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Investigate the Role of Earning Management on Expense Stickiness in Firms Accepted in Tehran Stock Exchange

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ABSTRACT

One of the important issues received the attention of managers and all firm stakeholders, particularly shareholders, is the situation of corporate profitability and the rate of firm's net income in particular. To reach a good income rate, paying attention to two factors, corporate earnings and particularly costs and fixed costs of firm has taken on special importance. One of the issue debated over costs frequently and is the topic of many accounting and financial studies is cost stickiness. The aim of the study is to investigate the role of earnings management in the Expense Stickiness in Firms Accepted in Tehran Stock Exchange.The information of 121 study firms in different stock exchange industries during 2009-2014. In order to examine the hypotheses, a regression analysis was used, the results of which indicated that management of increasing earnings had no significant impact on expense stickiness alone.

KEYWORDS

Earning Management, Expense Stickiness, good corporate governance, Tehran Stock Exchange

INTRODUCTION

Knowledge about cost behavior is of significance to accountants, researchers and all those who have to do with management field and evaluate changes in costs according to changes in earnings. Managers should assess their reason for cost stickiness through paying attention to the sensitivity of cost changes compared to size reduction, and increase the capacity of firm's reaction to reduction of demand for goods or services. This would help improve the process of accountability. One of the issues frequently raised concerning costs and is the topic of many accounting and financial studies is the subject of cost stickiness. It means that costs increase in proportion to increase in the level of activities (e.g. sale), but it will not decline in proportion to reduction in the level of activities (sale); this unfit behavior of costs is called cost stickiness. The results of previous research indicate that cost stickiness is heavily dependent on management's and managers' motivations and is greatly affected by management decisions. By recognizing and predicting cost behaviors rigorously and how costs respond to income fluctuations, managers and researchers set out to develop regular and reliable programs and take wise decisions.

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RESEARCH BACKGROUND

- **Foreign researches:**

Nicola and Pergu (2013), in their research, explored the topic if cost stickiness occurred in small and medium-sized Italian firms during the period 1992-2010. Their findings demonstrated that cost stickiness happens just in association with costs of wages, and stickiness of costs cannot exist in administrative, general and sale costs.

Chen et al (2013) studied the behavioral characteristics of management in response to cost stickiness. Investigating a sample of 14568 firms, they explored administrative, general and sale costs during 1992-2011. The results of the study indicated that managers' behavioral changes happen in response to cost stickiness, in that occurrence of cost stickiness phenomenon bolsters managers' self-confidence.

Choee and Lee John (2011) explored the relation between personal benefits of management and cost stickiness in Chinese companies. The results of the research suggested a positive link between opportunistic behavior and rate of cost stickiness. Furthermore, the results indicated that a positive significant relation exists between the variables separation of board chairman from managing director, the number of independent managers in the board, and size of board and stickiness of general, administrative, and sale costs.

- **Domestic researches**

Zanjirdar et al (2014) studied and analyzed factors associated with behavior of cost stickiness. According to the results of the research, administrative, general, and sale costs as well as fixed prices of sold goods are sticky and the degree of stickiness in the fixed price of sold goods is very high as indicators such as the number of employees, amount of firm's current asset and ratio of debt affect the degree of stickiness of general administrative and sale costs as well as fixed price of sold goods. However, the degree of stickiness in the fixed prices of current assets is less than that of fixed assets, and the recognition of such characteristics and their influence on cost behavior can greatly help managers analyze budgeting better and more comprehensively.

Ashuri and Ahmadpour (2014) explored the effect of earnings management incentives on cost stickiness in listed companies on the Tehran Stock Exchange. In this research, the study sample consisted of all listed companies on the Tehran Stock Exchange during a five-year period from 2008 to 2012, of which 138 firms were selected and studied. The results indicated that a significant relation exists between earnings management incentives and cost stickiness over the study period. In other words, earnings management incentives lead to reduction of cost stickiness in companies. For this reason, activities performed to identify determining factors in the structure of firm costs should be aligned with managers' motivations for taking decisions on costs and resources of the companies, particularly motivations for agency.

