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Market Competition and Audit Quality in Distribution and Service Industries

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Abstract

Purpose - This paper examines whether product market competition in distribution and service industries is related to audit quality. This paper investigates, specifically, the relationship in distribution and service industries by using Herfindahl-Hirschman Index and audit quality measured by audit fee and audit hour.

Research design, data, and methodology - Using 1,011 firm-year observations of listed companies from 2002 to 2016 in distribution and service industries, this study examines whether product market competition in distribution and service industries is related to audit quality.

Results - This study finds that market competition in distribution and service industries is negatively related to audit quality and this negative relation is pronounced for the firms with high outside director groups. Further analysis suggests that the relationship between market competition and audit hours is no longer significant.

Conclusions - This study extended the existing scope of the audit quality study by systematically analyzing the impact of industrial-level characteristics (i.e. market competition) in the distribution service industries on audit quality. This study, in other words, suggests the regulatory body consider the industrial-level characteristics of each industry in order to enhance audit quality.

Keywords: Product Market Competition, Audit Quality, Outside Director, Audit Fees, Audit Hours, Distribution and Service Industries.

JEL Classifications: M40.

1. Introduction

This paper examines whether product market competition in distribution and service industries is related to audit quality. Specifically, this paper examines the relationship between market competition measured by using Herfindahl-Hirschman Index and audit quality measured by audit fee and audit hour in distribution and service industries (Ettredge, Fuerherm, & Li, 2014).

According to prior research, market monitoring is widely studied to influence discretionary decisions for management's private benefit. That is, competition in the product market is a mechanism of external corporate governance (Fama, 1980; Fama & Jensen, 1983; Datta, Iskandar-Datta, & Sharma, 2013; Hart, 1983; Schmidt, 1997). Thus, looking at the impact of competition in the product market on audit fee that can be viewed as a measure of audit quality is meaningful in verifying that competition in the product market actually

operates as a mechanism of external corporate governance (Black, Jang, & Kim, 2006). On the other hand, when competition in distribution and service industries strengthens, it may put pressure on management to seek more cost-effectiveness than ever before to achieve managerial excellence and maximization. This, therefore, may lead to the reduction of audit fee because audit fees are also a kind of expense (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000). In this way, the relationship between market competition in distribution and service industries and audit quality can be seen as a typical area of empirical analysis.

To this end, using 1,011 firm-year observations of listed companies in distribution and service industries from 2002 to 2016 in Korea, this study finds that market competition in distribution and service industries is negatively related to audit quality. Also, product market competition as an external governance structure has an additional negative effect on the audit fees through interaction with the entity's board of directors. Further analysis suggests that the relationship between market competition and audit hours is no longer significant in distribution and service industries. This study, in other words, suggests the regulatory body

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consider the industrial-level characteristics of each industry in order to enhance audit quality.

2. Theoretical Background and Hypotheses

2.1. Audit Fee

Among the preceding studies related to audit fee, the size of the audited entity, the number of businesses, the percentage of overseas sales, the percentage of inventories and account receivables, and whether they are listed or not and whether the audit firm belong to big 6 firms or not are, somewhat, known to be the factors(or determinants) related to audit quality(Simunic, 1980; Simunic & Stein, 1996). In addition to the above decision factors, audit fee is known to be affected by potential litigation risks, corporate governance, etc. Audit fee tend to increase when the company's legal or corporate failure risk is high and the vulnerability to internal accounting management system is discovered(Simunic & Stein, 1996).

There are, on the contrary, studies that suggest the decline in audit fee as competition among auditors intensified due to the liberalization of audit fees. In particular, the introduction of IFRSs applies to all listed entities at the same time and is expected to exclude substantially all of the competition effects among auditors but we could not confirm a statistically significant increase in audit fee if inflation was controlled. That is, an increase in audit fee attributed to the introduction of IFRS is not a statistically significant increase compared to inflation. This result of our study, therefore, is judged to have been made because competition among auditors has intensified(Kim, Liu, & Zheng, 2008). The findings clearly show that Korea's audit market is characterized by buyer's market(Kwon, Lim, & Simnett, 2014). The characteristics of the buyer's market can be identified in cases where the simultaneous introduction of IFRSs has resulted in adverse effects such as audit fee dumping, which have not been determined by actual audit input but rather caused excessive competition among auditors(Kim, Liu, & Zheng, 2008). Although there are various previous researches related to audit fees, it is difficult to find a paper analyzing determinants of audit fees focusing on specific industries like distribution and service industries. Therefore, this study focuses on market competition as determinants which could affect the audit quality in distribution and service industries.

