I J A B E R , Vol. 14, No. 10 (2016): 6039-6057

INDUSTRY COMPETITION INFLUENCE ON EARNINGS QUALITY OF LISTED COMPANIES IN TEHRAN STOCK EXCHANGE

Dr. Bizhan Abedini, Mehdi Rahmanpanah***

Abstract: *Industry competition can influence on the quality of reported earnings by companies through information disclosure and disciplinary effect. The decision to disclose information by a business unit depends on the costs and benefits of presenting information about the underlying prospects of the company. In this regard, the present study is going to investigate the effect of product market competition on the quality of corporate profits. For this purpose, the researcher employs the data of 114 companies listed in Tehran Stock Exchange during the years 2009 to 2013, pooled data model, and estimation of generalized least squares (EGLS). The results showed that there is a significant relationship between industry competition with persistence, predictability and conservatism of listed companies in Tehran Stock Exchange.*

Keywords: *earnings quality, industry competition, Tehran Stock Exchange*

1. INTRODUCTION

Competitive pressure can influence on the quality of reported earnings through two gates: (A) disclosure of information; (b) disciplinary effect. The decision to disclose information by a business unit depends on the costs and benefits of presenting information about the underlying prospects of the company. A number of theoretical models predict that companies in industries with intense competition prefer less to report useful information (Gertner et al., 1988; Verrecchia, 1983). Verrecchia (1983) stated that due to the adverse effect of information disclosure, active companies with intense competition of product market prefer information disclosure policy with less information content in order to reduce possible threats from competitors.

* Faculty of Human Sciences, Department of Management, Hormozgan University, Hormozgan, Iran.

** Department of Accounting, Faculty of Humanities, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran. Corresponding Author

Moreover, Fan and Wong (2002) showed that restricting the flow of information allow the company to ascent in the competition. Verrecchia and Weber (2006) found empirically that the disclosure of relevant information is lower in competitive industries. This confirms that product market competition and disclosure are related inversely. Therefore, it can be argued that competition can lead to ambiguity in profit to limit leaked information for rivals. Contrary to Verrecchia (1983), Gal-Or's model (1985) argues that the information disclosure is lower in the monopolistic industry. With the same argument, Stivers (2004) stated that disclosure of good information might be more in competitive industries. For him, when an industry includes a large number of competitors, it is much possible to find at least a high-quality willing company to present information. Therefore, other active companies would have to disclose more information due to the competitive conditions. The evidence indicates the low probability of disclosure of classified information in centralized sectors compared with the competition part (Harris, 1998; Hayes and Lundholm, 1996). The next effective gate on the quality of earnings is the disciplinary effect of competition. In the product market, competition been recognized as an external disciplinary mechanism of corporate governance that binds the interests of managers and shareholders and improves efficiency. This research tries to investigate potential association between competition and in the industry and the quality of earnings of listed companies in Tehran Stock Exchange. Analysis of investment in the securities market is generally carried out using financial reports published by member companies in exchange stock and independent auditor's opinion on the type of report will lead to the report accreditation. Thus, financial reports audited by independent auditors are the most important products of information system; its main objective is to provide the necessary information to evaluate the performance and ability of the enterprise's profitability. Consequently, given the direct relationship between earnings quality and quality of financial reporting, studying the effective factors in the quality of earnings has considerable importance for the whole market, particularly investors.

