



PRODUCT MARKET STRUCTURE AND EARNINGS QUALITY: EVIDENCE TEHRAN STOCK EXCHANGE

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ABSTRACT

The purpose of this paper is to examine the relationship between product market structure and earnings quality in listed companies of Tehran Stock Exchange. To achieve this goal, we used Herfindahl - Hirschman Index, Lerner and Adjusted Lerner Indexes to measure product market structure and discretionary accruals for earnings quality. Our sample consists of 1144 out of 143 observations of firms for the period of 2008-2012. Using Panel Data Method, we found a significant positive relationship Herfindahl -Hirschman Index and earnings quality. Furthermore, the results show a significant positive relationship between the Lerner Index and the Adjusted Lerner Index and earnings quality. This finding means that no matter how the competition is more in the industry; the earnings quality will be higher.

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1. INTRODUCTION

Financial reports are one of the most important sources of information which purpose is to provide necessary information for economic decisions and will provide the major part of required information of the capital market. However, in recent years, bankruptcy of big firms has faced financial reporting system a crisis. Bankruptcy of such firms will result in accusation of the accounting and financial reporting systems so that in many cases, these events were remembered as accounting and auditing scandals (Booloo and Saghafi, 2009). Accordingly, in this regard the accounting and auditing profession devised strategies in order to solve problem. Changes in accounting standards from rules-based standards to principles-based standards, emphasis on auditors' independence, corporate governance to protect the interests of minority shareholders and

regulates enforcement law of accounting and auditing profession are among the measures adopted for public trust. However, despite the codification of identical regulatory mechanisms for financial reporting, it seems the quality of their financial reporting is not the same and this suggests that there may be other factors that cause differences in the quality of financial reporting of firms (Nikoomaram and Badavar, 2009) Since the degree of product market structure in industries is among the items that affect the quality of financial reporting, in the present research, considering the earnings quality as a criterion for the quality of financial reporting, the impact of product market structure on earnings quality are also studied.

This study contributes to the literature by providing evidence on the relation between product market structure and quality of accounting information. Based on a comprehensive sample of 1144 out of 143 observations of firms for the period of 2008-2012 Our study documents that there is a positive relation between product market competition and earnings quality.

This finding supports the concept that firms from industries with less competition tend to create an opaque information environment to protect their competitive advantage over rivals.

This study is the first one of its kind in developing countries that investigates relation between product market structure and earning quality .Also it has been performed in developed countries via Cheng *et al.* (2013) and Datta *et al.* (2013) by positive and negative results. Above all, we believe that it is the first time that such an interesting subject is being performed in Iran while it has been rarely surveyed in developing countries.

2. LITERATURE REVIEW

2.1. Background of the Study

Considering that in the scope of the search conducted by the researchers, there was no research in Iranian sources that directly examine the impact of product market structure on earnings quality; in this section only background of external research is provided.

Dan *et al.* (2007) have assessed the ties between concentration of industry and stock returns of listed companies on Shanghai Stock Exchange & Shenzhen Stock Exchange for the period of 2001-2005. The results have indicated that after controlling the firm size and the ratio of book value to market value of equity, there is a positive and meaningful relationship between concentration of industry and stock returns.

Dhaliwal *et al.* (2008) have examined the ties between accounting conservatism and competitive structures of products market. Their observed sample included 99,315 firm-year observations for the period of 1964 - 2006. The results of their study indicated that by increasing intensity of competition in markets, asymmetric chronological recognition of economic gains and losses would be higher.

Tinaikar and Xue (2009) examined the relationship between product market competition and earnings management. Their sample consists of 6241 observations from 670 companies at international level, for the period of 1990 - 2007. The results of their research indicated that

increase in product market competition as a mechanism of controlling and preventing has a significant negative effect on earning smoothing and management of accruals.

Li (2010) examined the impact of product market competition on the quantity and quality of voluntary disclosure of payment information. He observed sample included 27,053 firm-year observations, for the period of 1977- 2007. The results of the study of Li (2010) suggested that product market competition increases the quantity and quality of voluntary disclosure.

