

## Investigation of the Affected Factors of Earnings Persistency in the Firms Listed in Tehran Stock Exchange

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### ABSTRACT

There are various studies which define earnings persistency as the durability and recurrence of the earnings. This study intends to examine some of the factors influencing on the earnings persistency among Tehran Stock Exchange listed firms. We have used first order auto regression to determine the persistency of the earnings. The data of this paper covers a period of years from 2006 to 2009. The data is analyzed, using cross-sectional regressions and pool data. The findings on 444 firm-year observation revealed that the operating cash flow, firm size, interest bearing debts and directors' independence have direct impacts on the earnings persistency. The higher the cash component of the earnings, the lower the interest bearing debts is. Finally, when the independence of the directors is higher, the persistence coefficient and earnings persistency will be at a higher level.

**KEYWORDS:** Earnings Persistency, Operating Cash Flows, Firm Size, Interest Bearing Debts, Director's Independence.

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### 1. INTRODUCTION

The information needs of the external users are the main incentives of accounting goals and financial reporting. The main objective of the financial reporting is describing the financial position and performance of the business for the external users. The major instruments for carrying information to the mentioned people are basic financial statements and the notes to these statements which are called the final production of the accounting and financial reporting process.

Income statement is a basis for investment and other related decisions. Measuring income has always been considered as one of the challenges which the regulators of accounting standards confront with. Investors highly rely on the reported information related to earnings. This overemphasize is because of evaluating future income and the perspectives of cash flows along with evaluating its future cash flows achieved through dividends and increase in the stock price.

The role played by accounting income in securities pricing has been highly regarded as one of the important questions in accounting studies. Accounting income and its components are the main important information utilized by the investors and financial analyzers in making investment decisions. Financial analyzers generally consider the reported income as a dominant factor in investigations and judgments. Investors also rely on the financial information documented on the financial statements of the economic entities especially the reported income to make investment decisions [1]. The prior evidences demonstrate that the accrual income plays a key role in pricing process. This is because timing problems of the figures of cash flows are mitigated [2, 3]. Shareholders, as the owners of the economic entities endeavor to increase their wealth. Evaluating the performance of the entities is then very essential for them. Increasing wealth lies in the satisfactory performance of the entities. There are many researchers who have reported that increasing cash components of the income leads to earnings persistency and consequently growth in the stock price of the entity [4].

The prior accounting literature reveal that a broad spectrum of the users, namely the investors, creditors, managers and analyzers use accounting income in their decision making and highly consider accounting income. It could be said that the number of the studies conducted about the earnings persistency is more than the researches of other fields. Therefore, identifying the factors affecting earnings consistency might contribute to the users of the financial statements in making optimum decisions. Consequently, the impacts of the variables of firm size, the ratio of the interest-bearing debts to the owner's equity, operating cash flows and the percentage of the non-executive managers on the earnings persistency has been examined.

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## 2. Theoretical Bases

Earnings persistency has been defined as the durability and recurrence of the earnings. According to the literature review, the reported net income has an information loading and many researchers investigated the relationship between accounting income and stock price [2]. Therefore, examining the factors influencing on the earnings persistency might have an essential significance. Firm size is another factor contributing the firms in reaching the satisfactory performance level in long term. Larger firms access more resources as compared to the smaller ones. These firms also have more ability in receiving loans and finance their required funds for the operations. The larger firms are more supported by the government and that's why it is expected that these firms have more persistency in their earnings.

Today, many of the firms need cash for long-term investments and running their operations. There might be lack of cash in these firms and this might lead to the inability in making decisions for investment. Receiving financial loans is one of the most common ways of financing for the companies. However, this method conveys an interest expense. Increasing the interest-bearing debts causes an increase in the costs of the firms and reducing the income. Hence, many of the creditors tend to mention some items in the loan contracts to avoid excess of the debt ratios. According to above, it is expected that the lower level of interest-bearing debts indicate the higher level of earnings persistency.