2. THEORETICAL FOUNDATIONS

Earning is one of the best indicators of economic unit activity. Literature of earnings quality is full of different criteria to measure this concept. The number of criteria is such that various researchers have classified these

criteria on several categories. For example, Francis et al. (2004) have split earnings quality criteria into two general criteria including criteria based on market data and criteria based on accounting data. Pricing based on market requires that enterprise carefully consider customers and competitors because otherwise it cannot succeed. In fact, the company's pay attention to only consumer customer will bring the same problems as attention to rivals. For this reason, attention to both of these is necessary; since it is difficult, most companies are turning to pricing based on costs, are remaining unaware of the needs of customers and a competitive advantage of their goods, and lose. Economists have acknowledged in recent years that competition comes in many forms. Even in imperfect competitive markets with incomplete monopoly, price competition is not on the shape and style of the original competition. In the real markets, manufacturers are trying in various ways to differentiate their products from a competitor's product. However, in this way, the separation of goods from each other, businesses are more successful and the effectiveness of competition is less and less. Market buyers are attracted to the use of a specific product with known characteristics and successful products with trademarks causes more selling (and more profit) for the successful producers (Seif, 2002). Qualitative characteristics of accounting data cause the usefulness of information for decision-making. These qualitative characteristics can be used as criteria to assess the quality of earnings. The use of qualitative characteristics of accounting information has not been attended as a measure of earnings quality by researchers. Some few studies have been conducted in this regard.

3. LITERATURE REVIEW

Namazi and Ibrahimi (2012) studied the relationship between competitive structure of the market and stock returns. They used Herfindahl-Hirschman Index, the index of Lerner and adjusted Lerner index as competition criteria to achieve this goal. They found a significant correlation between stock returns and competitive structure of the market in the Tehran Stock Exchange. Maham and Zolqadr (2012) examined the relationship between anticipated profit and earnings management. They employed modified Jones model to calculate the discretionary accruals and three methods of accelerating the timing of sales, unusual level of production and unusual reduction of discretionary spending to calculate the real earnings management. They concluded that managers would manage their profits if

they do not achieve target earnings. Datta et al (2013) examined the relationships among power of the market, industry structure and earnings management. Their examination showed the reverse relationship between market power and earnings management. In a research titled "Product market competition and credit risk," Huang and Lee (2013) explored the relationship between market structure and firms' credit risk and concluded that there is a positive correlation between the two. In "Product market competition, managerial incentives and firm valuation," Beiner et al (2011) found an inverse relationship between product market competition and the company's performance. Therefore, the company value will reduce with increasing competition in the product market. Kale and Loon (2011) studied the effect of market power of on the stock market's liquidity. They concluded that the market power increases the liquidity of the stock, as it will reduce the volatility of returns.

4. RESEARCH METHODOLOGY

This is a practical research in terms of objectives because its results can be included in the decisions of managers and investors. With respect to the deduction of hypotheses, it is classified as a descriptive-correlational research because regression and correlation techniques will be used to explore the relationships between variables, which are argument, inductive reasoning, respectively.

4.1 Statistical Population and Sampling Methods

The study population includes all companies listed on Tehran Stock Exchange during the period from 2009 to 2013. The samples will be selected using the systematic elimination of the population so as the sample will be consisted of all companies in the study population that meet the following criteria:

1. Their financial period should end at March to enable researcher to apply them in pooled data or pooled data forms (According to default tests).
2. They should not change their financial period during the study to have comparable financial performance.
3. They should be active in financial actions and not be in the investment companies, banks, insurance offices, and financial institutions.

4. Their information from 2009 to 2013 should be available to exclude all errors and defects.

4.2 Research Hypotheses

Research hypotheses are as follows:

1. Industry competition has a significant influence on the accruals quality.
2. Industry competition has a significant influence on earnings Persistence.
3. Industry competition has a significant influence on earnings predictability.
4. Industry competition has a significant influence on earnings smoothness.

5. DATA ANALYSIS TOOLS AND TECHNIQUES

The required data have been extracted from yearly financial statements, managerial boards' reports to general assembly of stock pwners, website of Stock Exchange Organization, and Rah Avard Novin and Tadbirpardaz softwares. Eviews 7 and combining approaches have been used.

