Indian Journal of Fundamental and Applied Life Sciences ISSN: 2231– 6345 (Online)
An Open Access, Online International Journal Available at www.cibtech.org/sp.ed/jls/2015/01/jls.htm
2015 Vol.5 (S1), pp. 2322-2328/Negar et al.
Research Article

INVESTIGATING THE EFFECT OF COMPANY TO INDUSTRY SALES RATIO AND OPERATIONAL COSTS TO SALES RATIO ON THE EARNING MANAGEMENT ACCRUALS

***Negar Khosravipour[1], Zahra Poorzamani[2] and Farzaneh Heidarpoor[2]**
[1]Islamic Azad University Science and Research Branch
[2]Islamic Azad University Central Tehran Branch
**Author for Correspondence*

ABSTRACT
The main purpose of this study is to investigate the effect of company to industry sales ratio and operational costs to sales ratio on the earning management accruals of listed companies in Tehran Stock Exchange. For this purpose, the historic information of 100 listed companies in Tehran Stock Exchange between 2004 and 2010 were extracted and then it was analyzed using statistical methods. The results showed that there is no significant relationship between company to industry sales ratio and earning management accruals; likewise, there is no significant relationship between operational cost to sales ratio and earning management accruals, and therefore the third hypothesis which suggests that company to industry sales ratio has a stronger effect on earning management accruals than operational costs to sales ratio is rejected and these ratios do not have any effect on earning management accruals. Therefore, it is advised to different groups of investors, creditors, analyzers and others to keep in mind that if the analyzed company has a high competitiveness in market competition, the probability of earning management is reduced and the chance that reported earnings are close to the actual earnings is increased. Therefore, the managers of these companies would not have any opportunistic behavior in order to report the financial statistics according to their personal benefit. Thus, they should consider items such as firm's position in its respective industry, firm's status in product market and firm's economic competitiveness in order to make logical decisions.

Keywords: *Company to Industry Sales Ratio, Operational Costs to Sales Ratio, and Earning Management Accruals*

INTRODUCTION
Earnings management occurs when managers use judgment in financial reporting and may mislead some stakeholders about the economic performance of companies or influence those contracts which are linked to the reported accounting numbers. In this regard, based on rules such as the Sarbanes-Oxley law, law enforcement agencies in the United States forced corporate executives to ensure financial reporting, empower corporate governance and improve auditor independence, in order to reduce earnings management and improve the quality of financial reporting. According to the Sarbanes-Oxley law, empowerment of corporate governance is one of the mechanisms to reduce the agency problem. Corporate governance mechanisms can reduce the opportunities for earnings management and thus increase the quality of earnings (Hassas, 2006). Corporate governance mechanisms will regulate the corporate managers' decisions and activities and somehow reduce the costs of agency that are imposed on the owners. These mechanisms consist of several components. One of the corporate governance mechanisms that are designed to reduce agency problems is the economic competitiveness of companies which has an inverse relationship with the degree of market competition. Based on existing literature, economic competition has been suggested as a mechanism of governance and a critical factor in decisions concerning the disclosure of information by companies. Not only economic competitiveness makes the organization widely dependent on external competitive advantage, but also encourages the owners to strengthen internal corporate governance mechanisms and reduces opportunistic behavior by managers. Thus, the economic competitiveness has a disciplinary effect on reducing benefits of private management and strategic effects which can have an effect on earning management.

In this regard,) argued that economic competitiveness is like a regulatory mechanism for managers and keeps them from wasteful spending. Also, acknowledged that the degree of competition in the market acts as an efficient mechanism to reduce agency problems. On the other hand, several studies also suggest that earnings management can be limited by corporate governance. Therefore according to the theoretical framework, it is expected that economic competitiveness as one of the corporate governance mechanisms, have an inverse effect on earning management. For instance, the higher economic competitiveness will create a positive attitude in market competition which result in more monitoring over the activities of the company and the managers of such companies will see their positions at risk more than the others, since the stakeholders and beneficiaries of such companies cannot tolerate the mistakes and inadequacy of managers as much. Therefore, managers are trying to work more efficiently and effectively which in turn leads to a reduction in agency costs and ultimately will reduce earnings management.

