



Income Smoothing, Investor Reaction and Earnings Persistence

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ABSTRACT

The main objective of this study was to investigate the effect of income smoothing on investors reaction to Earnings Persistence of companies listed on the Stock Exchange in Tehran. The population of the study was companies listed on the Stock Exchange in Tehran, the sample size due to screening method and after removing outliers is equal to 118 companies. In this study, earnings persistence and income smoothing are considered as independent variables, and their impact on companies' reaction of investors is examined. In this study, the panel data is used with fixed and random effects, the results of the analysis of corporate data using multivariate regression at confidence level of 95% shows that the net income persistence and operating profit persistence have a direct impact on the reaction of investors. In addition, the results show that, income smoothing has a direct impact on relationship between investors and the net income persistence and operating profit.

Keywords:

Income Smoothing, Investor Reaction, earnings Persistence



1. Introduction

Accounting information (including earnings), plays an important role in developing capital markets. First, accounting information makes providers of the company capital (including shareholders and creditors) able to evaluate the potential returns on investment opportunities (the role of evaluation or before the accounting information). Second, accounting information makes providers of the company capital able to monitor how the use of funds granted (stewardship role or after the accounting information). (Healey and Palepu, 2001). Studies which are aimed to examine the earnings persistence have concluded that more sustainable benefit leads to better inputs to the Equity valuation model, because the calculation of the final value, the most important component in the company's valuation, will be related to the assumptions on earnings growth and persistence.

The empirical evidence suggests that investors and capital markets consider several points when using accounting profit in valuation decisions:

- 1) Considering the relative differences in the degree of stability of accruals and cash flows of profits
- 2) Considering the relative difference in the sustainability of items comprising profits comprising continuous items and non-continuous items.

Studies that seek to assess the sustainability of profits have had the incentive for a more sustainable profit to lead to better inputs for equity valuation models. Because the calculation of the final value, which is the most important component of the company's valuation, relates to the assumption of the growth and sustainability of profit.

The profitability of companies has always been the focus of attention of stakeholders in companies, and the profitability of companies in the future and their predictive power can be very helpful to their decision to buy and sell shares and give credit to companies, as well as alert managers to improve their performance.

Since undisturbed profits are invisible, determining succession for sustainable profits has become a major challenge for researchers. It is considered a randomized-time trend process of current reported earnings as a successor to sustainable earnings.

Using linear information models, Olson estimated the time series behavior of future unusual profits and then estimated the company's value by considering these projected profits in the residual profitability model (RIV). In other words, Olsen showed that the intrinsic value of the company's equity is equal to the book value of equity plus the current value of future profits. Olsen distinguished between profit components by dividing the profit into two temporary (unstable) and continuous (extension) models (residual value valuation based on the linear information model) between the components of the profit and the possibility of examining the characteristics and information content of the various components of profit For researchers.

The main purpose of this study is to examine the relationship between profit smoothing and investors' reaction (sentiment) to profitability sustainability. In addition, these items will research:

- To study the effect of net profit stability on investors' reaction.
- To investigate the effect of operating profit sustainability (profit from continuous items) on investors' reaction.
- To study the effect of non-operating profit stability (profit from non-continuous items) on the reaction of investors.

Then, to determine the role of smoothing on the reaction of investors to profitability, three further goals will explain:

- To study the effect of the smoothing of earnings on the relationship between the reaction of investors and the sustainability of net profit.
- To study the effect of the smoothing of profits on the relationship between the reaction of investors and the sustainability of operating profit (profit from continuous items).
- To study the effect of income smoothing on the relationship between investor reaction and non-operating profit stability (profit from non-continuous items).

2. Literature Review

Earnings forecast of the companies must be such that maintains the pattern of existing growth in the past earnings (Baik et al., 2010). Therefore, it seems that companies with stable growth rates in the past

earnings represent more accurate predictions to capital market (Basiri and Khanmohammadi, 2013).

