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Original Article

A Survey of the Relationship between Income Smoothing and Stock Market Prices and Financial Ratios in Accepted Firms in Tehran Stock Exchange

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ABSTRACT

In this research, first, profit smoothing of the companies listed on Tehran stock exchange is measured. For this measurement negative correlation between discretional and non-discretional accruals, and changes in anticipated profit were used. The main objective of this study is to find out whether or not the companies listed on Tehran stock exchange market smooth their profit to influence their market share price. Therefore, in the primary hypothesis, the effects of profit smoothing on the market share price of the company were identified and studied. Then the factors affecting profit smoothing behaviour of the companies were discussed. Therefore, independent variables, in the secondary hypothesis, were cash ratio (current ratio), liability ratio (interest cover), and profitability (return on equity [ROE]), whereas profit smoothing was dependent variable. In this research, 182 companies (statistical population) were studied in a period of five years (1385-1389). The result of the research showed that profit smoothing would increase the share price. In addition, it became clear that there was a negative correlation between profit smoothing and current ratio, interest cover, and ROE.
Keywords: Profit Smoothing, Stock Market Price, Current Ratio, Interest Cover, Return on Equity [ROE]

INTRODUCTION

Investors mainly rely on the information, especially profitability, of the financial reports of the companies for making decisions. Investors actually believe that fixed profit rather than varying profit can guarantee higher dividends. Furthermore, profit fluctuations are considered important factors in defining the risk of a company, and companies with smoother profit have lower risk [1]. In conclusion, companies with smoother profit are more favorable companies for investors. Therefore, some managers try to employ different methods to smooth the profit, such as: controlling business activities, delaying or speeding up sending shipments and issuing bills, increasing or decreasing inventory at the end of period, and selecting special accounting and calculating depreciation methods [2].

Some studies have shown that there is a close relevance between the profit of the current period and the operational cash flow of the future period [3]. Therefore, investors heavily depend on the reported information of profitability to predict the future share price, ROE of the companies, management performance, and also future profit and operational cash flow of the company, which they receive through dividends and the share price. Because of the importance of profit in financial reports to the users, managers pay special attention to calculation and reporting of profit. Profit fluctuations can provoke reactions among the users of financial reports. Continuous variations in profit can harm the confidence of investors in the company; consequently, it can adversely affect the share price [4].

With regard to the incentives for smoothing profit managers have, there are two different opinions about it. One opinion believes that profit smoothing, can make the information for profit prediction more valuable; on the

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other hand, the other opinion believes smoothed profit is falsified and distorted information which misleads the users of financial reports, and the market [5].

"Hepworth" [6] mentioned different reasons and motivations for profit smoothing. He also presented various accounting techniques for profit smoothing. "Gordon et al."[7] said that," Management smoothest profit to make the shareholders satisfied with the profitability of the firm." They (Gordon et al.) also studied the relationship between investment tax relief accounting technique ,which is a tool for profit smoothing, with the increase of EPS (earning per share) and P/E (price earnings ratio), which are the objectives of profit smoothing. The results show that there is an important relationship between these two, which supports profit smoothing. "R.G Bold"[8] studied different methods of depreciation and confirmed smoothing in the sampled companies.

The main objective of this study is to find out whether or not the companies listed on Tehran stock market smooth their profit to influence their share price in the market. Therefore, in the primary hypothesis of this research, we try to identify and analyze the effect of profit smoothing on their market price. Then we study the factors that can influence the smoothing behavior of the companies. However, in the secondary hypotheses, we try to find out the relation between (liquidity ratio) current ratio, (debt ratio) interest coverage, and (profitability rate) ROE with profit smoothing.

MATERIALS AND METHODS

In this research, the procedure was a methodical approach. The first step was to identify the problem and establish the hypotheses. Then the required information which was needed for the tests of the hypotheses was collected. After conducting the tests and experiments the results were analyzed. The following variables were evaluated in this research.

Profit smoothing: to measure profit smoothing negative correlation between discretionary accruals (ΔDAP) and variations in anticipated profit (ΔPDI) are used.

Share price: one way to study the relative power of profit in future cash flow is to use share price or share return as a substitute for future cash flow which is expected by shareholders. The implicit hypothesis here is that the share price correctly reflects the information about the future cash flow which includes current profit. There are different values like: book value, net asset value, real value, market value, and etc. to measure share price of companies. For comparative analysis of share price with profit smoothing, based on Ayers, Sami, and Well research, the average market price of each share in the beginning and at the end of each period is homogenized with the assets of the beginning of the period.

In the secondary hypothesis, dependent variable is profit smoothing, and independent variables are as follows:

Current ratio: current ratio is one of "liquidity ratios". This ratio is obtained by dividing current assets to current liabilities. In the secondary hypothesis number one, current ratio was independent variable and profit smoothing was dependent variable.

Interest coverage ratio: interest coverage ratio is one of the "debt ratios". This ratio is obtained by dividing the profit before subtracting interest and tax by profit. In the secondary hypothesis number two, interest coverage ratio was independent variable and profit smoothing was dependent variable.