Nevertheless, another part of the economic and financial literature has addressed the issue that economic competitiveness can create agency problems and these problems will lead the managers to misrepresent the performance results in order to protect their personal benefits. In fact, dealing with the pressures and competitive threats is a source of earnings management emersion, and since the managers' job security depends on a favorable image of the company's performance in the current period or future periods, therefore their failure in providing a favorable performance and obtaining weak results in the current period, or to predict the failure in future periods, always makes the management position at risk which can lead the manager toward the earning misrepresentation.

Indeed, although there is some theoretical background about the practical validity of the inverse effect of economic competitiveness on earning management, another part of the theoretical background suggests the direct impact of economic competitiveness on earning management. In fact, since corporate governance practices and the competitive structure of the market in countries are different, the results are not the same in all countries and there is no consensus on this issue yet. A group of researchers believe in the direct effect of economic competitiveness on earnings management and others believe in its inverse effect. Therefore, In line with new insight into the importance of economic competitiveness as one of the mechanisms of corporate governance, this study examines the impact of economic competitiveness on the earning management of the listed companies in Tehran Stock Exchange.

Theoretical Background and Literature Review

The reported earnings of a company are always considered as a measure for decisions and are of particular importance. The income reported in the financial statements is considered as one of the most important criteria for evaluating the performance and the value of the enterprise which has a wide range of users such as shareholders, investors, stock brokers and etc? Since the profit calculation is affected by accounting estimation methods and firm's business unit management is responsible for preparing the financial statements, management may try to perform the earnings management for various reasons.

If the management does select those methods that result in exhibiting higher levels of earning, this can affect the investors' decisions in regard to stock trading and leads to an increase in the stocks' price. It is possible to show a higher amount of profit by using accounting methods, and an inexperienced investor would invest in the company due to his lack of knowledge. Indeed, this process is continued until the inexperienced investor becomes aware, and then investors will react to the case. This can have adverse consequences for the company. Managers have more flexibility in accruals. Estimations such as the useful life of the asset, debt collection capabilities, the pension obligations discount rate and other year-end accruals which adjust the earnings report are traditional tools which are used by the managers over time and are not visible directly (Hassannejad *et al.*, 2012).

Research Background

Kighir *et al.*, (2014) investigated the models of earning management identification in a study, and its results showed that the models of earning management identification do have the ability to detect earning management, but some of these models are without practical utilization and they are only an academic research. In a study examined the relationship between industry structure economic competitiveness and earning management. The results show that firms with higher economic competitiveness have larger

discretionary accruals. It means that the rate of earning manipulation is higher in industries with higher economic competition investigated the relationship between capital market feedback competition and earning management in a study. The results showed that companies with a higher ratio of market value to book value have a greater tendency to manipulate and manage earnings. In other words, there is a negative relationship between competition and earnings management investigated the relationship between product competition market and earning management in a study. The results showed that there is a positive relationship between product market competitiveness and earnings management and the type of industry plays a vital role in the corporate earning management.

investigated the impact of product market competition on earnings quality in their study. The results showed that there is a positive relationship between product market competition and earning quality. Studied the relationship between product market competition and accruals quality in their study. The results showed that there is a negative relationship between industry focus and accruals, which suggest that during procedure selection and in order to protect their competitive advantages, companies in focused industries are looking for procedures with lower quality which results in lower profit quality. Heshmatzadeh *et al*. (2013) studied the effect of product market competition on agency costs. The results showed that product market competition reduces the agency costs. Hassani and Najd (2013) studied the relationship between earning management and auditing quality, and the result showed that there is a significant and negative relationship between firm's size and earning management. Studied the relationship between product market competition, Board of directors' composition and information disclosure quality, and the result showed that product market competition has a strategic effect and it has a significant U-shape relationship with information disclosure quality.

MATERIALS AND METHODS

Research Methodology

The current research is an applied one in regard to the purpose, is a quantitative one in regard to the process, is a inductive one in regard to the logic, is a descriptive one in regard to the method, and since the relationship between variables are analyzed based on the research purpose, it is a causal regression and correlation research.

Research Statistical Population and Sample

Statistical population of the research is the listed companies in Tehran Stock Exchange between 2004 and 2010. Research sampling in purposeful; which means that the population was screened based on some conditions and the companies that had the desirable conditions were analyzed as the statistical samples using the systematic elimination method. Selection conditions of the research statistical sample companies are as follows:

1- Companies should attend on the Stock Exchange for the entire period of investigation.
2- They should not have changed their fiscal year during the study.
3- Their financial information should be available and they should not be among financial intermediaries and insurance and pension finance industries.