Schipper (1989) has defined earnings management as informed involvement of external financial reporting process with the intent to make a profit.

Scott (2003) has defined earnings management as: Earnings management means that the administrator can select a procedure that is required to achieve a particular goal.

Accounting literature review suggests that the two species are facing widespread earnings management. A profit management accounting (management of discretionary accruals): The profit management of change in real activity (basic) but also manage the company through discretionary accruals (choose accounting methods of accounting estimates) to make accounting figures in accordance with the objectives its own good. (Nazmi ardakani, 2010) Research has shown that managers use discretionary accruals to reduce earnings volatility.

In a study, the relationship between earnings persistence and tax differences in corporate life cycle stages was examined, and concluded that the link between earnings persistence and tax differences in growth stages is more than the maturity and decline stages. Haley et al., in a study examined the relationship between market competition, earnings management, and earnings persistence of companies' profitability, and concluded that the competitiveness of the market has a direct impact on earnings management, and has the reverse impact on the sustainable profitability and net income.

Damouri, Arefmanesh, and Noravesh et al (2006) have investigated the relationship between different levels of working capital accruals (accrual of earnings component) with earnings persistence. Their findings show that earnings persistence is reduced by increasing the level of working capital accruals. Kordestani (2007), in a study about the earnings persistence and cost of equity capital of listed companies in Tehran Stock Exchange has tested and reported that the earnings persistence has a reverse relationship with and the capital cost. Kordestani and Roudneshin (2006), in a study have investigated the relationship between Accrual and Cash Flow Components of Earnings with the company's market value. Their findings show that the power of Cash Flow component of earnings in explaining the

company's market value is higher than the accrual component.

Mouselo (2010), have conducted a study entitled "The relationship between income smoothing, earnings quality and value of companies listed on Tehran Stock Exchange". Reza Zadeh and Grousi (2011), in a study, entitled " Differential Persistence of Accrual and Cash Flow Components of Earnings and Predicting of Future Profitability " showed that results reveal that accruals are more highly associated than cash flows with invested capital in the denominator of the profitability measure. In contrast, accruals and cash flows have no differential relation to one-year-ahead operating income. This suggests that the lower persistence of accruals versus cash flows may not be due to earnings management but may rather be due to the effect of growth on future profitability. Venter et al. (2013), in a study examined the earnings persistence and as well as the earnings valuation from continuing operations compared to earnings from non-continuous operation. Their findings show that, the earnings persistence as well as the valuation of the earnings from regular items is more than the earnings from non-regular items. Venter et al. (2013), in a study has examined the earnings persistence as well as the valuation earnings from continuing operations compared to earnings from non-continuous. Their findings show that, the persistence as well as the valuation of the earnings of regular items is more than the earnings from non-regular items.

Eskandari (2016) showed that a significant positive relationship between income and income smoothing exists. However, between operating cash flow and income smoothing significant positive relationship was not found. As well as between income compared with the previous year and operating cash flow smoothing and there is a significant positive relationship. The results indicate that a significant positive relationship between income and income smoothing exists. However, between free cash flow and income smoothing significant positive relationship was not found. As well as between income compared to the prior year free cash flow and income smoothing and there is a significant positive relationship.

Foroughi et al. (2018) investigated the profit sustainability in terms of cash and accrual profits, at the company and industry's specific profits. The greater the sustainability of profits, the greater the company can to maintain current profits, and the

higher the profit is supposed to be. The research findings indicate that the sustainability of specific industry profits is higher than the company's specific profit, and the most stable component among other components, the specific profit margin of the industry and the most volatile component, is the specific accrual component of the company. Other findings from this study are the lack of understanding of the different sustainability of the components of profit by investors.

3. Methodology

The aim of this study was to investigate the relationship between income smoothing and investors reaction to earnings persistence.

