Client Concentration and Audit Fees

-- An Empirical Study based on China's Listed Manufacturing Companies

Yan Wang

Northwest University of Political Science and Law, Xi'an, China

*544132681@qq.com

Abstract

Customers are the fundamental source of corporate profit, a key chain that every company cannot ignore for survival and development, and have a very important role in all aspects of production and operation. In the risk assessment part of the audit, CPAs are required to understand the audited entity and its environment, which also includes customer relationships and customer characteristics. It can be seen that the concentration of customers of listed companies is the content that requires CPAs to conduct key audits. At the current stage, there is no consistent fee standard in the audit market, so the paper examines the impact on CPA firms in determining audit fees from the client's perspective. This paper reviews some existing research results, applies the theory of modern risk-oriented auditing, the theory of supply chain integration, and analyzes the impact of client concentration on audit fees of listed companies by using the data of A-share manufacturing companies listed in China from 2015 to 2020, and proposes research hypotheses and constructs regression models to test the correlation between the two. According to the empirical results, it is indicated that there is a significant negative correlation between client concentration and audit fees, i.e., the higher the concentration of clients of listed companies, the lower the audit fees of CPAs. This indicates that the concentration of large clients is indispensable for the integration of supply chain in China. Based on the results of the empirical test, the paper proposes corresponding countermeasures from both CPAs and listed companies.

Keywords

Audit Fees; Customer; Concentration Characteristics; Supply Chain Integration.

1. Introduction

Customers are the core interest of the company and are one of the important competitive advantages of the company. High customer concentration indicates that the company has a few major customers and the cooperation is stable, trust and synergy is high, transaction costs are reduced, and the company has gained higher bargaining power in the process of multiple transactions, which is conducive to the stable growth of the company's revenue, the company's governance and management level and improved, and effectively reduces the company's financial and non-financial risks and other operational risks. Client concentration affects the operation of the company through the above aspects, which in turn has an impact on the audit fees. The significance of research on audit fees can strengthen market regulation in addition to regulating the competitive behavior of the market. The integrated development of supply chain management has further deepened the relationship between enterprises and their customers, and has become an increasing focus of CPAs. This paper provides further data on the correlation between customer concentration and audit fees based on the above perspectives, expands the

scope of the role of audit fees, further improves and refines the related research, and provides a reference for the determination of audit fees.

This paper has some innovations compared to the existing literature: first, there is a paucity of literature on the correlation between client concentration and audit fees, and this paper complements such research by selecting data from the last six years to verify this. Secondly, the findings of this paper are of great importance as they provide a reference for accounting firms to customize their audit fees.

2. Literature Review and Research Hypothesis

Audit fee is the cost spent by CPAs to undertake audit tasks and the reward for taking risks, and its level also reflects the quality of audit to a certain extent. The reasonableness of audit fees is related to the effective allocation of audit resources by CPAs in the audit process and whether the audit opinion can be understood by information users, which plays a very important role in the development of the audit market. Therefore, audit fees have always been the focus of attention of many scholars. Audit fees are considered to be influenced by many aspects, including but not limited to the following: the size of the auditee, the size of the accounting firm, the complexity of the audit engagement, the state of internal control, etc. The client, on the other hand, can also have an impact on audit fees due to the significant role it plays in the production aspects of business operations. For most scholars, audit fees are positively related to audit costs: the larger the audited entity, the higher the complexity of the audit accordingly, the more procedures of the audit, the higher the audit costs, and the higher the audit fees. In the early 1980s, Simunic studied the influencing factors of audit fees by building a multiple regression model. His research found that one of the main factors was the size of the auditee, and the audit fees were positively proportional to the increasing size of the auditee and the increasing audit fees. Some other scholars believe that if a company is willing to pay for the audit opinion, then the audit fee of this company will also increase. For example, Chen Jeping, Su Xijia, and Wu Xi (2005) found that the more non-standard audit opinions improve, the higher the audit fee, provided that the same firm conducts the audit. Chen, Ping, and Dai, Zhiyan (2008), after understanding the advantages of international "Big Four" accounting firms, compared the fees of domestic accounting firms with those of international "Big Four" accounting firms and found that large firms have the advantages of high quality human resources and high risk tolerance. They found that large firms have the advantages of high quality human resources and high risk tolerance, and thus can attract companies to pay higher audit fees.

