

## Retraction Notice

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**History**

Expression of Concern:

yes, date: yyyy-mm-dd

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Correction:

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no

**Comment:**

There are substantial issues in the manuscript.

This article has been retracted to straighten the academic record. In making this decision the Editorial Board follows [COPE's Retraction Guidelines](#). Aim is to promote the circulation of scientific research by offering an ideal research publication platform with due consideration of internationally accepted standards on publication ethics. The Editorial Board would like to extend its sincere apologies for any inconvenience this retraction may have caused.

Editor guiding this retraction: Prof. Olivier Boiral (Editorial Board Member of JHRSS)

# Ownership Property, Product Market Competition and Auditor Choice

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## Abstract

Based on data from China's stock markets for the period from 2004 to 2014, this study establishes hypotheses regarding the relationship between product market competition and auditor choice and we attempt to explain the factor of auditor choice from the perspective of industry level. On the one hand, competition can influence the demand of high quality auditor by reducing the agency cost. On the other hand, competition can improve the quality of the financial reports, which can substitute for the function of auditor in making sure of high quality financial reports. Thus, competition can influence the auditor choice of companies. This study finds that competition intensity has significantly positive impact on the choice of low quality auditors. Besides, when the competition becomes more intense, companies tend to switch from a high quality auditor to a low quality auditor. Further research shows that the relationship between market competition and the choice of auditor is more significant in the state-owned enterprise.

## Keywords

Ownership Property, Product Market Competition, Auditor Choice

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## 1. Introduction

Agency theory suggests that the firms have the demand of independent audits due to the existence of principal-agent problems (Jensen and Meckling, 1976 [1]; Watts and Zimmerman, 1983 [2]). This theory is based on the supply and the demand of the auditing market but it lacks attention to the effects of external environmental factors. Recent researches indicate that external governance factors play important role in the auditor choice by influencing the relationship of supply and demand, such as national legal environment (Choi and Wong, 2007 [3]), political and economic factors (Chan *et al.*, 2006 [4]; Wang *et al.*, 2008 [5]). However the existing literature lacks attention to the industrial factors. According to the literature, product market competition is one of the

important external governance factors and it has complementary or substituted effects to other governance factors. Therefore, the questions whether the product market competition has complementary or substituted effects to the auditor governance deserve to carry on the deep discussion and study.

On the one hand, product market competition can affect the company's demand for high quality audit by reducing agency costs. On the other hand, it can promote the enterprise to improve the quality of information disclosure, and it can be a great substitute for auditors in ensuring the quality of financial information. Considering the two aspects, this paper analyzes the influence of product market competition on audit firm selection. The result shows that the more intense the product market competition is, the more the enterprises tend to choose the low quality firms (small-local auditor). This paper also finds that when the degree of competition change, companies tend to change the auditor and when the degree of competition becomes higher, enterprise is more likely to switch from a high quality auditor to a low quality audit firm. In this paper, we further study the effect of competition on the choice of auditor under different ownership property, and the results show that this effect is more significant in the state-owned enterprises sample.

This paper contributes to the auditing literature in the following three ways. First, the research of this paper will expand the study of impact of external factors on the auditor choice based on the institutional background and economic factors and enrich the theory of auditor selection. Second, the past studies have been limited to the study of the effect of agency costs on audit firm selection. In recent years, there have been increasing studies on the influence of external governance mechanisms on firm selection from the perspective of external environment. Product market competition is an important external governance mechanism on the industry level, but there are few scholars who study the relationship between competition and auditor choice. This paper attempts to explore the relationship between them and to enrich the research in this field. Third, according to Marciukaityte and Park (2009) [6], product market competition is an effective mechanism which can improve the quality of financial reporting and this mechanism would not cause high cost compared with the supervision of government and companies. Therefore the study is expected to provide policy implications for further improvement of the competition mechanism.