5.1 Research Model and Variables

The following model is used to test the hypotheses:

$$\begin{aligned}\text{Earnings Quality}_{i,t} = {} & \beta_0 + \beta_1 \text{ Industry Competition} \\ & + \beta_2 \text{ Cash Flow Volatility} + \beta_3 \text{ Sales Volatility} \\ & + \beta_4 \text{ Operating Cycle} + \beta_5 \text{ Negative Earn} \\ & + \beta_6 \text{ Leverage} + \beta_7 \text{ Intangibles Intensity} \\ & + \beta_8 \text{ CapitalIntensity} + \square\end{aligned}$$

Dependent variable

1. *Earnings Quality*: Seven indicators are used to measures this factor.
2. *Accruals Quality:* the following model (Dechow and Dichev, 2002) is used in this regard:

$$\frac{WCA_{it}}{\text{AvgAssets}_{it}} = \beta_0 + \beta_1 \frac{\text{CFO}_{i,t-1}}{\text{AvgAssets}_{it}} + \beta_2 \frac{\text{CFO}_{i,t}}{\text{AvgAssets}_{it}} + \beta_3 \frac{\text{CFO}_{i,t+1}}{\text{AvgAssets}_{it}} + \varepsilon_{it}$$

Where:

WCA	=	Working capital accruals that is change in current assets, minus change in cash, minus the change in current liabilities.
CFO	=	Cash flow from operating activities derived from the cash flow statement.
AvgAssets	=	Average assets per year.

This model will be estimated at the overall level of data; then, model residual will be calculated in each company-year. The result of the absolute value of the remaining models multiple negative one is a measure of earnings quality or accrual.

2. *Earnings Persistence*: the following models are used to measure it (Kormendi and Lipe, 1987):

$$EARN_{i,t} = \alpha_0 + \alpha_1 EARN_{i,t-1} + \varepsilon_{i,t}$$

EARN: Earnings per share for the fiscal period of the current year (t) and the previous year (t-1). Here, α_1 (independent variable coefficient) shows earnings persistence of each company-year; to measure the impact industry competition on earnings persistence, its effect on the α_1 will be used.

3. *Earnings Predictability*: Earnings predictability is calculated by multiplying the standard residual deviation equation calculation of earnings persistence over the last three years for each company-year in negative one (Francis et al, 2004).

4. *Earning Smoothness*: It is calculated by the dividing standard deviation of operating cash flow over the past three years to the standard deviation of the net profit for the last three years.

5. *Earnings Relevance*: the same as approach used in the earnings persistence, the following model (Ahangari & Shakeri, 2009) is used:

$$P_{i,t} = \alpha_0 + \alpha_1 EARN_{i,t} + \alpha_{i,t}$$

Where, P indicates the price per share of firm i in year t.

6. *Earnings Timeliness*: logarithm of the number of days between the date that is the end of the financial year and the date of publication of financial reports (Chambers and Penman, 1984).
7. *Earnings Conservatism*: Using the following model, Basu found that asymmetry of earnings in the reflection good news and bad news leads to varying degrees of persistence.

$$NI = \alpha + \beta_1 DR + \beta_2 RET + \beta_3 RET * DR + \varepsilon$$

Where:

NI = Net income before unusual items divided by the market value of equity.

DR = Annual diminishing returns of shares.

RET = A dummy variable; for companies whose stock returns is less than zero, it is regarded as one, unless as zero.

Earnings conservatism is ratio of bad news coefficient to good news coefficient multiple regression of earnings divided by returns ($[\beta_2+\beta_3]/\beta_2$); it larger value indicates higher quality of earnings (Safarzadeh, 2014).

Independent variable

Industry Competition = Competition between companies in certain industries, in order to increase market share and sales. It is measured by Herfindahl-Hirschman Index (Datta et al, 2013):

HHI_{jt} = $\sum^{Nj}_{i=1} (Sales_{jit} / \sum^{Nj}_{i=1} Sales_{jit})^2$

Where:

HHI_{jt} = *HHI* is industry (j) at the time (t) and $Sales_{jit}$ is the sales of firm (i) in industry (j) at the time (t).