Bolu et al (2012) explored the relation between idea of management and cost stickiness on the Tehran Stock Exchange. According to the results, cost stickiness exists both in fixed price and in distribution, sale, administrative and general costs.When managers are optimistic about the future, degree of cost stickiness (fixed price and distribution, sale, administrative and general costs) increases. When managers become more optimistic about future sale, cost stickiness grows compared to when they are less optimistic; in other words, as managers' optimism about the future grows, so does the rate of cost stickiness.

Nikumaram and Mohammadzadeh (2011) explored the relation between corporate governance and earnings management. The results of mean difference test indicated that, 1- companies with sufficient corporate governance (whether they have strong or weak corporate governance) have less discretionary accruals; that is, in these companies earnings management is undertaken less frequently, 2- companies with sufficient corporate governance also have less discretionary accruals at similar levels of corporate governance, 3- companies with weak corporate governance do not necessarily have more discretionary accruals than companies with strong corporate governance. Generally speaking, the results indicate that adequacy of corporate governance is significantly linked to earnings management compared to ability of corporate governance. As a consequence, results suggest that adequacy of corporate governance is one of the determining factors in earnings management.

RESEARCH HYPOTHESES

The First hypothesis: increasing earnings management (management of earnings increasing profit rate) significantly reduces expense stickiness.

The Second hypothesis: good corporate governance in companies with increasing earnings management can remarkably reduce expense stickiness.

RESEARCH VARIABLES

A) Research independent variable

A, A) Increasing earnings management

The research literature of earnings management unanimously content that earnings management include avoidance of loss or profit reduction report, deception or deviation of wise analysts' forecasts, reduction of tax and reduction of debt default likelihood (Zhou, 2015). The findings of the previous research indicate that earnings management would contribute to loss or profit reduction report. In this research, in order to identify earnings management, Roychowdhury's (2006) method, in that two subsidiary groups of sample companies involved in increasing earnings management (management of earnings aiming at displaying profit more than reality) were identified using mechanisms elaborated in what follows, and they are compared with other sample companies. Data of first subsidiary groups represent small profitability, which suggests a motivation for avoiding demonstrating loss. Data of the second subsidiary group included companies with little increase in their profit making (ROA), which suggests a motivation for avoiding report of profit reduction. In this research, if ROA of sample companies stands between 0 and 1.5%, they are considered subsidiary group with little profit, and if ratio of earnings changes to total assets stands between 0 and 1, they are classified as companies with little positive changes.

A, B) Variables of corporate governance:

External strategic system: By external strategic system, we mean a set of observations undertaken by units outside a company; external auditing and its size, to name but a few. If the study company is audited by a large auditor (Audit Organization as an equivalent in Iran), the variable is given a value of 1, otherwise value 0 is given.

Rate of institutional shareholders' ownership: If ownership of institutional shareholders (banks, investment companies, holdings, etc.,) is greater than half a share, the company is owned by institutional shareholders, it is given value 1.

The independence of board members: In order to measure this variable, ratio of the number of the non-executive members of the board to total members of the board is used.

B) . Research dependent variable:

The research dependent variable is cost stickiness.

RESEARCH METHOD:

In regard to research classification based on goal, the research is an applied research. In regard to research classification based on method, the research is a correlational-type research. Given that data used in it is real and historical, it can be classified as an ex post facto research.

For data collection, library method and field study were used. And data collection instrument necessary for this research was information provided on the website of the stock exchange organization, Rah-Avard-e Novin software, Tadbir Pardaz software, as well as financial statements of listed companies on the Tehran Stock Exchange and final analysis using SPSS software program.