Other objectives are as follows:

- Study of the effect of net income persistence on the reaction of investors
- Study of the effect of operating profit persistence (profit from continuing items) on the reaction of investors
- Study of the effect of non-operating profit persistence (the profits of non-regular items) on the reaction of investors

Then, to identify the role of smoothing on investor reaction to earnings persistence, three-dimensional hypothesis are:

- Study of the effect of income smoothing on the relationship between reaction of investors and net income persistence
- Study of the effect of income smoothing on the relationship between reaction of investors and operating profit persistence
- Study of the effect of income smoothing on the relationship between reaction of investors and non-operating profit persistence

In this study, first, the following hypotheses are explained to assess the effect of earnings persistence on investors' reaction:

- 1) Net income persistence affects on the reaction of investors.
- 2) Operating profit persistence affects on the reaction of investors.
- 3) Non-Operating profit persistence affects on the reaction of investors.

Then, the next three hypotheses will be explained to identify the role of smoothing on investor reaction and earnings persistence:

- 4) Income smoothing affects on relationship between investors' reaction and net income persistence.
- 5) Income smoothing affects on relationship between investors' reaction and operating profit persistence.
- 6) Income smoothing affects on the relationship between investors' reaction and non-operating profit persistence.

This research, in terms of subject domain is in the area of financial accounting issues.

Spatial territory of this research is all the companies listed on the Stock Exchange in Tehran.

Temporal territory of the study includes the years 2010 to 2015.

Because the temporal territory of this research is the beginning of 2010 until the end of 2015, therefore, population includes all manufacturing firms listed in the Tehran Stock Exchange by the end of 2015, which sample size based on RAHAVARD Novin software is 118 companies.

4. Results

Earnings management refers to interventions targeted in the external financial reporting process which often are done in order to gain personal benefits. Accounting literature review suggests that we are facing with two broad types of earnings management.

Research has shown that managers use the discretionary accruals to reduce the volatility of earnings, for example, selecting a method from the different methods for calculating depreciation.

In this case, management achieves its desired profit by madding some operational decisions, in other words, in other words, real activity manipulation leads to real earnings management.

Income Smoothing is a type of conscious action which is done by management and using specific tools of financial accounting to reduce volatility in earnings of the financial periods. Income Smoothing is one of the types of earnings management. More specifically, income smoothing behavior is defined as an attempt to reduce the volatility of reported earnings.

Shareholders in agreement with the managers assign management of the corporate affairs to the managers, and retain the right of seeking answers to the performance of the managers to themselves. Management has undertaken a commitment to try in

order to maximize shareholder and the owners' wealth for managers' services compensation in the form of salaries and benefits agreed in return for their duties, the main conditions of this contract.

Various methods that are used by corporate executives to influence their reported earnings are called earnings management tool. Some of the tools used to manage earnings, include assessment reserves or reserve, accounting estimations, economic decisions, pretext accounting rules and regulations, the timing of sales of fixed assets and financial costs.

A fundamental factor in test earnings management and companies is to estimate the factor of authority and view of managers in determining earnings. Earnings-based review of the literature indicates that different methods with different identifiers have been reported in estimation and measurement of management authority in determining earnings. These include discretionary accruals, single accrual method, total Accruals method, accounting changes method and distribution method.

In the choice of research method should be noted that, who are considered in connection with the decision-maker research and the applications of research are for whom and at what points of view to not face the problem of lack of efficacy (Ali Ahmadi, Nahaei, 2007). Type of research provides a method for methodology (Ali Ahmadi and Nahaei, 2007).

Characteristics of the study are summarized as follows: This study in terms of purpose is an applied study. The research is done in the field of demonstrability research. Given that historical data is used to test the hypothesis of research, this study in terms of design is a quasi-experimental and retrospective study. For data collection, the correlational-descriptive is used. The study in terms of the method of reasoning is deductive - inductive, meaning that, theory and hypothesis are formulated based on deductive reasoning and gathering information to verify or reject hypotheses is carried out based on inductive reasoning.