2.2. The Relation between Market Competition and Audit Quality in Distribution and Service Industry

Auditing provides a reasonable assurance of the reliability of the financial statements produced by managers to capital providers outside the entity(Vendryk & Bagranoff, 2003). For the audited entity, if it fails to provide reliable accounting

information through a high quality auditing, it will face the problem of devaluation. However, as competition intensifies, the importance of accounting information, which is the basis for the valuation of the firms, becomes even greater, as investors evaluate the value and risk of the firm more carefully. Consequently, product market competition in distribution and service industries as an external corporate governance structure can serve as pressure to generate high quality accounting information for businesses and, from a corporate perspective, have the incentive to prefer the function of certification of accounting information through high quality auditors to demonstrate to market stakeholders that high quality accounting information is being produced (Fama, 1980; Fama & Jensen, 1983; Datta, Iskandar-Datta, & Sharma, 2013; Hart, 1983; Schmidt, 1997). Therefore, it can be predicted that product market competition in distribution and service industries has a positive relationship with audit fees.

On the other hand, when product market competition in distribution and service industries is intensified, product market competition in distribution and service industries may put pressure on management to seek more cost-effectiveness than ever before to achieve managerial excellence and maximization because managers are subject to higher default risks(La Porta et al., 2000). Thus, the manager is oblivious to the importance of audit services in the capital market and simply pursues cost-effectiveness, which will increase the incentive for the auditor to be selected as an auditor who presents minimum audit fee rather than a high-quality auditor. In addition, because the direct beneficiaries of audit services are the stakeholders of the capital market, the entity's managers may decide to reduce expenditure as much as possible for audit services that do not provide benefit with the entities. Therefore, product market competition in distribution and service industries may be expected to serve as a factor that lowers audit fee when deciding on audit fee. Thus, the hypothesis is set up formally,

H 1: There is no relationship between product market competition and audit fees in distribution and service industries

2.3. The Effect of BOD Independence on the Relation between Market Competition and Audit Fee in Distribution and Service Industry

Although product market competition in distribution and service industries can operate as an external corporate governance structure that eases informational asymmetry and governs management's agency problems, management, in reality, does not raise capital at a competitive price every hour(Shleifer & Vishny, 1997), so it is limited in resolving information asymmetry and agency problems just by product

market competition(Shleifer & Vishny, 1997). That is, even if product market competition in distribution and service industries as an external governance structure does not work properly, the board of directors may complement product market competition in distribution and service industries as an external governance structure to increase the incentive to prefer the high-quality auditors for the purpose of more efficient management(Black, Jang, & Kim, 2006).

On the other hand, if product market competition in distribution and service industries induces corporate managers to have incentives to reduce spending on audit services in terms of cost efficiency, board of directors may also want to reduce audit fee in terms of cost efficiency, which helps immediately improve performance rather than enhance the audit's certification function(Alchian, 1950). Therefore, hypothesis 2 is established as follows by considering the complementary relationship between these internal and external governance structures.

- H 2:** There is no relationship between the interaction between internal and external governance structures(i.e. product market competition) and audit fees in distribution and service industries.

3. Research Design

3.1. Measurement of Market Competition

In this paper, Herfindahl-Hirschman Index, which measures industrial concentration, was multiplied by -1, to define a proxy for product market competition in distribution and service industries. At this time, HHI more accurately reflects reality by including both listed entities and unlisted entities larger than a certain size that could substantially affect the industry structure. In addition, the HHI's calculation used the market share as the original value rather than the (%) value. That is, the HHI measurement in this study is equal to the actual HHI value divided by 10,000(Giroud & Mueller, 2011).