RESEARCH STATISTICAL POPULATION

It consisted of companies listed on the Tehran Stock Exchange during 2009-2014, which met the following terms:

1. Financial information of company should be available during the research period, from 2009 to 2014.
2. Their fiscal year should end in Esfand (March 19th), the reason for this is the similarity of the period and same situation of circumstances for all companies.
3. Companies that are admitted up to the date 3/20/2009 on the stock exchange (i.e. before the beginning of 1388 on the stock exchange) and company's title should not be removed during the study period from companies listed on the Tehran Stock Exchange.
4. They should not undergo any change in their fiscal period.
5. They should not be included in financial institutions, banks, investment companies, etc., due to special nature of their activities (i.e. structure of financial institutions' financial statements is different from that of other companies.

Given the above terms, a number of 121 companies (726 firm-years in total) were selected as study companies.

RESEARCH MODEL

For testing the first hypothesis of the research about the effect of increasing earnings management on cost stickiness, companies involved in increasing earnings management were first distinguished from other companies; in other words, the study companies were classified into two general groups, companies with increasing earnings management and companies without increasing earnings management. Afterward, in order to test the hypothesis, the following model was examined based on each group under consideration.

$$\mathrm{Log}\left[\frac{\mathrm{SGA}_{i,t}}{\mathrm{SGA}_{i,t-1}}\right] = \beta_0 + \beta_1 \mathrm{Log}\left[\frac{\mathrm{Sale}_{i,t}}{\mathrm{Sale}_{i,t-1}}\right] + \beta_2 * \mathrm{Dummy}_{i,t} * \mathrm{Log}\left[\frac{\mathrm{Sale}_{i,t}}{\mathrm{Sale}_{i,t-1}}\right] + \varepsilon_{i,t} \quad (1)$$

Where

$\mathrm{SGA}_{i,t}$: Natural Log of company's total administrative and operating costs

$\mathrm{Sale}_{i,t}$: Natural Log of company's total sale (income)

DUM: a dummy variable, in that if sale in year t experienced decline compared to sale of its previous year (t-1), it is given 1; otherwise, value 0 is given.

In an attempt to examine the second hypothesis of the research, considering the classification of the study companies into companies with increasing earnings management and companies without increasing earnings management, as well as taking account of this separation, we explored the influence of the variables of corporate strategic system on cost stickiness. In doing so, the study companies were first classified into companies with strong and weak corporate governance considering the values of each of the three variables of corporate strategic system, in that companies with good corporate governance was given 1, and weak companies in this regard was given 0, and then the first model of the research was examined based on either group.

DESCRIPTIVE STATISTIC OF THE RESEARCH VARIABLES

Tab .1. The results of Descriptive statistics

Variables	N	Mean	Median	Standard Deviation	Skewness	Kurtosis	Minimum	Maximum
EAMG	726	0.16	0.00	0.367	1.861	1.467	0	1
SGA/SALE	726	0.0897	0.0626	0.16573	12.629	195.842	0.00	2.96
Log _SGA	726	0.0068	0.0067	0.01216	-0.528	11.166	-0.10	0,60
Log _ SALE	726	0.0045	0.0051	0.01315	-2.155	28.399	-0.14	0.08
DUM	726	0.76	1.00	0.430	-1.196	-0.572	0	1
ROA	726	0.1068	0.0934	0.13503	0.312	1.757	-0.44	0.63

As can be seen in the table 1, the average rate of sale, general, and administrative costs to sale (SGA/Sale) is equal to 0.0897. The result indicates that average administrative and general costs is about 9 percent of company's total income and sale. Average rate of sale log to log of previous year sale (Log Sale) is equal to 0.0045. The results indicate that in most cases sales underwent growth. Average rate of ratio of sale, administrative, and general costs to values of its beginning period (Log SGA) is equal to 0.0068. The values obtained from skewness and kurtosis are partially low, which probably suggests the normality of distribution of this variable.