AR: annual abnormal return of the company which is considered as an indicator of investors' reaction to the test all hypotheses. Abnormal return is obtained of differences between stock returns and market returns during a year.

PER: Earnings persistence of the company: Earnings persistence is one of the measures of earnings quality. Earnings persistence means iteration

(continuity) of the current earnings. If the earnings persistence increases, it is assumed that the quality of reported earnings is higher. Univariate regression equation is used to measure the Earnings persistence in which the earning in the current period is a function of earning in the previous period. In other words, in this model, continuation of earning is considered as representative of Earnings persistence. This model was designed and presented in 2002 by Dechow and Dychv.

IS: Income Smoothing: Smoothing is a conscious action which is done by management and with the use of certain tools in accounting to reduce volatilities in earnings, and is considered as independent variable to test the hypothesis in this study. In this study, the Acle index is used to determine the income smoothing. Acle index is:

Acle index = the ratio of the coefficient of changes in earnings to the coefficient of changes on sales

Studying variables and obtaining descriptive statistics such as mean, median, standard deviation, minimum and maximum and inferred variables, the reliability of the variables was examined by using IPS test, the results show that variables are reliable.

According to the existing literature, as well as the nature of the hypotheses in this study, the combined data is used. In order to determine the appropriate model (combined with fixed or random effects), Chow and Hausman tests have been used to test hypotheses. In this study, the regression model is used in order to test the hypothesis according to the table 1. The results of testing hypotheses is showed in tables 2 to 7.

The first hypothesis testing: In this hypothesis, according to the table 2, the hypothesis H0 is rejected at the 95% confidence level, the hypothesis H1, Net income persistence has an impact on the reaction of investors, is confirmed.

The third hypothesis testing: In this hypothesis, according to the table 4, the hypothesis H0 is confirmed at the 95% confidence level, the hypothesis H1, Non-Operating profit persistence has an impact on the reaction of investors, is rejected.

The second hypothesis testing: In this hypothesis, according to the table 3, the hypothesis H0 is rejected at the 95% confidence level, the hypothesis H1, Operating profit persistence has an impact on the reaction of investors, is confirmed.

Table 1- Regression models for each hypothesis

Regression Equation	Hypothesis	Model No.
$AR_{it} = \beta_0 + \beta_1 PER_{it} * \Delta NI_{it} + \beta_2 PER_{it} * NI_{it} + \beta_3 BETA_{it} + \beta_4 SIZE_{it} + e_{it}$	Hypothesis 1	1
$AR_{it} = \beta_0 + \beta_1 PER_{it} * \Delta OI_{it} + \beta_2 PER_{it} * OI_{it} + \beta_3 BETA_{it} + \beta_4 SIZE_{it} + e_{it}$	Hypothesis 2	2
$AR_{it} = \beta_0 + \beta_1 PER_{it} * \Delta NOI_{it} + \beta_2 PER_{it} * NOI_{it} + \beta_3 BETA_{it} + \beta_4 SIZE_{it} + e_{it}$	Hypothesis 3	3
$AR_{it} = \beta_0 + \beta_1 PER_{it} * \Delta NI_{it} + \beta_2 PER_{it} * NI_{it} + \beta_3 IS_{it} * \Delta NI_{it} + \beta_2 IS_{it} * NI_{it} + \beta_6 BETA + \beta_7 SIZE + e_{it}$	Hypothesis 4	4
$AR_{it} = \beta_0 + \beta_1 PER_{it} * \Delta OI_{it} + \beta_2 PER_{it} * OI_{it} + \beta_3 IS_{it} * \Delta OI_{it} + \beta_2 IS_{it} * OI_{it} + \beta_6 BETA + \beta_7 SIZE + e_{it}$	Hypothesis 5	5
$AR_{it} = \beta_0 + \beta_1 PER_{it} * \Delta NOI_{it} + \beta_2 PER_{it} * NOI_{it} + \beta_3 IS_{it} * \Delta NOI_{it} + \beta_2 IS_{it} * NOI_{it} + \beta_6 BETA + \beta_7 SIZE + e_{it}$	Hypothesis 6	6

