earnings.

In order to determine whether investors respond immediately to earnings persistence or delay their response till next year financial reporting, equation 3 is used.

Equation 3:
$$AR_t = \alpha_0 + \beta_1 (E_t - y_0^* - y_1^* E_{t-1}) + \epsilon_t$$

In order to determine whether investors respond immediately to persistence of cash flows and accruals or delay their response till next year financial reporting, equation 4 is used.

Equation 4:
$$AR_t = \alpha_0 + \beta_1(E_t - y_0^* - y_1^*CFO_{t-1} - y_2^*ACC_{t-1}) + \varepsilon_t$$

If based on persistence of cash flows and accruals, the firm value is predicted correctly in equation 4, then: $y_2 = y_2^*$ and $y_1 = y_1^*$; moreover, it indicates that there would be no incorrect pricing and abnormal return on stocks.

Variables

Independent variables

Independent variables are extracted and calculated in two steps. In this sense, in the first step, operating profits (and loss), operating cash flows, and accruals are measured in proportion to firm's assets based on available data. In the next step, earnings persistence, cash flows, and accruals are assessed using equations 1 and 2.

Dependent variables

Market reaction (abnormal return on stocks):

AR= total return on stocks in one period- return on the market in one period

Statistical population and sample

The statistical population of the present research is comprised of all firms listed in Tehran Stock Exchange; firms which meet the following criteria are selected as the sample for this study:

The firm's fiscal year should end in March 20th.

Firms which do not have operation lag in their financial period or have not changed their financial period.

Studied firms should be a production company. Due to their different nature and different classification of items of financial statements, investment firms are excluded from the study.

Firms whose financial data from the period 2008-2016 is available.

Based on the above-mentioned criteria, among firms listed in Tehran stock exchange, 120 companies have been selected in preliminary sampling. Then, since some firms had changed their financial period during the studied period, and since some firms' information has was not available in the studied period, the sample size has been reduced to 100 firms.

Research findings

Results of first hypothesis examination: there is a significant relationship between current period earnings and next period earnings.

In order to test this hypothesis, equation 1 has been used.

Table 1: Results Of 1st Hypothesis Examination

| | |
|---------------------------------------|-------|
| Coefficient of determination | 0.457 |
| Adjusted coefficient of determination | 0.456 |
| Independent variable coefficient | 0.545 |
| p-value | 0.000 |

As the table above suggests, there is a positive and significant relationship between current period earnings and next period earnings. Therefore, the first research hypothesis is confirmed at the 5% significance level.

Results of first hypothesis examination: there is a significant relationship between operating cash flows and next period earnings.

In order to test this hypothesis, equation 2 has been used.

Table 2: results of 2nd hypothesis examination

| | |
|---------------------------------------|-------|
| Coefficient of determination | 0.468 |
| Adjusted coefficient of determination | 0.466 |
| Independent variable coefficient | 0.75 |
| p-value | 0.000 |

As the table above suggests, there is a positive and significant relationship between operating cash flows and next period earnings. Therefore, the second research hypothesis is confirmed at the 5% significance level. Since the coefficient of independent variable of cash flows is larger than that of accruals, therefore it is concluded that earnings persistence is more due to accruals rather than operating cash flows.

Results of third hypothesis examination: there is a significant relationship between accruals and next period earnings. In order to test this hypothesis, equation 2 has been used.

Table 3: Results Of 3rd Hypothesis Examination

| | |
|---------------------------------------|-------|
| Coefficient of determination | 0.468 |
| Adjusted coefficient of determination | 0.466 |
| Independent variable coefficient | 0.61 |
| p-value | 0.000 |

As the table above suggests, there is a positive and significant relationship between accruals and next period earnings. Therefore, the third research hypothesis is confirmed at the 5% significance level. Same as the second hypothesis, since the coefficient of independent variable of cash flows is larger than that of accruals, it is concluded that earnings persistence is more due to accruals rather than operating cash flows.

Results of fourth hypothesis examination: there is a significant relationship between earnings persistence and performance of market participants. In order to test this hypothesis, equation 3 has been used.

Table 4: results of 4th hypothesis examination

| | |
|----------------------------------|------------------|
| Coefficient of determination | [0.0002 , 0.048] |
| Independent variable coefficient | [-0.812 , 2.750] |
| p-value | [0.287 , 0.999] |

As indicated above, there is no significant relationship between earnings persistence and performance of market participants [abnormal return on stocks]. Therefore, the fourth research hypothesis is rejected at the 5% significance level.

Results of fifth hypothesis examination: there is a significant relationship between operating cash flows persistence and performance of market participants. In order to test this hypothesis, equation 4 has been used.

Table 5: results of 5th hypothesis examination

| | |
|----------------------------------|-------------------|
| Coefficient of determination | [0.0002 , 0.175] |
| Independent variable coefficient | [-5.112, 2.512] |
| p-value | [0.277, 0.999] |

As indicated above, there is no significant relationship between cash flows persistence and performance of market participants [abnormal return on stocks]. Therefore, the fifth research hypothesis is rejected at the 5% significance level.

Results of sixth hypothesis examination: there is a significant relationship between accruals persistence and performance of market participants. In order to test this hypothesis, equation 4 has been used.

Table 6: results of 6th hypothesis examination

| | |
|----------------------------------|--------------------|
| Coefficient of determination | [·0.0002, 0.0034] |
| Independent variable coefficient | [-5.112, 2.512] |
| p-value | [0.277, 0.999] |

As indicated above, there is no significant relationship between accruals persistence and performance of market participants [abnormal return on stocks]. Therefore, the sixth research hypothesis is rejected at the 5% significance level.

Results obtained from tests confirm first, second, and third hypotheses and reject fourth, fifth, and sixth hypotheses. A summary of obtained results and findings is presented below:

Current earnings, operating cash flows, and accruals directly affect and have a significant relationship with next period earnings. Also, examination of equations in second and third hypotheses indicates that earnings persistence is more due to accruals rather than operating cash flows.

Earnings persistence, operating cash flow persistence, and accruals persistence have no impact on performance of market participants [abnormal return on stocks] and have no significant relationship with it. Since $y_2=y_2^*$ and $y_1=y_1^*$ it is concluded that prediction of firm value based on earnings persistence, cash flows, and accruals is done correctly.

Below, some applied suggestions are put forward:

The stock exchange organization should require listed firms to release their information regarding earnings quality so that investors can easily evaluate the firm and make more logical decisions.

Investors, market analysts, and other stakeholders are advised to take earnings quality as a valuable source of information into consideration incorporate it into their decision-making models.

In the end, some suggestions for future studies are put forward:

Evaluation of earnings quality using other assessment approaches and standpoint and investigating its relationship with stock market reaction.

Studies similar to this research are conducted in separate industries so that the extent and importance of variables in this research is determined in different industries.

Identification and study of earnings persistence and market reaction in investment firms, which have not been studied in this research.

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