Greater value of Herfindahl-Hirschman Index indicates more centralization in industry and less competition; hence, multiplying the the values of this index in negative one is used as a measure for industry competition.

6. RESEARCH FINDINGS

6.1 Descriptive Statistics

The final sample during the analyzed period 2009 to 2013 consists of 114 companies. In this section, mean, median (central criteria), standard deviation, maximum and minimum (distribution parameters) used to calculate the variables listed in Table 1. It should be noted that the number of company-years have been a slight decrease after removing outliers and sorting data.

Table 1.
Descriptive Statistics of the Variables

Variables	*Mean*	*Median*	*Minimum*	*Maximum*	*Standard Deviation*
Industry Competition	-0.197	-0.16	-0.904	-0.019	0.147
Accruals Quality	-0.121	-0.094	-0.489	-2.19*10-5	0.096
Earnings Persistence	-0.798	-0.057	-29.784	7.862	3.905
Earnings Predictability	-316.437	-203.981	-2686.515	-4.867	347.787
Earning Smoothness	3.338	1.436	0.016	77.193	6.35
Earnings Relevance	-1.939	0.5	-88.56	48.672	13.47
Earnings Timeliness	2.232	2.378	1.447	2.561	0.244
Net profit to the market value	0.131	0.149	-0.801	0.552	0.151
Annual stock return	0.516	0.203	-0.862	4.943	0.954
Negative stock returns	0.325	0.000	0.000	1.000	0.469
Annual stock return * negative stock returns	-0.08	0.000	-0.862	0.000	0.159
Volatility of cash flow	0.059	0.05	0.001	0.28	0.042
Volatility in sales revenue	0.112	0.082	0.0006	0.917	0.1
Operating cycle	2.326	2.341	1.158	3.647	0.286
Losing company	0.077	0.000	0.000	1.000	0.267
Financial Leverage	0.6	0.621	0.096	0.986	0.18
Intangible assets	0.006	0.002	0.000	0.085	0.009
Property, plant and equipment	0.255	0.214	0.024	0.838	0.169

Mean is the main and the most important the central index, which represents the balance and center of gravity distribution. As can be seen in

Table 1, the mean value of the variable industry competition is -0.197. Median is a point that divides a sample into two equal parts. In other words, 50% of observations are before and 50% of the observations are after it. As represented in Table 1, the median for industry competition is -0.16. In general, the distribution criteria review and compare the distribution of observations around the mean. Standard deviation is one of the most important measures of distribution. According to the table above, the variable for industry competition is 0.147. The maximum for industry competition is -0.019; the minimum for industry competition is -0.904.

6.2 Regression Testing

Certain assumptions are met in each regression model; in the case of violating each assumption desirable properties of regression estimates or hypothesis testing fails. Some basic assumptions of regression are:

1. The average error (residuals) or e_t is equal to zero. Due to the randomness of e_t, it can be assumed as E (e_t) = 0. This assumption means that constituent elements of error leave its positive and negative effects so that average amount of error will be zero.
2. Error (e_t) is normally distributed. In the case of violating this assumption, hypothesis testing and confidence intervals on the regression of factors in conventional mode is invalidated. According to central limit theorem, the high number of data solves this problem.
3. In different observations, errors are uncorrelated or independent of each other. It means COV (e_t e_s) = 0, t≠s. If the latter assumption is violated, a phenomenon called serial correlation or auto regression will emerge; it indicates correlated residuals.
4. Variances of errors are fixed number like δ_2, V (e_t) = δ_2. When this assumption is violated, variance inequality or unequal variants will emerge. The use of generalized least squares estimation method solves this problem.

6.3 Normality o Regression Components

Jarque-Bera test is used to assess the normality of regression disturbing elements. The results are presented in Table 2. Based on this test, as the significance level less than 0.05, the distribution of disturbing is not normal. When the sample size is large enough, deviation from normality assumption is usually insignificant and its consequences are negligible.