The remainder of this paper proceeds as follows. Section 2 develops our two hypotheses. Section 3 presents the data. We report the results in Section 4 and conclude this paper in Section 5.

## 2. Hypothesis Development

### 2.1. Product Market Competition and Agency Cost

Jensen and Meckling (1976) [1] pointed out that the company's demand for independent audit is mainly due to the agency problem so the agent will supervise the managers' behavior by hiring auditor, and then reduce the agency costs. The size of the company and the level of debt have a positive correlation with hiring the auditor (Chow, 1982) [7]. When the company's agency cost is higher, the agent's incentive to reduce agency costs by hiring firms will be stronger and then reflect the higher demand for high quality audit (DeFond, 1992) [8]. That is to say there is a correlation between the enterprise agency cost and the different demand of high quality of audit (Francis and Wilson, 1988) [9]. The empirical results also show that the auditor firm can supervise the company by the supervision of the company's contract terms and then reduce the agency costs (Watts and Zimmerman, 1983) [2].

Market competition can reduce the agency cost by reducing the marginal cost of the agent's incentive. The management incentive model shows how the management incentive is enhanced by the competition (Hart, 1983) [10]. Competition can restrain the slack of management and it will further help enterprises to reduce unnecessary expenses (Nickell, 1996) [11]. Leventis *et al.* (2011) [12] used the Greek company data to study and he used the audit fee as an indicator of agency costs. They found that competition can reduce the cost of investors to bear the cost of monitoring agents so the audit fee is lower.

### 2.2. Product Market Competition and the Quality of Information Disclosure

Bushman and Smith (2001) [13] show that high quality audit can ensure the quality of accounting information and provide investors with high quality accounting information to identify and monitor managers. Harris (1998) [14] found that in a higher degree of concentration industry (market competition is low) the company is less likely to disclose segment information. Similar conclusions were found in the studies of the later scholars (Bo-

tosan, 2005 [15]; Marciukaityte and Park, 2009 [6]).

Based on the above analysis, this paper puts forward the following assumptions:

**Hypothesis 1.** With the improvement of market competition, the demand for high quality audit is reduced and changes in the degree of competition will lead to changes in the auditor firm. When the competition becomes more intense, the probability that the enterprise changes to the lower quality auditor is bigger.

What's more, Chan *et al.* (2006) [4] use 1996-2002 of China's listed companies as the object of study, the results show that the local auditor are more likely to collude with those companies who has some relationship with the government. And the local auditor tends to issue clean opinion to those companies in order to get rid of economic loss. Based on the above analysis, this paper puts forward the following assumptions:

**Hypothesis 2.** Controlling other factors, the influence of product market competition on the choice of the audit firm is more significant in the state-owned enterprises sample.

### 3. Data

#### 3.1. Sample Selection and Data Sources

This paper is based on data from China's stock markets for the period from 2004 to 2014. First, the data of whether the audit firm is small local auditor is manual collection. Information about auditor size comes from the report—"Comprehensive evaluation of the former one hundred audit firms"—issued by the Chinese Institute of Certified Public Accountants (CICPA). Our tests also call for identifying local vs. non-local auditors. A listed firm is considered to have hired a local auditor if the audit firm is located in the same province (or region with provincial status, that is, autonomous administrative region or municipality under the central government) as the listed firm [5]. Since lots of the auditors have affiliates, we identify the audit firms based on the affiliates in this paper. Second, information about the auditor change comes from the China Stock Market and Accounting Research (CSMAR) database and we exclude situation where the merge, split, rename of the auditor happens. Other financial data all comes from the CSMAR database.

In order to make the results more reliable we exclude some observations. First, we exclude the listed companies in the financial and insurance industry. Second, we exclude the observations whose leverage is more than 100% or the growth of revenue is lower than -100%. Third, we exclude the listed companies whose industry has less than 15 companies in one year. Finally, we exclude the observations whose variable is missing. The continuous variables are winsorized at the top and bottom 1%.