Accounting income is reflected in the income statement and consequently there are some activities and events that are recorded and measured in accounting system. Earnings have two portions of accruals and operating cash flows. Various studies have shown that the higher cash component of the income is an indicator of the higher quality of the earnings [5]. In other words, there is a direct relationship between earnings quality and operating cash flows. Therefore, it is expected that the higher level of cash component of the earnings leads to the more persistency of the earnings.

From the agency theory perspective, the presence of the non-executive managers in a board of directors and their monitoring performance as independent individuals, helps mitigating the conflict of interest among the shareholders and the directors. Fama and Jensen (1983) emphasized on the significance of the role of non-executive members in exerting the control over tasks of the board of directors. It seems that non-executive directors of the board are in a better position for protecting the shareholders' interests against the management opportunistic view. They provide the chance to mitigate the unfair operations of the managers through the monitoring activities on the executive managers. This function will increase the earnings quality and this is an element stimulating the earnings persistency.

## 3. Research Background

Sloan (1996) examined the persistency ratio of accruals in relation to cash component of the income. He evidenced that increasing earnings persistency is the result of increasing cash components; while decreasing the earnings persistency is the result of increasing accruals of the income. This is also because of the subjectivity nature of the accruals [7].

Xie (2001) tried to find the relationship between abnormal accruals and persistency of the accruals component of the income. He documented that the higher level of abnormal accrual shows the lower level of persistency and stability of the accrual component of the income [8].

Dichev and Dechow (2002) determined the earnings quality by using the accuracy level of the accrual accounting estimates and assumptions. They believe that the accounting income quality reduces by increasing errors in estimating future cash flows. In other words, if the accruals could better estimate the future cash flows, then the accounting income will be of more quality. They also state that the firms with low quality accruals have a lower quality of earnings [9].

Richardson *et al.* (2005) indicated that the accruals with lower reliability cause lower persistency of the earnings. Their findings demonstrated that an unreal pricing approach is happened because of the incomplete prediction of the investors. They also analyzed the relationship between the reliability of the accruals and earnings persistency and documented that the low reliability of the accruals leads to declining the earnings persistency [10].

Dechow and Ge (2005) compared the earnings persistency from a balance sheet approach and income statement approach and found that earnings persistency is affected by the level and sign of the accruals. High quality accruals improve the earnings persistency, but this doesn't hold for the firms with low quality accruals. That is, their earnings persistency is lowered [11].

Wang and Zhan (2006) investigated the relationship between accruals, operating cash flows and earnings persistency [5]. Their findings are as follows:

1. Profitable firms have more earnings persistency as compared to the non-profitable ones.
2. Those firms with higher cash components of the income have more persistency in their earnings.
3. Those firms with accruals of higher quality also have more persistency in their earnings.

Dechow and Ge (2005) concluded that those firms with more accruals have earnings with more persistency as compared to the firms with lower accruals [11].

Jaggi et al. (2007) endeavored to examine the relationship between directors' independence and earnings management in Hong Kong Stock Exchange. They showed that the presence of the non-executive directors in the board leads to reducing managerial opportunities and it increases the quality of the reported earnings [12].

Dechow et al. (2008) analyzed the pricing and the persistency of the cash components of the income. Their findings demonstrated that the cash components of the income have more persistency in comparison with the accrual components and this will lead to earnings persistency [4].

Oei et al. (2008) explored the relationship between earnings persistency, accruals and outstanding stocks in Australian firms [13]. Their findings are summarized below:

1. The persistency of the accruals in comparison with the cash components is lower.
2. The persistency of the components of accruals has a positive relationship with the components' reliability.
3. There is no relationship between earnings persistency and outstanding stocks.

Zariffard (2008) believes that there are various perspectives for measuring the earnings' quality. Some of these views consider that the quantitative estimation of the earnings is impossible. He designed a framework composed of elements and factors related to the quality evaluation of the earnings and concluded that the earnings quality is a function of the level and the degree of satisfactory and unsatisfactory characteristics of the financial accounting and the personal views of the analyzers [14].