Return on equity ratio: there are different criteria to evaluate return. One of them is the return on equity ratio. This is obtained from dividing net profit by return equity. In the secondary hypothesis number three, return on equity ratio was independent variable and profit smoothing was dependent variable. In this research, the statistical population of 182 companies in a period of five years (2006-2010) will be studied. However, investment companies were excluded in this research because their structural nature is different from other companies. Because the end of the fiscal year of the companies differs in Tehran stock market, companies which their fiscal year ends on last month of year were chosen for the statistical population. Therefore, the number of companies in the population is mere 182.

Targeted sampling was used in this research because of the sampling method and the limited number of companies in Tehran stock market. The sources of gathered data were annual reports, CDs of Tehran stock market, and Tadbir software.

RESULTS

Table 1 shows the descriptive data of smoothing variable in the period of 2006 to 2010.Average for smoothing is 0.0086. Mid. for smoothing is 0.0195. Standard deviation for smoothing is 0.57. Min. for smoothing is -0.97. Max. For smoothing is 0.98. Average for discretionary accruals is 0.195. Mid for discretionary accruals is -0.025. Standard deviation for discretionary accruals is 0.73. Min. for discretionary accruals is -7.06. Max. For discretionary accruals are 5.14.

Table 2 results show that P-value< 0.05 and t-statistic is 17.53; therefore, the primary hypothesis number 1(H1) is acceptable. B1 being positive is in accordance with theoretical bases, and it indicates that smoothing

causes the increase of the share price in stock market.In the following table profit smoothing is calculated with X1 for each year separately.

Table 1. Matrix of negative correlation between discretionary accruals and changes in anticipated profit

Accruals $_t$ = a (1/Assets $_{t-1}$) + b ΔSales $_t$ + c PPE $_t$ + d ROA $_t$ + μ $_t$					
PDI = NI – DAP					
	Mean	SD	Median	Min.	Max.
Corr (ΔDAP , ΔPDI)	0.0086	0.57	0.0195	-0.97	0.98
DAP_t	0.159	0.73	-0.025	-7.06	5.14

Table 2. Results of accumulative regression

f-statistic	**307**	**Effectiveness(B1 coefficient)**	**2.76**
t-statistic	17.53	P-value	0.00
Correlation coefficient (R)	0.55	Standard deviation	0.157
Determination coefficient (R2)	0.53	Durban, Watson statistic	1.98
The range of dependent variables (EYi)	0.008		

Table3. Results of annual regression

Fiscal year	**2006**	**2007**	**2008**	**2009**	**2010**
Effectiveness(B1 coefficient)	7.31	1.73	3.1	7.01	8.98
Standard deviation(Sd)	0.4	0.27	0.28	0.08	0.104
t-statistic	17.96	6.38	4.92	69.23	59
P-value	0.00	0.00	0.00	0.00	0.00
Correlation coefficient(R)	0.642	0.184	0.478	0.7877	0.8106
Determination coefficient (R2)	0.64	0.180	0.473	0.7876	0.8104
The range of dependent variables (EYi)	0.018	-0.015	0.03	-0.013	0.018
Durban, Watson statistic	1.78	1.79	1.794	1.84	1.84
f-statistic	322	40	15.39	14455	9101

Based on the results shown in the above table the relation between profit smoothing and the share price in the years 2006, 2007, 2008, 2009, 2010 are 7.31, 1.73, 3.1, 7.01, 8.98, respectively which confirm statistical significance 0.05. The values for correlation coefficient and determination coefficient during the 2006 to 2010 are given in the above table. In addition, Durban, Watson statistic with the values: 1.78, 1.79, 1.794, 1.84, and 1.87 indicated that there is no serial correlation, and f-statistic with the values: 322, 40, 15.39, 14455, 9101 indicate the high credibility of the model in the period of research. Therefore, the primary hypothesis is confirmed in all the years of the research (2006, 2007, 2008, 2009, and 2010).

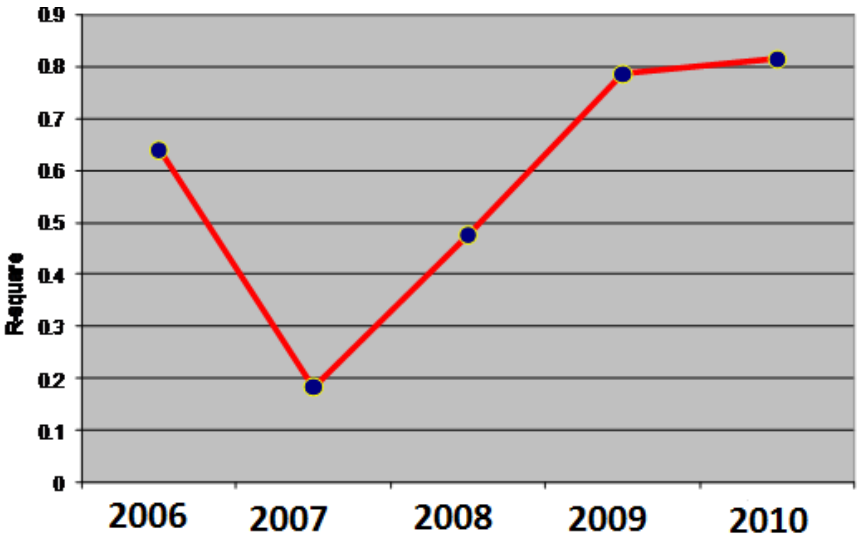

Figure1. Annual change of determination coefficient

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Table 4. Results of cumulative regression