3.2. Model Specification

To test the hypothesis on the relationship between market competition measured by using Herfindahl-Hirschman Index and audit quality measured by audit fee, we estimate the following Equation (1):

$$\begin{aligned} \text{Audit Fee}_{it} = & \beta_0 + \beta_1 \text{Competition}_{it-1} + \beta_2 \text{Size}_{it-1} + \beta_3 \text{CONFM}_{it} \\ & + \beta_4 \text{VREC}_{it-1} + \beta_5 \text{verage}_{it-1} + \beta_6 \text{Issue}_{it-1} \\ & + \beta_7 \text{Opinion}_{it-1} + \beta_8 \text{Big4}_{it} + \beta_9 \text{First}_{it} + \beta_{10} \text{FOR}_{it-1} \\ & + \sum \text{YEAR} + \epsilon_{it} \end{aligned}$$

Explanatory variables that may affect audit fee were included in the regression model as control variables by referring to prior studies : (1) *Size* proxies for firm size in that larger firms are more involved in audit fee(Simunic, 1980; Palmrose, 1986); (2) *CONFM* stands for whether or not the firm prepares consolidated financial statements in that preparing consolidated financial statements increases the audit fee due to the complexity of the audit operation; (3) *INVREC* stands for inventory and account receivables divided by total assets, which is shown to be positively related to audit fee, in that inventory and account receivables are expected to increase audit risk and audit complexity(Simunic, 1980); (4) *Leverage* stands for the sum of long- and short-term debts divided by total assets, which is shown to be positively related to audit fee, in that higher leverage ratio are expected to increase audit risk(Palmrose, 1986); (5) *Issue* is shown to be positively related to audit fee in order to control the potential growth of customer companies in relation to external funding(Choi, Kim, Liu, & Simunic, 2008); (6) *Opinion* stands for whether or not audit opinion is unqualified, which is shown to be positively related to audit fee in that non-qualifying audit opinion represents audit risk(Choi et al., 2008); (7) *Big4* stands for whether or not audit firm belong to big 4 firms, which is shown to be positively related to audit fee in that big 4 firms receive a higher audit fee than non-Big 4 auditor(Choi et al., 2008; Francis & Simon, 1987); (8) *First* stands for whether or not auditor performs initial audit, which is shown to be positively related to audit fee in that the discount of audit fee is given at first audit(Choi et al., 2008); (9) *FOR* proxies for the ownership structure in that they were reported to affect audit fees. In addition, year fixed effects are added in the model to control for variations in audit fee over time.

On the other hand, this study measured explanatory variables as of year t-1, and dependent variable was measured at of year t. This is because, in Korea, the external audit contract is based on financial data for the immediately preceding year(Kwon, Lim, & Simnett, 2014). These study designs can also be expected to mitigate reverse causality issues between variables.

3.3. Sample Development

The sample of this study that consists of public companies in distribution and service industries listed on the Korean stock market(KOSPI) between 2002 and 2016. Financial firms are excluded to make the sample comparable to prior studies. We exclude firms with impaired capital and delisted firms. Financial and stock market data are extracted from the Data Guide Pro database provided by FnGuide Co., and related-party transaction data are retrieved from the Kis-Value database provided by NICE Information Service Co., Ltd. As a result, the final sample is composed of 1,011 firm-year observations.

4.2. Main Test Results

4.2.1. The Relation between Market Competition and Audit Quality in Distribution and Service Industries

Table 3 shows the impact of competition on audit fee in distribution and service industries. Also, we execute the time series analysis to mitigate the auto-correlation issue because the Durbin-Watson is 0.94.

Table 3: The Relation between Market Competition and Audit Fee

Variable	Dependent variable = <i>Audit_Fee</i>	
	Coef.	p-value
<i>Intercept</i>	8.9579	<0.01
<i>Competition</i> _{it-1}	-0.3700	<0.01
<i>Size</i> _{it-1}	0.3344	<0.01
<i>CONFM</i> _{it-1}	0.1250	<0.01
<i>INVREC</i> _{it-1}	0.4420	<0.01
<i>Leverage</i> _{it-1}	0.4385	<0.01
<i>Issue</i> _{it-1}	0.2046	<0.01
<i>Opinion</i> _{it-1}	0.1356	0.4732
<i>Big4</i> _{it-1}	0.0839	0.0185
<i>First</i> _{it-1}	-0.0537	0.1366
<i>FOR</i> _{it-1}	0.2814	0.0177
<i>Industry fixed effect</i>		0
<i>Year fixed effect</i>		0
<i>Time Series effect</i>		0
Adj. R ²		0.6552
N		1,011

As a result of the time series analysis presented in Table 3, the regression coefficient Competition on Audit_Fee is -0.3700, which is significantly negative at the 1% level. This empirical result shows that competition in distribution and service industries doesn't work as a mechanism of external

corporate governance and operates as a mechanism to reduce external audit by encouraging corporate managers to look at audit from the cost-effective perspective.