The average rate of the dummy variable increasing earnings management (EAMG) is equal to 0.16; the result indicates that increasing earnings management was observed in about 16% of the sample companies. The average rate of the variable investment rate (CAPR), which is equal to 0.4957 using ratio of fixed net asset to total operating income measured. The result suggests that fixed net assets is about 50% of total operating income. The average of Tobin's q is equal to 1.4746 by using ratio of market value to book value; this suggests that market value of the sample companies is about 1.47 time their book value. The average of the variable rate of return of assets (ROA), as a criterion for determining earnings management, is equal to 0.1068, which is the positive state of the value, plus representing the profitability situation of companies, and suggests that the profit making is about 11 percent of their total assets.

TESTING HYPOTHESES

- **Testing the first hypothesis: examining the effect of earnings management on expense stickiness**

In this part, we examine the first hypothesis of the research, increasing earnings management (management of earnings increasing profit rate) can significantly reduce expense stickiness. To do so, we first divided the sample companies into companies with increasing earnings management and companies without increasing earnings management using Zhou's method. According to the methodology, companies with little positive earnings and companies with little increase in earnings are called companies with increasing earnings management. Companies with little earnings are companies whose rate of return of assets (ROA) stands between 0 and 1.5 percent, and companies with little increase in earnings are companies that rate of changes in earnings to their total assets stand between 0 and 1 percent. In what follows, Anderson's model, as follows, was examined for both groups, i.e. companies with increasing earnings management and companies without increasing earnings management, the results of which are as follows;

$$Log\left[\frac{SGA_{i,t}}{SGA_{i,t-1}}\right] = \beta_0 + \beta_1 Log\left[\frac{Sale_{i,t}}{Sale_{i,t-1}}\right] + \beta_2 * Dummy_{i,t} * Log\left[\frac{Sale_{i,t}}{Sale_{i,t-1}}\right] + \varepsilon_{i,t} \quad (2)$$

Tab.2. the effect of earnings management on expense stickiness

Variables		Anderson's model	
		EAMG=0	EAMG=1
Constant	β0	0.005	0.003
		7.286	2.159
		0.000	0.033
SALE	β1	0.350	0.508
		6.043	3.434
		0.000	0.001
DUM*SALE	β2	-0.277	-0.217
		-3.145	-0.715
		0.002	0.476
F		21.812	9.246
(Sig)		0.000	0.000
R Square		0.067	0.141

As can be seen in table 2:

- given the value of t statistic and significance level (Sig) of the variable (DUM*Sale), the negative state of the variable suggests expense stickiness; in companies without increasing earnings management (EAMG=0) is equal to -3.145 and 0.000 respectively. The obtained results indicate that the above null hypothesis, equal state of the coefficient of the variable to zero, is rejected at 95% confidence level, and the effect of the variable on the dependent variable is significant. In the above model, $\beta_1 + \beta_2$ suggests a reduction in administrative, general, and sale costs and, in consequence, 1% reduction in income and sale. As administrative, general, and sale costs are sticky, percentage of increase in costs should be greater in income increase periods than percentage of reduction in costs in income reduction periods. The value of the coefficient obtained for the variable is equal to -0.277; this suggests that as sale rates decrease by 1%, sale, administrative, and general costs increases by about 28%; this means that costs in companies without increasing earnings management (EAMG= 0) is significantly sticky.

- given the value of t statistic and significance level (Sig) of the variable (DUM*Sale), in companies with increasing earnings management (EAMG=١) is equal to -٠.٧١5 and 0.٤٧٦ respectively. The obtained results indicate that the above null hypothesis, equal state of the coefficient of the variable to zero, is rejected at 95% confidence level, and the effect of the variable on the dependent variable is not significant. The value of the coefficient obtained for the variable is equal to -0.217; this suggests that as sale rates decrease by 1%, sale, administrative, and general costs increases by about 22%; this means that costs in companies with increasing earnings management (EAMG= 1) is not significantly sticky.

The obtained results suggest that rate of expense stickiness in companies with increasing earnings management is lower than that of other companies. However, this reduction is not significant statistically. In other words, obtained results suggest that existence of increasing earnings management in companies ended up with reduction in cost stickiness, but this reduction is not significant statistically. Therefore, the first hypothesis of the research, i.e. increasing earnings management (management of earnings increasing profit rate) can significantly reduce cost stickiness, is rejected at 95% confidence level.