Table 2- Regression model for hypothesis 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.522674	2.004632	2.873432	0.0041
PER * Δ NI	1.234221	1.654426	5.073426	0.0000
PER it * NI	0.467918	0.768005	3.838554	0.0000
BETA	0.641212	1.004326	2.588426	0.0381
SIZE	0.892788	0.863897	2.141897	0.0452
R-squared	0.342091	Mean dependent var		0.073432
Adjusted R-squared	0.297231	S.D. dependent var		2.133731
S.E. of regression	2.134280	Akaike info criterion		4.355699
Sum squared resid	8718.559	Schwarz criterion		4.364398
Log likelihood	4171.938	Hannan-Quinn criter.		4.358900
Durbin-Watson stat	1.811521	F-statistic		4.113.90786
		Prob(F-statistic)		00.000

Table 3- Regression model for hypothesis 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.698127	1.034302	3.091274	0.0061
PER * Δ OI	0.956421	0.149426	2.165237	0.0488
PER it * OI	0.467121	0.149426	2.838327	0.0271
BETA	1.091818	0.209554	2.897210	0.0251
SIZE	0.818925	0.149426	2.458077	0.0348
R-squared	0.337132	Mean dependent var		0.212674
Adjusted R-squared	0.283421	S.D. dependent var		2.122786
S.E. of regression	1.980461	Akaike info criterion		4.312162
Sum squared resid	6656.018	Schwarz criterion		4.950072
Log likelihood	-3913.208	Hannan-Quinn criter.		4.546892
F-statistic	7.432126	Durbin-Watson stat		1.742342
		Prob(F-statistic)		00.000

The fourth hypothesis testing: In this hypothesis, according to the table 5, the hypothesis H0 is rejected at the 95% confidence level, the hypothesis H1, Income smoothing has an impact on relationship between investors' reaction and **net income** persistence, is confirmed.

The fifth hypothesis testing: In this hypothesis, according to the findings and conclusions (table 6), the hypothesis H0 is rejected at the 95% confidence level,

the hypothesis H1, Income smoothing has an impact on relationship between investors' reaction and operating profit persistence, is confirmed.

The sixth hypothesis testing: In this hypothesis, according to the findings and conclusions (table 7), the hypothesis H0 is confirmed at the 95% confidence level, the hypothesis H1, Income smoothing has an impact on relationship between investors' reaction and non-operating profit persistence, is rejected.

Table 4- Regression model for hypothesis 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.811732	1.456742	-2.847074	0.0145
PER * Δ NOI	1.641421	0.763725	2.873727	0.0261
PER it * NOI	1.034898	0.876324	5.073381	0.0000
BETA	1.098625	1.983242	3. 809857	0.0038
SIZE	0.754788	0.234982	4.378153	0.0021
R-squared	0.367212	Mean dependent var		0.073432
Adjusted R-squared	0.329234	S.D. dependent var		2.133731
S.E. of regression	2.134280	Akaike info criterion		4.355699
Sum squared resid	8718.559	Schwarz criterion		4.364398
Log likelihood	4171.938	Hannan-Quinn criter.		4.358900
Durbin-Watson stat	1. 932521	F-statistic		9.78956
		Prob(F-statistic)		0.0012

Table 5- Regression model for hypothesis 4

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.672627	1.034302	7.832274	0.0001
PER * Δ NI	2.051121	0.149426	0.671322	0.5414
PER it * NI	-0.913324	0.149426	0. 576231	0.1212
PER * Δ SI	0.719188	0.209554	2.034210	0.0031
PER it * SI	1.981425	0.149426	-1.761077	0.0214
BETA	1.311217	0.209554	2.037153	0.0497
SIZE	1.761262	0.768975	-2.091777	0.0391
R-squared	0.481412	Mean dependent var		0.212674
Adjusted R-squared	0.437142	S.D. dependent var		2.122786
S.E. of regression	1.980461	Akaike info criterion		4.312162
Sum squared resid	6656.018	Schwarz criterion		4.950072
Log likelihood	-3913.208	Hannan-Quinn criter.		4.546892
Durbin-Watson stat	1.787112	F-statistic		14.76514
		Prob(F-statistic)		0.0000