4.2.2. The Effect of BOD Independence on the Relation between Market Competition and Audit Fee in Distribution and Service Industries

Table 4 presents the results of a multivariate analysis of hypothesis 2 related to the impact of the interaction between internal governance(i.e. BOD independence) and external governance structures(i.e. product market competition) and audit fees in distribution and service industries. To this end, this paper divided the entire samples into the firms with high outside director groups and the firms with low outside director groups and performs a multivariate analysis in each group to identify the relationship between product market competition on audit fee in distribution and service industries.

Table 4 exhibits the test results on the relation between the product market competition and audit quality in the distribution and service industries in two subgroups: high outside director groups and low outside director groups. The regression coefficient of Competition is more negative for high outside director groups than for low outside director groups. Moreover, their differences are statistically significant, suggesting that product market competition of high outside director groups have a greater negative influence on audit quality than that of low outside director groups in distribution and service industries(Black, Jang, & Kim, 2006; Alchian, 1950).

Table 4: The Effect of BOD on the Relation between Market Competition and Audit Fee

Variable	Dependent variable = <i>Audit_Fee</i>				Difference Test
	HIGH outside director groups		LOW outside director groups		
	Coef.	p-value	Coef.	p-value	
<i>Intercept</i>	9.2756	<0.01	8.9008	<0.01	
<i>Competition</i> _{it-1}	-0.4342	<0.01	-0.2261	0.0373	0.0323
<i>Size</i> _{it-1}	0.3209	<0.01	0.3439	<0.01	
<i>CONFM</i> _{it-1}	0.1657	<0.01	0.0403	0.1187	
<i>INVREC</i> _{it-1}	0.3637	0.0260	0.5024	<0.01	
<i>Leverage</i> _{it-1}	0.4351	<0.01	0.3274	<0.01	
<i>Issue</i> _{it-1}	0.1611	0.0118	0.2679	<0.01	
<i>Opinion</i> _{it-1}	0.1601	0.4997	-0.3614	0.3216	
<i>Big4</i> _{it-1}	0.0527	0.3532	0.1181	<0.01	
<i>First</i> _{it-1}	-0.0987	0.0638	0.0098	0.8237	
<i>FOR</i> _{it-1}	0.2481	0.1484	0.3217	0.0339	
<i>Industry fixed effect</i>		0		0	
<i>Year fixed effect</i>		0		0	
<i>Time Series effect</i>		0		0	
Adj. R ²		0.6396		0.5798	
N		601		410	

The outside director system can be viewed as a means to increase the independence of the board of directors of listed companies, particularly those with the controlling shareholders. Outside directors provide expert opinion on an independent basis without being directly influenced by the controlling shareholders or management(Black, Jang, & Kim, 2006). Thus, the results of such an empirical analysis can be understood to be attributed to the phenomenon of seeking to minimize costs(i.e. audit fees) in terms of cost-effectiveness. This shows that the outside director system is controlled by the relationship with the company's major shareholders rather than by achieving its original purpose in distribution and service industries.

4.3. Robustness Test : results based on alternative measure, *Competition_CR3*

To verify the robustness of the results of this study, this paper performed a re-verification of the hypothesis of this paper using variables such as cumulative market share(referred to as CRK) that represent the cumulative market share of the upper k company in addition to the variable Competition as a variable to measure the level of product market competition in distribution and service industries. In this paper, the CR3 index was used by the Fair Trade Commission to measure the market structure, which is the sum of the market shares of the top three companies in a market and is widely used as a measure of market concentration along with Herfindahl-Hirschman Index. To measure the competitive level, the CR3 value was multiplied by the value (-1) to define the variable *Competition_CR3*.