#### 3.2. Definition of Variables

##### 3.2.1. The Auditor Choice

In this paper, the scale and location of the audit firms are considered and measured. Following DeAngelo (1981) [16], we identify the top-10 auditor based on revenue audited. Following Wang *et al.* (2008) [5] we identify the local based on whether the client's registry province or provincial-level region is the same as that of its auditor. We identify the audit firms as small local auditor if the auditor is non top 10 auditors and it is located in the same province or provincial-level region with its clients. Wang *et al.* (2008) [5] show that the small local auditor are more likely to collude with the State-owned enterprise, which reflects that the quality of the small local auditor is lower than other kind of audit firms. Therefore, in this paper, small local auditor means the low quality of audit.

##### 3.2.2. Auditor Changes

We identify the auditor change when the client has a different audit firm from the last year. Meanwhile, the auditor change is divided into three types based on the different directions, 1) changing from small-local auditor to non-small-local auditor (upgrading), 2) changing from non-small-local auditor to small-local auditor (degrading), 3) changing from (non-)small-local auditor to another (non-)small-local auditor (same level).

##### 3.2.3. Product Market Competition

The most widely used proxy for competition is industry concentration, measured as Herfindahl-Hirschman Index (HHI) and in this paper we also use this measurement. HHI is calculated as the sum of the squares of the market shares (based on companies' revenue) of the firms within the industry. We also use IND-NUM, captur-

ing competition amongst existing rivals, to measure the competition. The firms in a highly concentrated industry or industry with fewer existing firms typically face lower existing competition.

**Table 1** reports the specific definition of variables which will be used in the OLS regression model.

### 3.3. Model

I use the following OLS regression to examine the impacts of competition on auditor choice.

$$\begin{aligned} \text{Logit}(Aud_{i,t} = 1) = & \alpha_0 + \alpha_1 \text{Comp}_{i,t} + \alpha_2 \text{Size}_{i,t} + \alpha_3 \text{Lev}_{i,t} + \alpha_4 \text{Growth}_{i,t} + \alpha_5 \text{Ind}_{i,t} \\ & + \alpha_6 \text{Opin}_{i,t-1} + \alpha_7 \text{Dual}_{i,t} + \alpha_8 \text{Market}_{i,t} + \alpha_9 \text{Age}_{i,t} + \Sigma Y \end{aligned} \quad (1)$$

I use the following OLS regression to examine the impacts of competition on auditor changes

$$\begin{aligned} \text{Logit}(Switch_{i,t} = 1) = & \beta_0 + \beta_1 \text{Comp\_Change}_{i,t} + \beta_2 \text{Roa}_{i,t} + \beta_3 \text{Lev}_{i,t} \\ & + \beta_4 \text{Dual}_{i,t} + \beta_5 \text{Opin}_{i,t-1} + \beta_6 \text{Loss}_{i,t} + \beta_7 \text{Size}_{i,t} + \Sigma Y \end{aligned} \quad (2)$$

Meanwhile, we run the model (1) and model (2) in state-owned enterprise sample and non-state owned enterprise sample respectively to test the hypothesis 2.