Noravesh et al. (2006) studied the accruals quality with an emphasis over the estimation error. Their findings showed that higher level of the accruals leads to lower earnings quality. Therefore, the more accruals mean the less quality and less earnings persistency [15].

#### 4. Research Hypotheses

The following hypotheses are defined for this study:

1. Larger firms have more persistency in their earnings in comparison with the smaller firms.
2. Those firms with lower leverages have more persistency in their earnings.
3. Those firms with higher operating cash flows have more persistency in their earnings.
4. Those firms with more non-executive directors have more persistency in their earnings.
- 5.

### 5. METHODOLOGY

#### 5.1. Tertiary, Population and Sample

The time tertiary of this study covers a four year period involving the years of 2006 to 2009. The information about the net income in 2010 has been also used in the analyses. The whole firms listed on the Tehran Stock Exchange compose our population. The data related to these firms are highly available and they are more reliable than other firms. That's why we have selected these listed firms. These firms also have to follow the rules and regulations of the Tehran Stock Exchange and they have no difference in the regulations required. This makes the financial statements more homogenous.

The present study applies filtering technique to select the examined firms. Those firms which were not of the following characteristics were omitted and finally the remaining ones were used as the sample. These firms ought to meet the following requirements:

1. An end of fiscal year which is consistent with the calendar year
2. No changes in the time period of the study
3. An active participation in the Stock Exchanges during the study
4. Available data about the performance
5. Not classified as the investment or financial intermediary companies.

According to these limitations, there were 111 firms selected as the sample.

Table1. Number of the Firms

Industry name	Number of the firms
Mineral products	11
Food and beverages	16
Non-mineral products	21
chemicals	30
productions	21
Basic Minerals	6
others	7
total	111

## 5.2. Data Collection Approach

We have used the prior studies to gather the required information. The theoretical bases of the study have been collected from the available expert books and journals. The data of the selected firms have also been collected from the financial statements and the notes to these statements along with the software verified by the Stock Exchange such as Dena Sahm and Tadbir Pardaz. The data analyses and hypotheses testing have been conducted by using cross-sectional regression and pooled data.

## 5.3. Best Linear Unbiased Estimation (BLUE)

According to the assumptions of the classic models of the linear regression, the ordinary least squares method has the satisfactory estimated situation. Consequently, one of the measures to select a regression model which is better than the others is that the regression coefficients should have less variance than the other estimation. Another measure is selecting adjusted  $R^2$ .

$R^2$  is used to measure the explanatory power of the regression. When the dependent variables are similar,  $R^2$  is used to select the Henry model (1961).

## 5.4. Durbin-Watson Statistics

This measure is used to detect the autocorrelation in the residuals. This statistic is described as follows:

$$\varepsilon_t = P\varepsilon_{t-1} + V_t$$

Where:

P is the autocorrelation parameter with the value of  $-1 \leq p \leq +1$  and  $V_t$  is the independent variable by assuming  $V_t \approx N(0, \sigma^2)$ . In this model, the positive P shows a positive autocorrelation and the negative P is an indicator of a negative autocorrelation. There is no autocorrelation when  $P=0$ . The following assumption is used to test the Durbin-Watson statistic.

$$\begin{aligned} H_0: p &= 0 \\ H_1: p &\neq 0 \end{aligned}$$

$P=0$  means that there is no sequential correlation and the other assumption means that this correlation is present.

## 5.5. Significance Test of the Regression (F-Statistics)

When there is no relationship between the dependent and independent variable in the line equation of the multivariate regression, all of the coefficients of the equation should be zero. Considering the multivariate regression model, the decision making rule is as follows:

$$H_0: B_1=B_2=B_3=\dots=B_k=0$$

$$H_1: B_i \neq 0 \quad i=1,2,\dots,m$$

When the calculated f-statistics from the regression model is more than the f-statistics of the figure, then  $H_0$  is rejected at the significance level of 95 percent. And the  $H_0$  is accepted otherwise.