Yin Man (2010) examined the influence of product market structure on earning quality. His sample included 5678 firm-year observations for the period of 1996 - 2005. His finding suggests that the focus on product market has a significant and negative impact on the earnings quality.

Karuna *et al.* (2012) examined the relationship between product market competition in an industry and earnings management. They observed 16,673 samples for the period of 1992 - 2003. In their research, competitions in the product market were measured using indicators including substitution of product, market size and market entry costs and earnings management using criterions such as real activities manipulation, accruals and represent of the financial statements. The results of their research indicated that product market competition has a positive and significant effect on earnings management.

Bender and Nielsen (2013) examined the management of earnings. Their sample consists of 200 companies during the period of 1994 to 2011. The results of their study indicated that there is a significant negative relationship between increase in accruals and earnings quality.

Balakrishnan and Cohen (2013) examined the relationship between competition and incorrect financial accounting reporting. Their sample included 240 firm-year observations from 2002- 2006. The results of their study indicated that product market competition as a controllable and deterrent mechanism has a significant negative impact on incorrect financial accounting reporting by administrators.

Cheng *et al.* (2013) examined the impact of product market competition and the quality of earnings. They observed sample consists of 4989 year – firm of 976 companies for the period of 1996 - 2005. The results of their study indicated that product market competition has a positive and significant impact on the quality of earnings.

Datta *et al.* (2013) have assessed the impact of product market power and industry structure on corporate earnings management. The examined sample consists of 43628 out of 6019 firms during the years 1987- 2009. The results of research indicated that firms power in product market and industry concentrated structure have negative and meaningful impact on discretionary accruals management.

2. 2. Theoretical Framework

Industrial organizations' theory suggests that the concentration of firms in the market is an important element in market structure and determining the competition. Based on this assumption, the concentration weakens the competition by cultivating the collude behavior among the firms. Increase (decrease) of industry concentration, *ceteris paribus*, is in association with decrease

(increase) of competition degree. Furthermore, it seems that the increase of market concentration is associated with higher prices and abnormal profits are result of higher proprietary-costs in these firms.

Verrecchia (1983) shows that competition in the product market hinders the spread of high quality financial reports and active firms in competitive markets report the low content financial data. Harris 1998 concluded that in less competitive industries, the likelihood of proper disclosure will decrease. Cahan (1992) has demonstrated that among industries with low intensity competition, less-quality financial information is probable. Ali *et al.* (2009) have found many evidences demonstrating the fact that firms located in more concentrated industries have less disclosure to prevent the creation of new competitors. Harris (1998), Botosan and Stanford (2005) empirically showed that active firms in concentrated industries have greater control over the quantity of disclosure of accounting information via concealing the advantageous segments of data. In general, to hide profitable segments using revenue management techniques, companies may make opaque information environment to conceal the actual financial performance of other competitors and the public.

In the following, two supplement motives which affect the disclosure decisions of managers through product market competition are expressed.

2.2.1. Proprietary-Cost Motives

Assuming the perfect competition in the market, economic theories predict that both the buyer and the seller have complete information about the price and the quality of the products and there is no information asymmetry between firms and no company can act up on the prices alone and there is no need to accounting rules. In a market where information is incomplete, each of the firms' decisions about prices and quality of products could affect the earnings or competitors. Such proceedings will force the competitors to react for pricing or producing and in turn will cause increase of the prices. This process continues the same way until the market reaches equilibrium. As a result, disclosure of managers to investors may harm the company's competitive position through the dissemination of relevant information with competitors which are called specific damages (Verrecchia, 1983). Despite of proprietary- costs, manager's decisions in optimum level of disclosure will be a link between the earnings from the information exchange to the capital market regarding to the value of the company against costs of helping competitors. Previous research has indicated that these decisions are subject to many factors; one of them is the competitive level that company is being faced. In Early 1934 the competitive environment hypothesis suggested that competition will eliminate all abnormal profits in the long term. This hypothesis asserts that high profit margins are strong incentive for entering new competitors to the market and this will lead to reduction of profits. Studies on the process of corporate profits confirmed average reversion over time. Since firms in competitive industries are of less interest, they are faced with lower level of proprietary- costs.