Table 2
Jarque-Bera Test

Variables	*Jarque-Bera Statistics*	*Significance level*
Industry Competition	656.15	0.000
Accruals Quality	124.67	0.000
Earnings Persistence	16770.03	0.000
Earnings Predictability	4382.903	0.000
Earning Smoothness	53836.37	0.000
Earnings Relevance	4327.903	0.000
Earnings Timeliness	64.557	0.000
Net profit to the market value	2720.213	0.000
Annual stock return	628.963	0.000
Negative stock returns	100.32	0.000
Annual stock return * negative stock returns	1148.957	0.000
Volatility of cash flow	526.465	0.000
Volatility in sales revenue	3915.365	0.000
Operating cycle	174.441	0.000
Losing company	2488.174	0.000
Financial Leverage	17.108	0.000
Intangible assets	7733.188	0.000
Property, plant and equipment	93.015	0.000

6.4 Testing research hypotheses

Chow test and Limer's F-statistics is used to determine the use of pooled data and recognition of their homogeneous or heterogeneous status. Statistical assumptions of the test as follows:

H_0=Pooled Data

H_1=Panel Data

Hypothesis H0 is based on lack of invisible personal effects; Hypothesis H1 is based on the existence of invisible personal effects. This means that the

model lacks invisible personal effects; therefore, it can be estimated using pooled regression model. However, if H1 were accepted, it would mean that the model has invisible personal effects. If the results of this test are based on the the use of pooled data, the model will be estimated by another model such as Fixed Effects Model (FED) or Random Effects Model (RED). Hausman test have to be implemented toselect one of these two models.

H_0=Random Effect

H_1=Fixed Effect

The null hypothesis of Hausman is based on the fitness of random effects model to estimate the regression model of pooled data.

6.5 Testing First Research Hypothesis

In order to evaluate the first model of testing hypotheses, Chow test and Limer's F-statistics is used to determine the method of pooled data and recognition of their homogeneous or heterogeneous status. The results are in Table 3.

Table 3.
Chow Test

Null hypothesis	*F-statistics*	*Significance level*	*Chow test result*
Using pooled data	1.37	0.017	The null hypothesis is rejected

According to Table 3, Chow test result indicates that the probability obtained for the F-statistic is less than 5%, therefore, the pooled data can be employed for testing this model. Table 4 proves the necessity of using either fixed effects model or random effects model through Hausman Test.

Table 4.
Hausman Test

Null hypothesis	*Chi-square test*	*Significance level*	*Hausman test result*
Using random effects model	13.211	0.104	The null hypothesis is not rejected

According to Table 4, the significance level of Hausman test is more then 0.05, thus, random effects model should be used to evaluate the model coefficients. The result of using random model in addition to generalized least squares estimation method is presented in Table 5.

Table 5
Testing the first hypothesis

Variable	*Coefficient*	*Standard error*	*t-statistic*	*Significance level*
Fixed amount	0.129	0.051	2.541	0.011
Industry competition	0.029	0.029	1.853	0.064
Volatility of cash flow	-0.387	0.118	-3.253	0.001
Volatility in sales revenue	-0.022	0.06	-2.926	0.003
Operating cycle	0.003	0.017	0.913	0.361
Losing company	-0.015	0.019	-2.823	0.004
Financial Leverage	0.051	0.03	1.697	0.093
Intangible assets	0.361	0.509	4.677	0.000
Property, plant and equipment	0.019	0.03	0.64	0.522
F-statistic	8.341	Determination coefficient		0.338
F-statistic significance level	0.000	Adjusted determination coefficient		0.321
		Durbin-Watson value		1.946

With respect to the results of Table 5, since t-statistic for the variable of industry competition is smaller than ±1.965 (equal to +1.853) and its significance level is greater than 0.05, the significant relationship between industry competition and accruals quality in companies listed on Tehran Stock Exchange is not met. Therefore, first research hypothesis is not accepted. However, control variables of volatility of cash flow, volatility in sales revenue, losing company have significant negative correlation with the dependent variable and control variable of intangible assets has significant positive correlation with the dependent variable.