**Table 1.** Definition of variables.

Types of variables	Variables	Definition of variables
Dependent variable	<i>Aud<sub>i,t</sub></i>	Types of auditor, dummy variable, which equals 1 if the auditor is small-local auditor and 0 otherwise
	<i>Switch<sub>i,t</sub></i>	Auditor changes, dummy variable, which equals 1 if the client changes the auditor and 0 otherwise
	<i>Switch_Type<sub>i,t</sub></i>	Types of auditor changes, which equals 1 if the changes if upgrading change, 0 if the changes is at the same level and -1 otherwise
Independent variable	<i>HHI<sub>i,t</sub></i>	Herfindahl-Hirschman Index
	<i>HHI_CHANGE<sub>i,t</sub></i>	$(HHI_{i,t} - HHI_{i,t-1})/HHI_{i,t-1}$
	<i>LNN<sub>i,t</sub></i>	Log of IND-NUM
	<i>LNN_CHANGE<sub>i,t</sub></i>	$(LNN_{i,t} - LNN_{i,t-1})/LNN_{i,t-1}$
Grouping variables	<i>State<sub>i,t</sub></i>	Dummy variable, which equals 1 if the client is state-owned enterprise and 0 otherwise
Control variables	<i>Size<sub>i,t</sub></i>	Log of the client assets
	<i>Lev<sub>i,t</sub></i>	Total debt divided by total asset
	<i>Growth<sub>i,t</sub></i>	Growth of revenue
	<i>Ind<sub>i,t</sub></i>	Number of independent directors divided by number of the directors
	<i>Opin<sub>i,t-1</sub></i>	Type of audit opinion of last year, which equals 1 if the opinion is clean opinion and 0 otherwise.
	<i>Dual<sub>i,t</sub></i>	Dummy variable, which equals 1 if the director and the CEO are the same person and 0 otherwise
	<i>MktIndex<sub>i,t</sub></i>	China market index
	<i>Age<sub>i,t</sub></i>	Log of the years from listing
	<i>Roa<sub>i,t</sub></i>	Operating profit divided by total asset
	<i>Loss<sub>i,t</sub></i>	Dummy variable, which equals 1 if the net profits of last two year is less than zero and 0 otherwise
	$\Sigma \text{Year}$	Dummy variable of year

## 4. Results

### 4.1. Descriptive Statistics

**Table 2** reports the summary statistics of the main variables used in our regression analyses. For each variable, we report observations (obs), mean, deviation error (S.D.), minimum value (Min), 25th percentile (25%), median, 75th percentile (75%), and maximum value (Max).

### 4.2. Main Results

**Table 3** reports the regression results of market competition on audit firm selection. From the Panel A of **Table 3**, we can know that the relationship between auditor choice and product market competition, which is measured by HHI or LNN, is significant at 5% levels. HHI is negatively correlated with auditor selection (coefficient is  $-0.435$ ) and LNN is positively correlated with auditor choice (coefficient is  $0.037$ ). As a whole, controlling other factors unchanged, the more intense the product market competition is, the more listed companies tend to choose the low quality auditor (small-local auditor). The regression results verify the relationship between product market competition and auditor choice in the hypothesis 1.

The first two columns of Panel B in **Table 3** shows the regression results of changes of market competition on changes of auditor. The results show that, after controlling for other factors, the absolute value of the change of HHI is significantly related to auditor change (significant at 10% levels and coefficient is  $0.283$ ) and the absolute value of the change of LNN is also significantly related to auditor choice (significant at 5% levels and coefficient is  $0.742$ ). The regression result shows that the change of product market competition will lead to the change of the audit firm.

The last four columns of Panel B in **Table 3** show the relationship between the change of product market competition and the change direction of auditor. The results suggest that when the competition is more intense,

**Table 2.** Summary statistics of main variables.

Variables	Obs	Mean	S.D.	Min	25%	Median	75%	Max
Aud	16,807	0.377	0.485	0	0	0	1	1
Switch	16,807	0.090	0.287	0	0	0	0	1
Swith_Type	1517	0.105	0.596	-1	0	0	0	1
HHI	16,807	0.062	0.098	0.011	0.015	0.019	0.063	0.477
HHI_CHANGE	16,807	0.009	0.194	-0.523	-0.092	-0.006	0.068	1.201
LNN	16,807	5.427	1.066	2.833	4.575	5.666	6.234	6.881
LNN_CHANGE	16,807	0.014	0.066	-0.541	0.003	0.009	0.018	1.401
State	16,807	0.554	0.497	0	0	1	1	1
Size	16,807	21.78	1.226	19.250	20.910	21.630	22.460	25.520
Lev	16,807	0.486	0.204	0.056	0.335	0.497	0.64	0.921
Growth	16,807	0.210	0.545	-0.659	-0.018	0.124	0.295	3.868
Ind	16,807	0.364	0.053	0	0.333	0.333	0.375	0.714
Opin	16,807	0.953	0.211	0	1	1	1	1
Dual	16,807	0.171	0.376	0	0	0	0	1
MktIndex	16,807	8.738	2.093	0.380	7.27	8.93	10.42	11.800
Age	16,807	2.050	0.697	0	1.609	2.197	2.565	3.178
Roa	16,807	0.036	0.065	-0.207	0.008	0.033	0.066	0.227
Loss	16,807	0.028	0.165	0	0	0	0	1