Considering these criteria, 100 companies across 6 industries were finally selected from all of the listed companies in Tehran Stock Exchange as the research statistical population.

Research Variables

Earning management is the dependent variable and economic competitiveness is the independent variable of the research. Moreover, since earning management can be affected by other factors and in order to analyze the effect of economic competitiveness on earning management more accurately, possible affecting variables such as debt ratio, loss report, return on assets ratio, sales growth and firm’s size enter the model so their effects can be controlled and the research Hypothesis can be tested more accurately.

$EM_{i,t}$: Earning management, which is usually calculated using discretionary accruals declares in his research that company’s efficiency is affecting the discretionary accruals estimation. When the company’s efficiency and the relationship between accruals and efficiency is not normal, it is possible to wrongly categorize non-discretionary accruals as discretionary accruals. Kothari adjusted Jones model by

adding the return on assets as a controlling variable for the nonlinear effect of firm's efficiency on accruals. The model of Kothari et al has been used in this study. This model is as follows:

$Accrual=a_1+a_2\ (\Delta REV-\Delta REC)\ +a_3PPE+a_4ROA+\varepsilon$

Where 'Accrual' is the total accruals which is equal to the difference between firm's operational profit and cash flow from operational activities, 'ΔREV' is changes in income of current year compared to the previous year, 'ΔREC' is changes in accounts receivable of current year compared to the previous year, 'PPE' is gross value of property, machinery and equipment, 'ROA' is return on assets ratio, and 'ε' is residual values of the model which is an indicator determining the amount of earnings management.

Independent variable of this research is the economic competitiveness which is evaluated based on three criteria: the industry that the company belongs to (PMCS), operational costs to sales ratio (PMCOE) and Tobin's Q ratio (PMCQ).

$PMCS_{i,t}$: The company sales to total sales of the company industry ratio. It is among the most important measures of evaluating industry concentration and the degree of competition in a market. The larger this ratio for a company is, the higher concentration and less competition in the industry would be, and vice versa. It should be noted that there is an inverse relationship between the degree of market competition and economic competitiveness. Therefore, if the calculated index is higher, it represents the company's higher economic competitiveness (Heshmatzadeh *et al.*, 2013).

$PMOE_{i,t}$: Operational expenses to sales ratio. This represents a large proportion of the company's operations in the product market competition. In other words, this ratio shows how much money is spent as operational costs for earning a sale profit of one unit in product market competition. Competitors in competitive markets try to lower their prices to sell their products and increase their product market share, and show their cost more than its actual value to prevent the arrival of new competitors and to convince the customers to increase prices. This results in an increase in operational expenses to sales ratio. Therefore, it is expected that the more this ratio is, the more market competition and the less economic competitiveness of the company will be.

Research Hypotheses

1. Company to industry sales ratio has an effect on earning management accruals.
2. Operational costs to sales ratio has an effect on earning management accruals.
3. Company to industry sales ratio effect on earning management accruals is stronger than the effect of operational costs to sales ratio on earning management accruals.

Statistical Analysis Methodology

Combinatorial data analysis is used in this study considering the type of data and the available analysis methods. In order to choose the best model for regression models fitting, Chow test and Hausman test is used for choosing between combinatorial model with effects and hybrid model without effects and between model with fixed effects and model with random effects respectively. Additionally, White test is used in order to eliminate any Heteroscedasticity and Hadri unit root test is used for variables stationary test. After regression models fitting, Fisher-statistic is used for assessing overall significance of the model, t-student statistic is used for assessing the significance of explanatory variables coefficients of the model, Durbin-Watson statistic is used for assessing serial autocorrelation of models' residuals and adjusted coefficient of determination is used for assessing the explanatory power of the models. Considering the mentioned hypotheses regarding the effect of economic competitiveness on earning management and considering the fact that economic competitiveness is measured based on three criteria of firm's sales to total industry sales ratio, operational costs to sales ratio and Tobin's Q ratio, regression models of the research hypotheses will be studied as follows:

First regression model:

$$EM_{i,t} = \beta_0 + \beta_1 PMCS_{i,t} + \beta_2 DEBT_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 LOSS_{i,t} + \beta_5 ROA_{i,t} + \beta_6 SG_{i,t} + \varepsilon_{i,t}$$

Second regression model:

$$EM_{i,t} = \beta_0 + \beta_1 PMCOE_{i,t} + \beta_2 DEBT_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 LOSS_{i,}t + \beta_5 ROA_{i,t} + \beta_6 SG_{i,t} + \varepsilon_{i,t}$$

Research Variables Stationary Test

The results of research variables stationary test using Hadri unit root test are presented in table 1. According to the z-statistic and its probability (statistic probability lower than 5 percent), research variables are stationary.

Table 1: The results of research variables stationary test

statistic	EM	PMCS	PMCOE	PMCQE	LEV	LOSS	ROA	SG	SIZE
z-statistic	12.4356	16.9594	13.1892	18.5899	13.1755	6.95313	13.2877	14.0449	16.1823
Statistic probability	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

The First Research Hypothesis Test

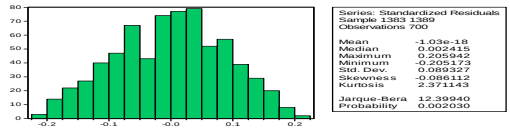
In the first research hypothesis, the effect of company sales to industry sales ratio as a measure of economic competitiveness on earning management has been tested using combinatorial regression method. Before the model's final fitting, the appropriateness test of combinatorial model over hybrid model and appropriateness test of combinatorial model with fixed effect over combinatorial model with random effects were performed and their results are presented in table 2.

Table 2: The results of appropriate regression model choice
The effect of economic competitiveness (company sales to industry sales ratio) on earning management

Test statistic	Type	Statistic amount	Degree of freedom	Probability
F-Limer statistic (Chow test)	Crossover	2.088114	(99،594)	0.0000
Chi-squared statistic (Hausman test)	Crossover	52.063005	6	0.0000

Table 3: The effect of economic competitiveness (company sales to industry sales ratio) on earning management test results

Dependent variable: Earning Management (EM)				
Explanatory variables	**Coefficients**	**Standard error**	**t-statistic**	**Statistic probability**
Y-intercept©	-0.244129	0.117322	-2.080839	0.0379
Competitiveness(company sales to industry sales) (PMCS)	-0.259793	0.743899	-0.349232	0.7270
Debt ratio (DEBT)	0.077465	0.035130	2.205085	0.0278
loss (LOSS)	-0.015581	0.007818	-1.992934	0.0467
Return on assets (ROA)	0.293289	0.045366	6.464972	0.0000
Sales growth (SG)	0.023395	0.007740	3.022757	0.0026
size (SIZE)	0.011996	0.008169	1.468449	0.1425
Fisher statistic	4.573599	Coefficient of determination statistic		0.447045
Fisher statistic probability	0.000000	Durbin-Watson statistic		2.235755



EM = -0.244129133244 - 0.259793064357*PMCS + .0774654537249*DEBT - .0155808870206*LOSS + 0.293289200806*ROA + 0.0233953818308*SG + 0.0119963548426*SIZE + [CX=F]

The result shows that according to the F-Limer statistic (2.088) and its probability (0.000) (statistic probability less than 5 percent error level), the use of combinatory model is appropriate; the result also shows that according to Chi-squared statistic (52.063) and its probability (0.000) (statistic probability less than 5 percent error level), the method with fixed effects is appropriate. Finally, the first research model fitting is performed by choosing the combinatorial multiple regression models with fixed effects. The results of this model fitting are presented in table 3.

The result shows that there is no significant (statistic probability less than 5 percent error level) relationship between company sales to industry sales ratio as a measure for economic competitiveness and earning management based on t-statistic (-0.349) and its probability (0.727). Even though the relationship is not significant, the relationship is negative (impact factor -0.259). This means that according to the obtained results, by increasing (decreasing) the company sales to industry sales ratio, earning management will decreases (increases). Since company sales to industry sales ratio is in inverse measure of market competition and a direct measure of economic competitiveness, therefore according to the results, a decrease (increase) in earning management can probably be due to an increase (decrease) in economic competitiveness, but this impact is not statistically significant.