- **Testing the second hypothesis: examination of the effect of good corporate governance in companies with increasing earnings management on expense stickiness**

To test the hypothesis, given the classification of the sample companies into companies with increasing earnings management and companies without increasing earnings management, as well as taking account of the separation, we examined the effect of the variables of good corporate governance on expense stickiness. In doing so, the sample companies were first divided into companies with strong and weak corporate strategic system considering the values of each of the three variables of good corporate governance (provided that at least two variables remain at a desirable state); companies with strong strategic system was given a value of 1, and weal companies in this regard was given a value of 0, and then the impact of the variables on cost stickiness was explored, the results of which are as follows;

Tab.3. The effect of good corporate governance in companies with increasing earnings management on expense stickiness

Variables		EAMG=0	EAMG=1
Constant	β0	0.005	0.003
		7.517	2.153
		0.00	0.033
SALE	β1	0.342	0.510
		5.914	3.457
		0.000	0.001
DUM*SALE	β2	-0.007	-0.725
		-0.054	-1.508
		0.957	0.134
DUM*CG*SALE	β3	-0.326	0.649
		-2.546	1.996
		0.011	0.038
F		16.833	6.826
(Sig)		0.000	0.000
R Square		0.077	0.155

In the model of the first part of table 3, which suggests that the group of the companies without increasing earnings management, the value of t statistic and significance level (sig) of the variable (DUM*CG*SALE), which suggests that the interacting variable, good corporate governance, and the variable, sale log, and the dummy variable, sale reduction, is-2.546 and 0.011, respectively. The obtained results suggest that the variable has a negative and significant influence on the dependent variable, rate of administrative, general, and sale costs. The result indicated that cost stickiness significantly exists in companies with good corporate governance and not involved in increasing earnings management, considering the negative state of the coefficient of the variable and significant level obtained. The results suggest that expense stickiness significantly existed in companies without increasing earnings management and even in the face of a good corporate governance.

- In the second model of the above table, which refers to companies with increasing earnings management, the value of t statistic and significance level of the variable (DUM*CG*SALE) is equal to 1.996 and 0.038, respectively. The obtained result suggests that the variable has a positive and significant effect on the dependent variable, the rate of administrative, general and sale costs. The result suggests that expense stickiness is low in companies with good corporate governance and increasing earnings management. The results suggest that expense stickiness significantly decreases in companies with good corporate governance and increasing earnings management simultaneously.

The results of this part suggest that existence of a good corporate governance and motivation for applying increasing earnings management would lead expense stickiness to decrease, so that as companies' sale rate decreases, so does administrative, general, and sale costs. The result suggests that the third hypothesis of the research, i.e. a good corporate governance along with motivation for employing increasing earnings management (reciprocal effect of good corporate governance and earnings management) would lead to significant reduction in expense stickiness, which is confirmed at 95% confidence level.

Conclusion

The results of testing the research hypotheses indicate that an increasing earnings management cannot itself affect expense stickiness significantly, though it results in reduction of significant effect of expense stickiness in the sample companies. However, with decrease in sales, the rate of administrative, general, and sale costs increased, albeit in an insignificant form. Moreover, the results of the simultaneous effect of increasing earnings management and a good corporate governance on expense stickiness suggest that in companies with motivation for increasing earnings management and good corporate governance simultaneously, expense stickiness significantly decreases, and in these firms as sales decrease, the rate of administrative, general and sale costs cease to increase, and in line with sale reduction the rate of administrative, general and sale costs is reduced. It should be noted that in companies lacking an increasing earnings management or good corporate governance in a simultaneous manner, expense stickiness continues to exist. (table 4)

Tab.4.A summary of the research findings

Row	hypotheses	results of hypotheses
1	increasing earnings management (management of earnings increasing profit rate) significantly reduces expense stickiness؟	rejected
2	good corporate governance in companies with increasing earnings management can remarkably reduce expense stickiness؟	confirmed

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