**Table 3.** Competition and auditor choice (auditor change). (a) Panel A: Competition and auditor choice; (b) Panel B: Competition and auditor changes.

(a) Panel A		
Variables	Model (1) Dependent variable: auditor choice	
HHI	-0.435** (-2.51)	
LNN		0.037** (2.27)
Growth	0.035 (1.16)	0.034 (1.12)
Ind	-0.107 (-0.34)	-0.109 (-0.35)
MktIndex	0.086*** (10.84)	0.087*** (10.90)
Age	0.103*** (4.00)	0.112*** (4.36)
Size	-0.183*** (-12.07)	-0.184*** (-12.09)
Lev	0.080 (0.86)	0.097 (1.05)
Opin	0.210*** (2.61)	0.212*** (2.63)
Dual	-0.116** (-2.55)	-0.118*** (-2.59)
Cons	2.938*** (9.05)	2.703*** (7.89)
Year	Controlled	Controlled
N	16,807	16,807
Pseudo R <sup>2</sup>	0.038	0.038

\*\*\*, \*\*, and \* represent statistical significance at the 1%, 5%, and 10% levels, respectively.

(b) Panel B						
Variables	Model (2) Dependent variable: auditor change		Model (2) Dependent variable: types of auditor change			
			Upgrading changes (equals 1 if it is upgrading changes, 0 the same level)		Degrading changes (equals 1 if it is degrading changes, 0 the same level)	
HHI_CHANGE	0.283* (1.73)					
LNN_CHANGE		0.742** (2.04)				
HHI_CHANGE			0.391 (1.29)		-0.056 (-0.14)	
LNN_CHANGE				-3.052*** (-2.65)		1.426* (1.74)
Size	0.048* (1.79)	0.046* (1.73)	-0.061 (-1.04)	-0.059 (-1.00)	-0.152** (-2.08)	-0.151** (-2.08)
Lev	0.119 (0.72)	0.131 (0.79)	0.175 (0.47)	0.167 (0.45)	0.459 (1.06)	0.452 (1.04)
Roa	-1.349*** (-2.75)	-1.331*** (-2.72)	-0.555 (-0.53)	-0.692 (-0.66)	-0.162 (-0.13)	-0.176 (-0.14)
Dual	-0.152* (-1.91)	-0.153* (-1.92)	-0.049 (-0.26)	-0.030 (-0.16)	0.058 (0.26)	0.037 (0.17)
Opin	-0.796*** (-7.31)	-0.796*** (-7.32)	0.461* (1.85)	0.473* (1.90)	-0.119 (-0.45)	-0.099 (-0.37)
Loss	0.616*** (4.55)	0.611*** (4.52)	0.421 (1.50)	0.412 (1.45)	0.602* (1.91)	0.621** (1.97)
Year	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Cons	-2.669*** (-4.92)	-2.633*** (-4.86)	0.376 (0.32)	0.370 (0.31)	1.754 (1.19)	1.718 (1.17)
N	16,807	16,807	1319	1319	1159	1159
Pseudo R <sup>2</sup>	0.027	0.027	0.022	0.025	0.026	0.028

\*\*\*, \*\*, and \* represent statistical significance at the 1%, 5%, and 10% levels, respectively.

companies are more likely to change from a high quality auditor to a lower quality auditor. The regression results verify the relationship between the change of product market competition and change of auditor choice in the hypothesis 1.