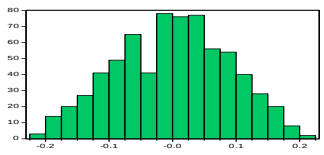
The Second Research Hypothesis Test

Table 4: The results of appropriate regression model choice the effect of economic competitiveness (company's operational costs to sales ratio) on earning management

Test statistic	Type	Statistic amount	Degree of freedom	Probability
F-Limer statistic (Chow test)	Crossover	2.137958	(593،99)	0.0000
Chi-squared statistic (Hausman test)	Crossover	52.849188	6	0.0000

Table 5: The effect of economic competitiveness (company's operational assets to sales ratio) on earning management test results

Dependent variable: Earning Management (EM)				
Explanatory variables	**Coefficients**	**Standard error**	**t-statistic**	**Statistic probability**
Y-intercept©	-0.236855	0.118610	-1.996933	0.0463
Competitiveness(company's operational assets to sales) (PMCOE)	0.011044	0.032527	0.339536	0.7343
Debt ratio (DEBT)	0.080582	0.033837	2.381498	0.0176
loss (LOSS)	-0.014890	0.008064	-1.846613	0.0653
Return on assets (ROA)	0.309389	0.057648	5.366850	0.0000
Sales growth (SG)	0.022551	0.008177	2.757787	0.0060
size (SIZE)	0.010331	0.009203	1.122565	0.2621
Fisher statistic	4.524125	Coefficient of determination statistic		0.444774
Fisher statistic probability	0.000000	Durbin-Watson statistic		2.241971



EM = -0.236855470984 0.0110440600454*PMCOE + 0.0805821324543*DEBT - 0.0148902866191*LOSS + 0.309389451169*ROA + 0.0225508158076*SG + 0.0103310167914*SIZE + [CX=F]

In the second research hypothesis, the effect of company's operational costs to sales ratio as a measure of economic competitiveness on earning management has been tested using combinatorial regression method. Before the model's final fitting, the appropriateness test of combinatorial model over hybrid model and appropriateness test of combinatorial model with fixed effect over combinatorial model with random effects were performed and their results are presented in table 4.

The result shows that according to the F-Limer statistic (2.137) and its probability (0.000) (statistic probability less than 5 percent error level), the use of combinatory model is appropriate; the result also shows that according to Chi-squared statistic (52.849) and its probability (0.000) (statistic probability less than 5 percent error level), the method with fixed effects is appropriate. Finally, the second research model fitting is performed by choosing the combinatorial multiple regression models with fixed effects. The results of this model fitting are presented in table 5.

The result shows that there is no significant (statistic probability less than 5 percent error level) relationship between company's operational assets to sales ratio as a measure for economic competitiveness and earning management based on t-statistic (-0.339) and its probability (0.734). Even though the relationship is not significant, the relationship is positive (impact factor 0.011). This means that according to the obtained results, by increasing (decreasing) the company's operational assets to sales ratio, earning management will increases (decreases). Since company's operational assets to sales ratio is a direct measure of market competition and an inverse measure of economic competitiveness, therefore according to the results, a decrease (increase) in earning management can probably be due to an increase (decrease) in economic competitiveness, but this impact is not statistically significant.

Overall Conclusion and Research Suggestions

The evidences from tests showed that there is no significant relationship between company to industry sales ratio as well as operational costs to sales ratio on the earning management accruals, which suggests that with an increase in company's sales, product market competition is reduced and company's competitiveness is increased.

In other words, the lower the market competitiveness is, company would have a higher competitiveness, and consequently lower earning management would happen. Therefore it is assured to different groups of investors, creditors, analysts and other groups that if the company has a high competitiveness, the possibility of earning management is reduced and the reported earnings are closer to the actual earnings. This would ensure that the managers of these companies would not have any opportunistic behavior in order to report the financial statistics according to their personal benefit.

REFERENCES

Hassani M and Najd S (2013). Studying the role of agency costs in earning management practices of listed companies in Tehran Stock Exchange, Accounting Master Thesis, Faculty of Management and Social Sciences, Islamic Azad University North Tehran Branch.

Hassas Yeganeh (2006). Iran corporate governance, *Auditor Journal* **32**.

HeshmatZadeh E, Valipoor H and Moradi J (2013). Studying the effect of product market competition on agency costs, *The First National Conference of Accounting and Management*.