Yi=a0+B2Xi+ ε Yi=Corr(Δ DAP, Δ PDI)			
p-value	0.00	Durban, Watson statistic	1.86
t-statistic	-14.08	Effectiveness(B2 coefficient)	-14.04
Correlation confident(R)	0.3	f-statistic	198
Determination coefficient(R^2)	0.29	Standard deviation	0.102
The range of dependent variables (EYi)	0.84		

The results in the above table show that p-value < 0.05 and absolute value of t- statistic is 14.08. Thus, the claim of the secondary hypothesis number one (H1) is confirmed. Therefore, there is a correlation between the current ratio and profit smoothing of the companies. The value of Durban, Watson statistic (1.86), with regard to Du and DL, indicates that autocorrelation of the variables does not exist. In addition, R^2 indicates that 29% of profit smoothing variable is determined by current ratio. Being negative indicates that B2 (current ratio) increase, decreases profit smoothing of the companies in Tehran stock market. This has an agreement with the theoretical predictions.

Table 5. Results of cumulative regression

Yi=a0+B3Xi+ ε Yi=Corr(Δ DAP, Δ PDI)			
p-value	0.00	Durban, Watson statistic	1.97
t-statistic	-12.7	Effectiveness(B2 coefficient)	-1.04
Correlation confident(R)	0.35	f-statistic	161
Determination coefficient(R^2)	0.34	Standard deviation	0.003
The range of dependent variables (EYi)	0.84		

The results in the above table show that p-value < 0.05 and absolute value of t- statistic is 12.7. Thus, the claim of the secondary hypothesis number one (H1) is confirmed. Therefore, there is a correlation between the interest cover and profit smoothing of the companies. The value of Durban, Watson statistic (1.97), with regard to Du and DL, indicates that autocorrelation of the variables does not exist. In addition, R^2 indicates that 34% of profit smoothing variable is determined by current ratio.

Table 6. Results of cumulative regression

Yi=a0+B4Xi+ ε Yi=Corr(Δ DAP, Δ PDI)			
p-value	0.00	Durban, Watson statistic	1.89
t-statistic	-14	Effectiveness(B2 coefficient)	-0.34
Correlation confident(R)	0.2786	f-statistic	197
Determination coefficient(R^2)	0.2777	Standard deviation	0.01
The range of dependent variables (EYi)	0.84		

The results in the above table show that p-value < 0.05 and absolute value of t- statistic is 14. Thus, the claim of the secondary hypothesis number one (H1) is confirmed. Therefore, there is a correlation between the ROE ratio and profit smoothing of the companies. The value of Durban, Watson statistic (1.89), with regard to Du and DL, indicates that autocorrelation of the variables does not exist. In addition, R^2 indicates that 27.77% of profit smoothing variable is determined by current ratio. Being negative indicates that B4 (ROE) decrease, increases profit smoothing of the companies in Tehran stock market. This has an agreement with the theoretical anticipation.

DISCUSSION

There are many reasonable proofs for profit smoothing, but profit smoothing should be used in the condition that can have favorable effect on companies' net value. In this research, 182 companies listed on Tehran stock market, in a period of five years (2006-2010) were studied. Based on the main objective of this research, we have come to the conclusion that profit smoothing can increase company's market share price because of decrease of the risk of investment. Then we studied the parameters that can affect the smoothing behavior of the companies. These parameters are: liquidity (current ratio), liabilities (interest cover), profitability rate or ROE.

The results show that these three parameters have negative correlation with smoothing. Actually, it is possible to reason that increase of current ratio can decrease liquidity risk, and lessen managers' motivations for smoothing. It is also obvious that the lower the interest cover, the smoother the profit must be to satisfy the creditors. Reduction of ROE reduces dividend per share, and increases the tendency for smoothing to compensate dividend per share reduction.

"Ghaemy et al.[9] Studied the effect of profit smoothing on ROE of the companies listed on Tehran stock market. The results of the test of hypotheses show that smoothing does not affect abnormal return of the company, but the combined influence of smoothing and industry on abnormal return is evident. The abnormal return is not influenced by the combined effect of smoothing and size, but it is influenced by the combined effect of smoothing and raising capital.

Finally, we can conclude that high ROE has no correlation with profit management because there is a meaningful negative correlation between profit smoothing and ROE. Therefore, when investors make investment decisions, they should keep in mind that companies with high ROE have favorable liquidity; thus they can pay their dividends and their liabilities .

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