Panel A of **Table 4** shows regression results of the relationship between product market competition and audit firm choice in different ownership property sample. We can know that the relationship between product market competition and auditor choice is not significant in the non-state-owned enterprise sample but is significant in the state-owned enterprise sample. The results suggest that because the agency problem of state-owned enterprise is more serious and the audit quality of the state-owned enterprise is lower, the substitution effect of the product market competition to auditor is more obvious.

Panel B of **Table 4** shows regression results of the relationship between changes of product market competition and direction of auditor change in different ownership property sample. The regression results suggest that the absolute value of the change of competition is significantly related to the auditor change in upgrading changes both in non-state-owned enterprise sample and state-owned enterprise sample. However the relationship is stronger in state-owned enterprise sample which verify the hypothesis 2.

### 4.3. Robustness Test

#### 4.3.1. Remove the Cross Listing Observations

Companies which issue A shares and B shares (H shares) simultaneously would be subject to the supervision of the two markets. In this case, those companies may differ with the companies which only issue A share in auditor choice. Therefore, we remove those companies which issue two kinds of shares simultaneously and we found the results are similar with the results we mentioned above.

#### 4.3.2. Change the Measurement of Audit Quality

According to the research of Chan *et al.* (2006), the quality of local auditor is lower than the non-local auditor because the local auditor is more likely to collude with the clients in order to get rid of economic loss. Therefore,

**Table 4.** Competition and auditor choice (change) in different sample. (a) Panel A: Competition and auditor choice in different sample; (b) Panel B: Competition and auditor change in different sample.

(a) Panel A				
Variables	Model (1) Dependent variables: auditor choice			
	Non-state-owned enterprise		State-owned enterprise	
HHI	-0.283 (-1.15)		-0.422* (-1.71)	
LNN		0.028 (1.12)		0.045** (2.09)
Size	-0.049 (-1.78)	-0.047* (-1.73)	-0.279*** (-13.82)	-0.280*** (-13.96)
Lev	-0.195 (-1.36)	-0.180 (-1.25)	0.268** (2.14)	0.278** (2.23)
Growth	0.036 (0.88)	0.035 (0.86)	0.043 (0.96)	0.043 (0.96)
Ind	0.756* (1.66)	0.762* (1.67)	-0.502 (-1.14)	-0.508 (-1.16)
Opin	0.010 (0.08)	0.012 (0.10)	0.311*** (2.77)	0.311*** (2.77)
Dual	-0.180*** (-3.10)	-0.183*** (-3.13)	0.054 (0.71)	0.054 (0.72)
Mktindex	0.060*** (5.18)	0.060*** (5.10)	0.115*** (10.12)	0.117*** (10.31)
Age	0.049 (1.34)	0.055 (1.50)	0.056 (1.31)	0.062 (1.47)
Cons	0.240 (0.42)	0.038 (0.07)	4.863*** (11.26)	4.599*** (10.08)
Year	Controlled	Controlled	Controlled	Controlled
N	7492	7492	9315	9315
Pseudo R <sup>2</sup>	0.022	0.022	0.056	0.056

\*\*\*, \*\*, and \* represent statistical significance at the 1%, 5%, and 10% levels, respectively.