Table 5: Results based on alternative measure, *CR3*

Variable	Dependent variable = <i>Audit_Fee</i>	
	Coef.	p-value
<i>Intercept</i>	8.7862	<0.01
<i>Competition_CR3_{it-1}</i>	-0.1628	0.0327
<i>Size_{it-1}</i>	0.3405	<0.01
<i>CONFM_{it-1}</i>	0.1158	<0.01
<i>INVREC_{it-1}</i>	0.4772	<0.01
<i>Leverage_{it-1}</i>	0.4687	<0.01
<i>Issue_{it-1}</i>	0.2141	<0.01
<i>Opinion_{it-1}</i>	0.1189	0.5322
<i>Big4_{it-1}</i>	0.0720	0.0436
<i>First_{it-1}</i>	-0.0533	0.1420
<i>FOR_{it-1}</i>	0.3262	<0.01
<i>Industry fixed effect</i>		O
<i>Year fixed effect</i>		O
<i>Time Series effect</i>		O
Adj. R ²		0.6509
N		1,011

Table 5 shows that the results are qualitatively similar with Table 3 when this paper use the variable *Competition_CR3* using CR3 instead of the variable Competition using Herfindahl-Hirschman Index.

4.4. Additional Test : The Relation between Market Competition and Audit Hour in Distribution and Service Industries

In order to understand the relationship between product market competition and audit fee in the distribution and service industries in a deeper way, this paper further analyzed the relationship between product market competition in the distribution and service industries and audit hour(Deis & Giroux, 1996). The empirical result of additional analysis related to audit hours are presented in Table 6.

Table 6: Additional Test : The Relation between Market Competition and Audit Hour

Variable	Dependent variable = <i>Audit_Hour</i>	
	Coef.	p-value
<i>Intercept</i>	-2.6271	<0.01
<i>Competition_{it-1}</i>	-0.2404	0.1536
<i>Size_{it-1}</i>	0.3444	<0.01
<i>CONFM_{it-1}</i>	0.1932	<0.01
<i>INVREC_{it-1}</i>	0.2887	0.1559
<i>Leverage_{it-1}</i>	0.4011	0.0198
<i>Issue_{it-1}</i>	-0.0057	0.9468
<i>Opinion_{it-1}</i>	-0.1353	0.7052
<i>Big4_{it-1}</i>	0.2703	<0.01
<i>First_{it-1}</i>	0.0250	0.7159
<i>FOR_{it-1}</i>	0.1721	0.4437
<i>Industry fixed effect</i>		O
<i>Year fixed effect</i>		O
<i>Time Series effect</i>		O
Adj. R ²		0.6002
N		1,011

As an empirical result of time series analysis presented in Table 6, the regression coefficient of Competition on audit hours were not statistically significant. Although auditors receive less audit fee for high level of competition in the product market, it does not appear that they reduce the input of audit hours in conjunction with this. This can be viewed as maintaining a certain level of audit hours rather than reducing the input of the audit time to achieve the target audit risk. This shows that competition in the product market in the distribution and service industries does not function as an external governance in determining audit fee,

but that the auditors maintain a level of audit quality by maintaining a certain level of audit time.

5. Conclusions

This paper examines whether product market competition in distribution and service industries is related to audit quality proxied by audit fee. Specifically, this paper examines the relation between product market competition in distribution and service industries and audit quality because it is difficult to find a paper analyzing determinants of audit fees focusing on specific industries like distribution and service industries.

To test and analyze the impact of product market competition in distribution and service industries which is an important monitoring indicator of the regulatory body to maximize social well-being from a macroeconomic perspective on audit quality can help assess whether the regulatory agency's market supervision functions are working properly and provide implications for future policy implementation. Thus, this study aims to establish an empirical analysis of how competition in the product market affects audit fees after controlling the general determinants of audit fees in the preceding study.

This study extended the existing scope of the audit quality study by systematically analyzing the impact of industrial-level characteristics such as competition in the product market in the distribution service industry on audit fee. This study suggests that the effects of market competition on audit quality are not in homogeneity for all industry. This study, in other words, suggests the regulatory body consider the industrial-level characteristics of each industry in order to enhance audit quality. Although the above implications could be derived from the empirical analysis of this study, there is a problem of measurement error of the competitive level of the product market. It is expected that further studies will overcome these limitations (Giroud & Mueller, 2011).

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