Darrough and Stoughton (1990) theoretically expressed in an article that companies with high concentration industries, due to fear of rivals' attention have less incentive to disclose their beneficial information; while active firms in competitive industries are more willing to disclose beneficial information discourage new firms. Ali *et al.* (2009) showed that firms in concentrated industries have more dependent investment strategies with their competitors. Officials in these industries employ less informative disclosure policies to prevent the emergence of competitors with useful strategic information. They found out that firms in more-concentrated industries forecast a lower profit and have no tendency to have long-term predictions and receive a lower rank of disclosure from the analysts also have an opaque information environment. Their findings indicate that firms' disclosure policies affect their efforts to prevent new competitors with proprietary information.

2.2.2. Political-Costs Motive

The political-cost hypothesis deals with the role of accounting choices in the political process. Political process imposes costs to companies or industries that are perceived to enjoy from advantageous of additional benefit or using general commodities or services. Being aware of acquiring additional benefit by these firms or industries may lead to forcing them to decrease prices or enacting harsher regulations. Thus, managers of these firms may have incentives to select accounting policies and use their authorities to reduce the reported profits and political risks. Political-cost motive anticipated that managers in facing with possibility of transferring wealth due to political imposition choose accounting strategies to reduce the likelihood or size of transfer (Watts and Zimmerman, 1978). Han and Wang (1998) figured out that in the Persian Gulf crisis in 1990, the extract oil companies in America used accruals for loss of earned income in order to prohibit losing the public/ great industries union confidence. Based on political-costs motives, firms in less competitive industries, confronting higher political-costs and managers in these firms have greater incentive to apply earnings management to reduce the reported earnings. In summary, the proprietary- costs and political-costs are two complementary motivations that link the product market competition to the quality of accounting information. As a result, our hypothesis is as follows:

H1: Herfindahl - Hirschman Index of Product Market Structure is positively associated with earning quality

H 2: Lerner index of Product Market Structure is positively associated with earning quality

H 3: Adjusted Lerner index of Product Market Structure is positively associated with earning quality

3. RESEARCH METHODOLOGY

In this study, relation between product market structure and earning quality of listed firms in Tehran stock exchange during the period of 2005-2011 is examined. Accordingly, multivariate regression model with combined data method will be used as follows:

$$EQ_{it} = \alpha_{it} + \sum_1^3 \beta_J MS_{it} + \sum_{L=4}^5 \beta_L \text{OtherVariables}_{it} + \varepsilon_{it}$$

Where EQ_{it} is earning quality (Discretionary Accruals) as model dependent variable, α_{it} is stable value, β_J is independent variables coefficient, MS_{it} is product market structure criteria including Herfindahl - Hirschman Index, Lerner Index and justified Lerner Index as independent variables, β_L is model control coefficient, $\text{Other Variables}_{it}$ is model control variables including debt ratio and firm size and ε_{it} is error .

3.1. Measurements of Variables

In this study, three sets of independent, dependent and control variables is used.

3.1.1. Dependent Variable

Earning Quality: Earning quality is a criterion to measure the quality of accounting data and financial reporting. In this study, the accruals are a criterion for earnings quality and in compliance with [Datta et al. \(2013\)](#) this paper utilizes the Modified Jones Model. In this model it is assumed that non-discretionary accruals are constant over time and it has been tried to control the effect of economic conditions of an economic unit on non-discretionary accruals. The modified Jones model assumes that sale changes in time of earning management estimation (estimation period) is derived from earning management, so by entering changes in receivable accounts in the prototype of Jones model, the Modified Jones Model is presented as follows:

Step 1: Calculation of the Non-Discretionary Accruals

$$NDA_{it} = \alpha_1 (1/A_{it-1}) + \alpha_2 (\Delta REV - \Delta REC_{it} / A_{it-1}) + (PPE_{it} / A_{it-1}) + (ROA_{it-1} / A_{it-1})$$

Where; NDA is non-discretionary accruals, A is Total Assets; REV is Total Incomes (sales); REC is Receivable Accounts and PPE is gross property, machinery and equipment; ROA is Return on Assets.