## 6. Research Variables and Models

The following regression models are used to test the hypotheses:

$$E_{it+1} = \alpha + \beta_1 E_{it} + \beta_2 DUM_{it} + \beta_3 DUM_{it} * E_{it} + u_{it}$$

Where in it;

$E_{it+1}$  is the future net income

$E_{it}$  is the current net income

$DUM_{it}$  is the dummy variable defined as zero and one

The dummy variable for the first hypothesis is defined as a variable which takes one when the firms are larger. Additionally, in the second hypothesis for firms with lower debt ratio, the dummy variable takes 1 and for the other firms takes zero.

In the third hypothesis, this variable takes 1 for the firms with more operating cash flows and zero, otherwise. Finally, for the fourth hypothesis, the firms with more non-executive managers take 1 and zero, otherwise.

For confirming the hypotheses,  $\beta_3$  should be positive and significant.

### 6.1. Dependent Variable

Future Net Income: captured from the income statement and is shown by  $E_{it+1}$ .

**6.2. Independent Variables**

*Current Net Income:* the coefficient of this variable is an indicator of the earnings persistency and is shown by  $E_{it}$ .

*The Ratio of Interest-Bearing Debts to the Total Assets:* Interest-bearing notes refer to the level of current and incurrent debts which require paying interests at the specific time periods.

*Firm Size:* this is measured by the natural logarithm of the total assets.

*Operating Cash Flows:* these cash flows derive from the main functions of the operating revenue which is reflected in the cash flow statement.

*Directors' Independence:* it is the same as the percentage of the non-executive directors of the board.

**7. Findings**

**7.1. Descriptive Statistics**

Figure 2 shows the descriptive statistics of the research variables. The findings reveal that the average net income of the firms in the examined period is nearly ... percent. The average of the interest-bearing debts shows that about .... Percent of the firms' assets are composed of the interest-bearing debts. The average operating cash flow indicates that about ... percent of the firms' earnings are composed of cash components. According to the prior studies, the higher cash components show the higher quality of the earnings. But the descriptive statistics of the managers' independence shows that nearly 1/6 of the managers are non-executives and most of the directors are executive ones. This doesn't hold for the similar foreign studies.

Table2. Descriptive Statistics of the Variables

Definition	Mean	Median	Maximum	Minimum
Net Income	0.108	0.102	0.639	-0.329
Debt Ratio	0.285	0.256	1.04	0
Operating Cash Flow	0.098	0.085	0.816	-0.433
Directors' Independence	0.177	0	1	0
Firm Size	5.623	5.543	7.09	4.06

**7.2. Hypotheses Results**

**7.2.1. The First Hypothesis**

The first hypothesis is about the comparison of the larger firms with smaller ones in terms of the earnings persistency. F-statistics and significance level confirm the significance of the model for testing the hypotheses. The findings of the Durbin-Watson test show that there is no autocorrelation of the statements. As findings indicate,  $\beta_3$  is positive and significant. In fact, the earnings persistency coefficient for larger firms is more than the coefficient for the smaller ones. The coefficient of the earnings persistency for larger firms is the sum of  $\beta_2$  and  $\beta_3$ . However, the coefficient of the earnings persistency is merely  $\beta_2$  for the smaller firms. This finding documents that larger firms have more persistency in their earnings.

Table3. Results of the First Hypothesis

Definition	Coefficient	P-Value
$c$	0.037	*0.000
$E_{it}$	0.691	*0.000
$DUM_{it}$	-0.034	*0.000
$DUM_{it} * E_{it}$	0.143	*0.002
Adjusted R-squared	0.781	
F-statistic	525.13	
Prob(F-statistic)	0.000	
D.W	1.97	

**7.2.2. Testing the Second Hypotheses**

As figure 4 shows, the model is an optimum model for testing the second hypotheses. F-statistics and significance level explain that the model is significant for testing the hypotheses.  $\beta_3$  is also positive and significant. Actually, the coefficient of the earnings persistency is larger for the firms with the lower debt ratio in comparison with the other larger firms. This coefficient for the firms with lower debt ratio is less than the sum of  $\beta_2$  and  $\beta_3$ , while the earnings persistency coefficient is merely  $\beta_2$  for the other firms.