(b) Panel B

Variables	Model (2) Dependent variable: direction of auditor change							
	Upgrading changes (equals 1 if it is upgrading changes, 0 the same level)				Degrading changes (equals 1 if it is degrading changes, 0 the same level)			
	Non-state-owned enterprise		State-owned enterprise		Non-state-owned enterprise		State-owned enterprise	
HHI_CHANGE	0.656 (1.58)		0.223 (0.51)		-0.265 (-0.45)		0.080 (0.14)	
LNN_CHANGE		-2.820** (-2.06)		-3.495* (-1.69)		1.863 (1.52)		1.267 (1.23)
Size	0.025 (0.21)	0.019 (0.16)	-0.110 (-1.48)	-0.106 (-1.43)	-0.271* (-1.91)	-0.265* (-1.87)	-0.079 (-0.90)	-0.080 (-0.92)
Lev	-0.370 (-0.61)	-0.331 (-0.54)	0.718 (1.49)	0.727 (1.50)	0.288 (0.42)	0.255 (0.37)	0.799 (1.33)	0.791 (1.33)
Roa	-1.997 (-1.121)	-2.080 (-1.15)	-0.259 (-0.20)	-0.318 (-0.242)	-1.576 (-0.76)	-1.573 (-0.76)	0.686 (0.42)	0.592 (0.36)
Dual	-0.159 (-0.58)	-0.115 (-0.41)	-0.045 (-0.16)	-0.065 (-0.22)	-0.27 (-0.85)	-0.338 (-1.04)	0.263 (0.80)	0.275 (0.85)
Opin	0.287 (0.70)	0.303 (0.72)	0.687** (1.98)	0.691** (2.02)	-0.150 (-0.33)	-0.150 (-0.33)	-0.090 (-0.27)	-0.051 (-0.15)
Loss	0.934** (2.19)	0.917** (2.13)	0.034 (0.079)	0.028 (0.07)	0.135 (0.25)	0.157 (0.29)	0.944** (2.44)	0.958** (2.48)
Year	Y	Y	Y	Y	Y	Y	Y	Y
Cons	-1.443 (-0.60)	-1.320 (-0.55)	1.151 (0.75)	1.118 (0.73)	3.872 (1.40)	3.734 (1.35)	0.229 (0.13)	0.206 (0.12)
N	446	446	873	873	405	405	754	754
Pseudo R <sup>2</sup>	0.030	0.032	0.043	0.046	0.060	0.064	0.036	0.038

\*\*\*, \*\*, and \* represent statistical significance at the 1%, 5%, and 10% levels, respectively.

we treat the local auditor as low quality auditor and regard the non-local auditor as high quality auditor. In this case, we found the similar results with the test listed above.

#### 4.3.3. Change the Measurement of Competition

According to Li *et al.* (2013) [17], there are three measurements of the existing competition. In this paper, we have used two measurements and here we will use the third measurement to test whether the results are robust. IND-CON4 equals to the first four companies' revenue divided by industry aggregate revenue. We also found similar results with the regression results given above.

## 5. Conclusions

Based on data from China's stock markets for the period from 2004 to 2014, this study establishes hypotheses regarding the relationship between product market competition and auditor choice. On the one hand, this paper found that product market competition will affect the demand of high quality audit by reducing agency costs. On the other hand, the competition will promote the company to improve the quality of information disclosure and replace the role of auditor in improving the quality of information disclosure. Therefore companies with a higher degree of competition tend to choose low quality firms (small-local auditor). What's more, we also found that the changes in product market competition will lead to changes in the audit firm and when the product market competition becomes more intense, the companies are more likely to change from a high quality auditor to a lower quality auditor. Because the state-owned enterprise and the non-state-owned enterprise differ in the agen-

cy cost and the audit quality, we found that the results mentioned above are more significant in state-owned enterprise.

This paper further expands the study of external factors influencing the choice of the auditor based on the institutional background and economic factors, and enriches the theory of auditor selection. Product market competition is an important external governance mechanism in industrial level, but the attention to the relationship between auditor choice and competition is not enough, and this paper explores the relationship and enriches the research in this field.

This paper also has important policy implications. China is establishing a socialist market economy system which treats market as the main way of resource allocation. It can be expected that the market competition will be more intense. The results of this paper show that the market competition will reduce the demand for high quality audit and the performance of enterprises in competitive industries is more inclined to select the small local auditors. We can expect that if the competition is more intense, the supervision cost of the investors will decline.

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