Step 2: Calculation of Total Accruals

$$TA_{it} = E_{it} - OCF_{it}$$

Where; TA: total accruals, E: operating earnings and OCF: cash flow from operations.

Last Step: Calculation of Discretionary Accruals

$$DA_{it} = (TA_{it} / A_{it-1}) - NDA_{it}$$

Where; DA: Discretionary Accruals is used as reverse criterion of earning quality. Therefore, by Discretionary Accruals increase (decrease) earning quality will decrease (increase).

3.1.2. Independent Variable

The independent variables in this study i.e product market structure's criteria are as follows:

Herfindahl - Hirschman Index: Like the researches of [Tinaikar and Xue \(2009\)](#) [Karuna et al. \(2012\)](#), [Balakrishnan and Cohen \(2013\)](#), [Cheng et al. \(2013\)](#), [Datta et al. \(2013\)](#), this index is used as a measure of product market structure and is calculated as follows:

$$HHI = \sum_{j=1}^n S_{it}^2$$

In this equation, S_{it} is market share of economic unit “i” in the period of “t”; and “n” is number of existing economic units of one industry or market. If there is numerous economic units with relatively equal sizes in the same market, Herfindahl - Hirschman index will be very small and close to zero; and by the small number of economic units with unequal relative sizes in the market, it will be close to one (Herfindahl, 1959). In other words, whatever the Herfindahl - Hirschman index become closer to zero, it will indicate the decreasing concentration and increasing competition. If this index number is close to one, it will indicate a dominance power of large firms in the market.

Lerner Index (Marginal Price – costs divided by sales): Lerner index is one of the appropriate indicators to measure the degree of monopoly. One of the features of monopolist in the market is the ability to raise price above marginal cost (MC). Lerner index equals to the product’s price minus the marginal cost of production. This indicator directly shows the characteristics of market power, i.e. the ability of company to determine a price greater than marginal cost. The challenge of using this indicator in empirical research is that the final cost will not be obvious. Hence, researchers usually estimate the Lerner index through the marginal price-cost. The index is approximately calculated using the following equation (Sharma, 2010):

$$LI = \text{SALE}_{it} - \text{COGS}_{it} - \text{SG \& A}_{it} / \text{SALE}_{it}$$

In this equation, Sale_{it} is the sales of economic unit “i” in the period of “t”; COGS_{it} is the cost of sold commodities in economic unit “i” in the period of “t”; and SG \& A_{it} is general, administrative and selling expenses of economic unit “i” in the period of “t”;

Adjusted Lerner Index (Marginal Price – cost divide by sales): Although the Lerner index is used to determine the strength of the company’s product market, the criterion cannot divide the company-specific factors such as the impact of product market pricing power from the industry-level factors. Thus, we applied the adjusted version of the Lerner index in this research (Sharma, 2010).

$$LI_{IA} = LI_{it} \cdot \sum \omega_{it} LI_{it}$$

In which the LI_{it} is Lerner Index, economic unit “i” in the period of “t”; and ω_{it} is the sales ratio of economic unit “i” in the period of “t” to the total industry or market sales.

3.1.3. Control Variables

The control variables in this study include the debt ratio and firm size ratio as follows.

Debt Ratio: This ratio includes the ratio of total debt to book value of “I” firm’s total assets in the period of “t”.

$$\text{Debt}_{it} = \text{TD}_{it} / \text{TA}_{it}$$

Where; TD: Total Debts and TA: Total Assets

Firm Size: Different criteria are applied to measure firm size, such as the sale, total assets and company’s market value of shares’ logarithm. But due to inflation and the irrelevance of historical figures of assets and avoiding the impact of sales fluctuations, we applied the natural logarithm of the firm’s stock market value as a measure of firm size, in this study. Due to inflation in Iran economy and irrelevance asset items based on historical costs, using the market value of listed companies in Tehran Stock Exchange is an advantage.