Table4. Results of the Second Hypothesis

Definition	Coefficient	P-Value
$c$	0.031	*0.000
$E_{it}$	0.571	*0.000
$DUM_{it}$	-0.016	*.003
$DUM_{it}*E_{it}$	0.236	*0.000
Adjusted R-squared	0.727	
F-statistic	394.27	
Prob(F-statistic)	0.00	
D.W	1.91	

### 7.2.3. Testing the Third Hypothesis

The results exposed in table 5 reveal that the operating cash is a factor with a direct significant impact on the earnings persistency. In other words, when the cash component of the earnings is higher, the persistency and stability of the earnings will be more. The third variable coefficient of the model is positive and significant and this is a reason for the lower coefficient of earnings persistency for those firms with higher cash component of the income. Additionally, f-statistics shows that the model is significant at 99 percent. The results of the Durbin-Watson statistics confirm that there is no autocorrelation. These results are consistent with the findings of Wang and Zhan (2006) [5].

Table5. Results of the Third Hypothesis

Definition	Coefficient	P-Value
$c$	0.022	*0.000
$E_{it}$	0.637	*0.000
$DUM_{it}$	-0.008	*0.127
$DUM_{it}*E_{it}$	0.172	*0.001
Adjusted R-squared	0.732	
F-statistic	405.07	
Prob(F-statistic)	0.000	
D.W	1.96	

### 7.2.4. Testing the Fourth Hypothesis

The fourth hypothesis declares that those firms with more non-executive managers have more persistency in their earnings. Figure 6 shows that the classic assumptions of the cross-sectional regressions are provided for testing this hypothesis. F-statistics and significance level confirm the model to test the hypothesis. Adjusted  $R^2$  explains that the applied model is an optimum model for describing the earnings persistency. As findings reveal,  $\beta_3$  is significant and positive. Actually, those firms with more non-executive managers have more coefficient of earnings persistency. Therefore, presence of non-executive members in board of directors might contribute the stability and persistency of the earnings.

Table6. Results of the Fourth Hypothesis

Definition	Coefficient	P-Value
$c$	0.021	*0.00
$E_{it}$	0.70	*0.00
$DUM_{it}$	-0.004	*0.416
$DUM_{it}*E_{it}$	0.145	*0.001
Adjusted R-squared	0.715	
F-statistic	370.53	
Prob(F-statistic)	0.000	
D.W	2.01	

## 8. Conclusion

The present study investigates the impact of four variables (firm size, operating cash flows, interest-bearing debts and director's independence) on the earnings persistency. Applying the first order autoregression, the earnings persistency was determined. In other words, when the coefficient of the first order autoregression is closer to one, the earnings persistency will be higher and vice versa. According to the findings, the examined variables of this study are the factors affecting the earnings persistency of the listed firms. The results show that when the cash component of the earnings is higher or the firm is larger or the interest-bearing debt is lower; the earnings

persistence coefficient will be higher. This holds for the time that the directors are more independent. Therefore, the investors are suggested to consider the earnings quality along with the quantitative aspects. They should also regard the variables influencing on the earnings persistency. There are some limitations in this study which imposes some care in generalization of the findings. The following limitations are considered in this study:

a) The first limitation relates to the specific characteristics of the semi-empirical studies which is popular in the social science fields. In other words, there might be an influence of the non-controllable variables on the findings of the study.

b) The second limitation associates with the data collection. In similar studies of other countries, there were so many firms examined and there was also a verifiable database. This leads to spend less time for data collection and their analyses to be more consistent. However, we have selected few listed firms. There is also no verified database to be applied in this study.

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