6.6 Testing Second Research Hypothesis

In order to evaluate the second model of testing hypotheses, Chow test and Limer's F-statistics is used to determine the method of pooled data and recognition of their homogeneous or heterogeneous status. The results are in Table 6.

Table 6
Chow Test

Null hypothesis	*F-statistics*	*Significance level*	*Chow test result*
Using pooled data	1.563	0.000	The null hypothesis is rejected

According to Table 6, Chow test result indicates that the probability obtained for the F-statistic is less than 5%, therefore, the pooled data can be employed for testing this model. Table 7 proves the necessity of using either fixed effects model or random effects model through Hausman Test.

Table 7
Hausman Test

Null hypothesis	*Chi-square test*	*Significance level*	*Hausman test result*
Using random effects model	18.168	0.02	The null hypothesis is not rejected

According to Table 7, the significance level of Hausman test is less then 0.05, thus, fixed effects model should be used to evaluate the model coefficients. The result of using this model in addition to generalized least squares estimation method is presented in Table 8.

Table 8
Testing the second hypothesis

Variable	*Coefficient*	*Standard error*	*t-statistic*	*Significance level*
Fixed amount	1.837	0.441	4.116	0.000
Industry competition	1.051	0.263	3.995	0.000
Volatility of cash flow	1.553	1.099	1.413	0.158
Volatility in sales revenue	-3.924	0.651	-6.019	0.000
Operating cycle	-0.713	0.173	-4.107	0.000
Losing company	-2.389	0.506	-4.718	0.000
Financial Leverage	-0.464	0.248	-1.874	0.061
Intangible assets	1.603	4.69	3.752	0.000
Property, plant and equipment	-0.424	0.24	-1.767	0.077
F-statistic	15.754	Determination coefficient		0.389
F-statistic significance level	0.000	Adjusted determination coefficient		0.377
		Durbin-Watson value		1.819

With respect to the results of Table 8, since t-statistic for the variable of industry competition is greater than ±1.965 (equal to +3.995) and its significance level is smaller than 0.05, the significant relationship between industry competition and earnings persistence in companies listed on Tehran Stock Exchange is met. Therefore, the second research hypothesis is accepted. However, control variables of volatility in sales revenue, operating cycle, and losing company have significant negative correlation with the dependent variable and control variable of intangible assets has significant positive correlation with the dependent variable.

6.7 Testing Second Research Hypothesis

In order to evaluate the third model of testing hypotheses, Chow test and Limer's F-statistics is used to determine the method of pooled data and recognition of their homogeneous or heterogeneous status. The results are in Table 9.

Table 9
Chow Test

Null hypothesis	*F-statistics*	*Significance level*	*Chow test result*
Using pooled data	4.648	0.000	The null hypothesis is rejected

According to Table 9, Chow test result indicates that the probability obtained for the F-statistic is less than 5%, therefore, the pooled data can be employed for testing this model. Table 10 proves the necessity of using either fixed effects model or random effects model through Hausman Test.

Table 10
Hausman Test

Null hypothesis	*Chi-square test*	*Significance level*	*Hausman test result*
Using random effects model	14.426	0.002	The null hypothesis is not rejected

According to Table 10, the significance level of Hausman test is less then 0.05, thus, fixed effects model should be used to evaluate the model coefficients. The result of using this model in addition to generalized least squares estimation method is presented in Table 11.