Table 6- Regression model for hypothesis 5

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.522232	2.543302	2.873074	0.0041
PER * Δ OI	0.412221	0.146426	1.231727	0.2081
PER it *OI	-1.156732	0.288554	-3.111761	0.0284
PER * Δ SI	0.843201	1.657211	2.909121	0.0311
PER it * SI	0.743288	0.989554	2.921153	0.0167
BETA	0.911893	2.784375	2.129157	0.0417
SIZE	1.121788	0.562923	3.273413	0.0027
R-squared	0.428721	Mean dependent var		0.073432
Adjusted R-squared	0.381231	S.D. dependent var		2.133731
S.E. of regression	2.134280	Akaike info criterion		4.355699
Sum squared resid	8718.559	Schwarz criterion		4.364398
Log likelihood	4171.938	Hannan-Quinn criter.		4.358900
Durbin-Watson stat	2.018432	F-statistic		14.76514
		Prob(F-statistic)		0.0000

Table 7- Regression model for hypothesis 6

Variable	Coefficient	t-Statistic	Prob.
C	-0.651	-0.223	0.823
PER * Δ NOI	1.081	3.838	0.0017
PER it *NOI	0.631	2.388	0.041
PER * Δ SI	0.753	1.141	0.312
PER it * SI	1.894	2.601	0.137
BETA	0.711	0.671	0.541
SIZE	0.967	0.576	0.121
R-squared	0.401	Durbin-Watson stat	1.833
Adjusted R-squared	0.365	F-statistic	6.909
Prob(F-statistic)		0.00	

5. Discussion and Conclusions

The object of this paper was to investigate the effect of income smoothing on investors reaction to earnings persistence of companies listed on the Stock Exchange in Tehran.

The results shows net income persistence has an impact on the reaction of investors.

Also the stability of operating profit (profit from continuing items) in the reaction of investors has an effect on the result of this hypothesis to some extent, the results of Wang (2010), Venter and colleagues (2013) is consistent.

The other conclusion is that the stability of operating profit (profit from non-continuing items) are not affected investor reaction. The result to some extent, with research results Wang (2010), Venter and colleagues (2013) is inconsistent. The findings and conclusions show income smoothing has an impact on relationship between investors' reaction and net income persistence. This result to some extent, with research results Wang (2010), Venter and colleagues (2013) and is consistent.

Also income smoothing has effect on the relationship between investors and the stability of the reaction operating profit (profit from continuing items) implications. The result with research results Wang (2010), Venter and colleagues (2013) is consistent. Income smoothing has not an impact on relationship between investors' reaction and non-operating profit persistence.

Based on the results of this study, it can be stated that the stability of net profit and operating profit (profit from continuing items) on the reaction of investors and also smoothing effect on the relationship

investors' reaction to the footy net profit and operating profit (profit continuous items) implications.

The results of the analysis of corporate data by using multivariate regression show that the net income persistence and operating profit persistence have a direct impact on the reaction of investors. Also, the results show that, income smoothing has a direct impact on relationship between investors and the net income persistence and operating profit.

Information collected in this research includes companies listed in Tehran Stock Exchange during the period 2010 to 2015, since, by increasing the number of observations and test results, and consequently, the reliability of the results will be higher, different results might be obtained by increasing the time period.

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Note

¹ **Earnings management**, in accounting, is the act of intentionally influencing the process of financial reporting to obtain some private gain. Earnings management involves the alteration of financial reports to mislead stakeholders about the organization's underlying performance, or to "influence contractual outcomes that depend on reported accounting numbers."