3.2. Research Data and Sample

Regarding data limitations, the study period is from 2005 to 2011 and the population is all companies listed on the Tehran Stock Exchange. The following measures are considered in sampling: The companies shall be listed in Tehran Stock Exchange from the beginning of understudy period, i.e: 2005. During the study period, 2005-2011, their trading may not be interrupted for more than six months in the industry; they shall not be in banks and financial institutions industry (investment companies, financial intermediations, leasing and holding companies); their fiscal year shall ended in March of every year; they shall not experience a change in fiscal period during the course of this study; their information should be complete and available. 143 companies were found based on these limitations.

4. DATA ANALYSIS RESULTS AND RESEARCH FINDINGS

First of all, the stability or durability of the independent, dependent and control variables were examined in present research. Parameters of each model variables, including dependent and independent should be used over time in a regression model of stationary time series and to determine the stability of model variables, the unit root test of [Levin et al. \(2002\)](#) are used. Based on the unit root test of Levin, Lin and Chu, the significance level was less than 5%, thus all of the dependent, independent and control variables of research during the study period were stable. As a result, these variables usage in the model would not create false regression. Table 1 shows a summary of this information.

Table-1. Results of Levin, Lin and Chu Test

Research Variables	Test Statistic	Significance
Earnings Quality Index (Discretionary Accruals)	-36.337	0.000
Herfindahl - Hirschman Index	-4.680	0.000
Lerner Index	-26.403	0.000
Adjusted Lerner Index	-29.214	0.000
Debt Ratio	-20.170	0.000
Firm Size	-17.903	0.000

Source: Authors’ computation, 2014

Next step, the integration ability test (F-Limer Test) was performed. This Limer test determines whether a separate intercept exists for each of the sections or courses? The results of this test are provided in Table 2. This result indicates rejection of the null hypothesis and the necessity of using fixed or random effects method for Hypotheses 1, 2 and 3.

Table-2. F-Limer Test Results

Hypothesis	Test Statistic	Prob.
1	2.269	0.000
2	2.570	0.000
3	2.226	0.000

Source: Authors' computation,2014

In the next step, the Hausman Test is performed to choose between the random effect and fixed effect methods. The results of this test are given in table 3 indicate rejection of the null hypothesis and the necessity of using fixed effects for all hypotheses of research.

Table-3. Hausman Test Results

Hypothesis	Chi-Sq. Statistics	Prob.
1	62.823	0.000
2	84.709	0.000
3	53.812	0.000

Source: Authors' computation,2014

Considering F-Limer and Hausman Tests, research hypotheses should be tested using panel data and fixed effects. Table 4 indicates the results of all of the research Hypotheses based on the fixed effects method. As it can be seen, the results of the test Hypotheses 1, 2 and 3, respectively, indicate that the Herfindahl - Hirschman Index, Lerner and the Adjusted Lerner Index have a positive relationship with index of Earnings Quality (discretionary accruals). In other words, the more Herfindahl - Hirschman Index, Lerner and Adjusted Lerner index (higher concentration) are, the amount of discretionary accruals of firms will be more and earnings quality of these companies will be less. This relationship is significant for hypotheses 1, 2 and 3 in the level of 95% confidence and the hypotheses are accepted. Positive relationship between market concentration and discretionary accruals, is consistent with the results of researches of [Darrough and Stoughton \(1990\)](#), [Harris \(1998\)](#), [Cheng et al. \(2013\)](#), [Botosan and Stanford \(2005\)](#), [Yin Man \(2010\)](#), [Tinaikar and Xue \(2009\)](#) and inconsistent with the research results of [Verrecchia \(1983\)](#), [Nikoomaram and Badavar \(2009\)](#), [Karuna et al. \(2012\)](#) and [Datta et al. \(2013\)](#).