Table 11
Testing the third hypothesis

Variable	*Coefficient*	*Standard error*	*t-statistic*	*Significance level*
Fixed amount	-538.886	44.458	-12.121	0.000
Industry competition	62.991	27.621	2.28	0.023
Volatility of cash flow	90.152	83.482	1.079	0.28
Volatility in sales revenue	-304.783	29.451	-10.345	0.000
Operating cycle	49.484	16.398	3.017	0.002
Losing company	-51.301	13.026	-3.938	0.000
Financial Leverage	105.721	34.07	3.103	0.002
Intangible assets	227.384	230.365	0.987	0.324
Property, plant and equipment	347.202	45.492	7.631	0.000
F-statistic	14.833	Determination coefficient		0.804
F-statistic significance level	0.000	Adjusted determination coefficient		0.75
		Durbin-Watson value		1.732

With respect to the results of Table 11, since t-statistic for the variable of industry competition is greater than ±1.965 (equal to 2.28) and its significance level is smaller than 0.05, the significant relationship between industry competition and earnings predictability in companies listed on Tehran Stock Exchange is met. Therefore, the third research hypothesis is accepted. However, control variables of volatility in sales revenue and losing company have significant negative correlation with the dependent variable and control variables of operating cycle, financial leverage, and property, plant and equipment have significant positive correlation with the dependent variable.

6.8 Testing Fourth Research Hypothesis

In order to evaluate the fourth model of testing hypotheses, Chow test and Limer's F-statistics is used to determine the method of pooled data and recognition of their homogeneous or heterogeneous status. The results are in Table 12.

Table 12
Chow Test

Null hypothesis	*F-statistics*	*Significance level*	*Chow test result*
Using pooled data	2.088	0.000	The null hypothesis is rejected

According to Table 12, Chow test result indicates that the probability obtained for the F-statistic is less than 5%, therefore, the pooled data can be employed for testing this model. Table 13 proves the necessity of using either fixed effects model or random effects model through Hausman Test.

Table 13
Hausman Test

Null hypothesis	*Chi-square test*	*Significance level*	*Hausman test result*
Using random effects model	19.99	0.000	The null hypothesis is rejected

According to Table 13, the significance level of Hausman test is less then 0.05, thus, fixed effects model should be used to evaluate the model coefficients. The result of using fixed model in addition to generalized least squares estimation method is presented in Table 14.

Table 14
Testing the first hypothesis

Variable	*Coefficient*	*Standard error*	*t-statistic*	*Significance level*
Fixed amount	-2.775	0.976	-2.84	0.004
Industry competition	-0.396	0.444	-0.891	0.373
Volatility of cash flow	28.461	1.773	16.051	0.000
Volatility in sales revenue	-2.659	0.861	-3.087	0.002
Operating cycle	1.005	0.378	2.659	0.008
Losing company	-1.142	0.272	-4.193	0.000
Financial Leverage	2.933	0.614	4.771	0.000
Intangible assets	-4.131	7.362	-0.561	0.575
Property, plant and equipment	2.58	0.761	3.389	0.000
F-statistic	7.502	Determination coefficient		0.676
F-statistic significance level	0.000	Adjusted determination coefficient		0.586
		Durbin-Watson value		2.204

With respect to the results of Table 14, since t-statistic for the variable of industry competition is smaller than ±1.965 (equal to -0.891) and its significance level is greater than 0.05, the significant relationship between industry competition and earnings smoothness in companies listed on Tehran Stock Exchange is met. Therefore, the fourth research hypothesis is not accepted. However, control variables of, operating cycle, financial leverage, and property, plant and equipment, and volatility of cash flow have significant positive correlation with the dependent variable and control variables of volatility in sales revenue and losing company have significant negative correlation with the dependent variable.

7. CONCLUSION

The results of testing research hypotheses are briefly presented in Table 15. As seen in Table 15, industry competition is effective in indexes of earnings predictability and earnings conservatism. It should be noted about the relationship of industry competition with earnings persistence and earnings predictability that a more persistent earning indicates more capability of long-term profitability. Similarly, the earnings predictability represents that one can use former profits to predict future profits. Persistence and predictability of earnings are more likely to encourage potential competitors to enter the market. Thus, the direct relationship between industry competition and earnings persistence and predictability is expected. Although no study has investigated the relationship between industry competition and various measures of earnings quality, as this results point at the significant direct relationship between measures of earnings quality and industry competition, it can be argued that they are in line with the results obtained by Karuna (2007) and Datta et al (2013).