Moreover, the results of the estimating research hypotheses models 1, 2 and 3 suggest that there is a significant positive relationship between the logarithm of stock market value, as a measuring size and discretionary accruals. It also seems that about the impact of debt ratio there is no significant relationship between debt ratio and discretionary accruals in models no. 1, 2 and 3. These results are consistent with [Noravesh et al. \(2009\)](#) research results.

Table-4. Results of Research Models Estimation

#	Model 1	Model 2	Model 3
Constant Value	-0.610 (0.000)	-0.566 (0.000)	-0.621 (0.000)
Herfindahl - Hirschman Index	0.402 (0.002)	-	-
Lerner Index	-	0.285 (0.000)	-
Adjusted Lerner Index	-	-	0.084 (0.000)
Firm Size	0.057 (0.000)	0.038 (0.000)	0.51 (0.000)
Debt Ratio	-0.061 (0.129)	-0.007 (0.859)	-0.050 (0.215)
Coefficient of Determination	0.245	0.279	0.249
Modified Coefficient of determination	0.135	0.174	0.140
F Statistics	2.234 (0.000)	2.664 (0.000)	2.278 (0.000)
Durbin - Watson Statistic	2.240	2.271	2.237

Source: Authors' computation, 2014

The results of this research, in association with the impact of product market structure on financial reporting, from the perspective of proprietary- costs and political-costs motivation, are consistent with the concepts discussed in view of the proprietary-costs and political-costs motivations. Based on proprietary- costs motivation, since active firms in competitive industries possess fewer profits, they are faced with lower level of proprietary-costs. Therefore, these companies provide higher quality information. Also, according to political-costs motivation, active firms in concentrated industries is facing higher political- costs and their managers have greater incentive to use earnings management to reduce reported earnings.

5. CONCLUSION AND DISCUSSIONS

On one hand, some recent empirical research indicate that there is a significant positive relationship between product market structure and earnings quality and on the other hand, other empirical evidence shows that there is a negative significant relationship between market structures and earnings quality.

Hence, in this article we deal with the issue of whether the product market structure has any impact on earnings quality of listed companies in Tehran Stock Exchange? To answer this question, the Herfindahl - Hirschman Index, Lerner and Adjusted Lerner indexes were considered as measures of product market structure. Then, three hypotheses about the relationship between product market structure and earnings quality were discussed and tested. The results indicated that with increasing concentration and monopoly in the product market, discretionary accruals are significantly increased. Therefore, it can be concluded that the increase in monopoly will lead to decrease of the earnings quality and increase of the product market competition will end in quality increase. A possible explanation for these results that is consistent with the results of Cheng *et al.* (2013) and is not matched with the results of the Datta *et al.* (2013), can be that companies in high concentrated industries, have less incentive to disclose information because of fear of their competitors, while firms in competitive industries are more willing to disclose useful information to discourage newcomers.

According to the factors and variables that influence earnings quality, it is recommended that while analyzing and deciding, the financial analysts and capital market active participants consider these variables and keep the impact of these factors in mind in time of application of financial reporting for business decisions. Also, some practical suggestions are provided as follows:

1. It is suggested to developing countries' Stock Exchange Organization to obligate companies to present and disclose information related to product market structure.
2. It is also recommended that in consistent with the circumstances of developing countries, the Stock Exchange Organization codify competitive criteria and provide it to the companies, investors and other users of these companies' information.
3. Considering the positive impact of competition on the earning quality, investors are advised to invest in more competitive industries which have greater ability to distribute cash dividends in case of profitability because of earning quality increase and cash amount proximity to earnings.

In this study, there were limitations as follows:

- 1- Access restrictions to these companies financial information lead to use public joint stock companies listed in Tehran Stock Exchange in this study. Thus, the results of this study may not be useful in other types of corporates.
- 2- Financial statements' items have not been adjusted by the effects of inflation and this may influence the research results.

At the end, it is recommended to further researchers to investigate the influence of product market structure on income stability, predictability and being conservative of earnings.

REFERENCES

- Ali, A., S. Klasa and E. Yeung, 2009. The limitations of industry concentration measures constructed with compustat data: Implications for finance research. *Review of Financial Studies*, 22(10): 3839-3871.
- Balakrishnan, K. and D.A. Cohen, 2013. Competition and financial accounting misreporting. Working Paper. Available from <http://SSRN.Com/Abstract=1927427>.
- Bender, J. and F. Nielsen, 2013. Earnings quality revisited. *Journal of Portfolio Management*, 39(4): 69-79.
- Boooloo, G. and A. Saghafi, 2009. Cost of equity and earnings attributes. *Accounting Research*, (Full Text in Persian), 2: 4-29.
- Botosan, C.A. and M. Stanford, 2005. Managers' motives to withhold segment disclosures and the effect of SFAS No. 131 on analysts' information environment. *The Accounting Review*, 80(3): 751-771.
- Cahan, S.F., 1992. The effect of antitrust investigations on discretionary accruals: Are fined test of the political-cost hypothesis. *The Accounting Review*, 67: 77-95.
- Cheng, P., P. Man and H.Y. Ch, 2013. The impact of product market competition on earnings quality. *Accounting and Finance*, 53(1): 137-162.
- Dan, M., H. Li-yan and L. Dong-Hui, 2007. Industry concentration and stock returns in China a-share market. *International Conference on Management Science & Engineering* (14th August. pp:1754-1763.

- Darrough, M. and N. Stoughton, 1990. Financial disclosure policy in an entry game. *Journal of Accounting and Economics*, 2(1-3): 19-43.
- Datta, S., D.M. Iskandar and V. Singh, 2013. Product market power, industry structure, and corporate earnings management. *Journal of Banking & Finance*, 37(8): 3273–3285.
- Dhaliwal, D., S. Huang, I.K. Khurana and R. Pereira, 2008. Product market competition and accounting conservatism. Electronic Copy. Available from <http://ssrn.com/abstract=1266754>.
- Han, J. and S. Wang, 1998. Political costs and earnings management of oil companies during the 1990 persian gulf crisis. *The Accounting Review*, 73: 103-117.
- Harris, M.S., 1998. The association between competition and managers' business segment reporting decisions. *Journal of Accounting Research*, 36: 111-128.
- Herfindahl, O.C., 1959. *Copper costs and prices: 1870-1957*. Baltimore: The John Hopkins Press.
- Karuna, C., K.R. Subramanyam and F. Tian, 2012. Industry product market competition and earnings management. American Accounting Association Financial Accounting and Reporting Section Mid-Year Conference.
- Levin, A., C.F. Lin and C.S.J. Chu, 2002. Unit root tests in panel data: Asymptotic and finite-sample properties. *Journal of Econometrics*, 108: 1-24.
- Li, X., 2010. The impacts of product market competition on the quantity and quality of voluntary disclosures. *Review of Accounting Studies*, 15(3): 663-711.
- Nikoomaram, H. and N.Y. Badavar, 2009. Explain and provide a model for determining the factors affecting the choice and quality of financial reporting in Iran. *Beyond Management*, 8: 141-187.
- Noravesh, I., B. Mashayekhi and Z. Borghei, 2009. Investigation of accrual effects on earnings quality in the listed firms on TSE. *Financial Accounting*, 1(3): 31-53.
- Sharma, V., 2010. Stock returns and product market competition: Beyond industry concentration. *Review of Quantitative Finance and Accounting*, 37(3): 283-299.
- Tinaikar, S. and S. Xue, 2009. Product market competition and earnings management: Some International Evidence. Working Paper, Fisher School of Accounting, University of Florida.
- Verrecchia, R., 1983. Discretionary disclosure. *Journal of Accounting and Economics*, 5: 179-194.
- Watts, R. and J. Zimmerman, 1978. Towards a positive theory of the determination of accounting standards. *The Accounting Review*, 53(January): 112–134.
- Yin Man, P.H., 2010. The impact of product market competition on earnings quality. A Thesis Submitted in Partial Fulfillment of the Requirements for Degree of Doctor of Philosophy, The Hong Kong Polytechnic University.