Table 15.
Summary of research results

Independent variable → *Dependent variable* ↓	*Industry Competition*	
	Effect	*Direction*
Accruals quality	X	X
Earnings persistence	√	+
Earnings predictability	√	+
Earnings smoothness	X	X

References

Ahangari, A., Shakeri, A. 2009. The effect of earnings management on the relevance of earnings and book value to market value of shares of companies listed in Tehran Stock Exchange. Quarterly of Financial Accounting, 1 (3): 54-68.

Seif, A. 2002. Forms of competition in the market and its role in the profitability of the enterprise: A Case Study of Japanese firms in Europe. Journal of Economic Policy Research, 23: 3-36.

Safarzadeh, M H. 2014. Earnings quality and its measurement. Journal of Accounting Research, 3 (1): 125-145.

Maham, K., Zolqadr, M. 2012. The relationship between anticipated profit and earnings management. Journal of Empirical Research in Financial Accounting, 2(4): 65-87.

Namazi, M., Ibrahimi, Sh. 2012. The relationship between the competitive structure of the market and stock returns. Journal of Empirical Research in Financial Accounting, 2 (1): 9-27.

Beiner, S., Schmid, M. M., Wanzenried, G. 2011. Product market competition, managerial incentives and firm valuation. European Financial Management, 17: 331–366.

Chambers, A.E. and Penman, S.H. 1984. Timeliness of Reporting and the Stock Price Reaction to Earnings Announcements. Journal of Accounting Research, 22 (1): 21-47.

Datta, S., Iskandar-Datta, M., Singh, V. 2013. Product market power, industry structure and corporate earnings management. Journ al of Banki ng & Finance.

Dechow, M., Dichev, D. 2002. The quality of accruals and earnings: The role of accruals estimation errors. The Accounting Review, 77: 35-59.

Fan, J., Wong, T. 2002. Corporate ownership structure and the informativeness of accounting earnings in East Asia. Journal of Accounting and Economics, 33: 401–425.

Francis, J., LaFond, R., Olsson, P., Schipper, K. 2004. Cost of Equity and Earnings Attributes. The Accounting Review, 79 (4): 967-1010.

Gal-Or, E. (1985). Information sharing in oligopoly. Econometrica, 53: 329–343.

Gertner, R., Gibbons, R., Scharfstein, D. 1988. Simultaneous signaling to the capital and product markets. RAND Journal of Economics, 19: 173–190.

Harris, M.S. 1998. The association between competition and managers'business segment reporting decisions. Journal of Accounting Research, 36: 111–128.

Hayes, R., Lundholm, R. 1996. Segment reporting to the capital market in the presence of a competitor. Journal of Accounting Research, 34: 261–279.

Huang, H., Lee, H. 2013. Product market competition and credit risk, Journal of Banking & Finance, 37: 324-340

Kale, J. R., Loon, Y. C. 2011. Product market power and stock market liquidity. Journal of Financial Markets, 14: 376–410.

Karuna, C. 2007. Industry product market competition and managerial incentives. Journal of Accounting and Economics, 43: 275–297.

Kormendi, R., Lipe, R. 1987. Earnings innovations, earnings persistence, and stock returns. Journal of Business, 60: 323-345.

Stivers, A. E. 2004. Unraveling of information: competition and uncertainty. BE Journal of Theoretical Economics, 4: 1–30.

Verrecchia, R. 1983. Discretionary disclosure. Journal of Accounting and Economics, 5: 365–380.

Verrecchia, R., Weber, J. 2006. Redacted disclosure. Journal of Accounting Research, 44: 791–814.