The impact of customer concentration is not yet unanimously agreed in academia. Some scholars believe that too high customer concentration will make the customer occupy the main position in the transaction, so that the enterprise loses the bargaining power, and if the large customer changes the supplier, it will make the enterprise's inventory and cash flow face a crisis and completely fall into financial difficulties, and the management will therefore have difficulty in leading the enterprise, in order to avoid this phenomenon, the management will certainly manipulate the accounting statements, so that the CPA audit process of audit risk increases. For example, Zhou Donghua et al. studied the financial data of A-share listed companies in seven years since 2009, and concluded that the higher the concentration of clients, the stronger the level of surplus management, the lower the reliability of accounting information quality, that is, the concentration of clients is negatively related to the reliability of accounting information; Liu Jun et al. indicated that the concentration of clients would affect the independence of CPAs, and the accounting information that CPAs would pass to information users There may be some impracticality in the accounting information that CPAs will transmit to information users, and CPAs will therefore increase their audit fees to cope with it. Some scholars also believe that the increase of client concentration is beneficial to enterprises. For example, Qiong Wu and others

found that the higher the concentration of customers, the more information the share price of the listed company contains, the more the share price can truly reflect the situation of the enterprise; Wang Xiongyuan, Wang Peng and Zhang Jinping and others believe that the high concentration of customers of an enterprise indicates that its operation efficiency is also high, and its supply chain is more perfect and more resilient to risks. This part of scholars believes that the increase of customer concentration accelerates the process of supply chain integration and reduces audit fees. Based on the above analysis, this paper argues that the relationship between client concentration and audit fees is unclear ex ante, and therefore proposes two competing hypotheses for this paper.

Hypothesis 1: The higher the customer concentration, the better the supply chain integration, the lower the audit complexity, the consequent increase in the efficiency of the audit process, and the lower the audit cost.

Hypothesis 2: The higher the customer concentration, the higher the customer risk associated with it, the more complex the audit, the higher the audit risk, and the higher the audit cost.

3. Research Design

3.1. Sample Selection and Data Sources

Since customer concentration varies greatly among industries, and many industries have individual consumers or more dispersed customers, relatively speaking, most customers in the manufacturing industry are in the form of corporate organizations, which are relatively more concentrated, and the sample size of the manufacturing industry is sufficient, and there are large differences in the degree of concentration, and the influence of customer concentration on corporate characteristics is more typical, therefore, this paper selected the 2015 to 2020 Chinese A-share manufacturing listed companies as the initial sample for the study, and in order to ensure the accuracy and completeness of the data, the following screening was conducted: (i) because the financial statement data of ST, *ST and delisted supervisor companies are relatively special and abnormal, this paper excludes the relevant data of ST companies; (ii) delete the sample observations with missing financial data or incomplete due to insufficient disclosure; (iii) exclude companies in the financial and insurance industry. After the screening and processing of the above rules, 9138 sample observations are finally obtained. All sample data are obtained from the Cathay United database (CSMAR), and the statistical software for data screening and processing are Excel and STATA.

3.2. Variable Definition and Model Construction

1) explanatory variables. The explanatory variable in this paper is audit fees, which draws on the method of Zhou, Donghua and Zhao, Yujie (2015), using the natural logarithm of the publicly released compensation paid to accounting firms for auditing companies' annual financial reports expressed in the database of listed companies.

2) explanatory variables. Drawing on the research method of Wang Xiongyuan, Wang Peng and Zhang Jinping (2014), this paper adopts the Herfindahl index of the sales proportion of the top five customers of the enterprise, which is processed to measure customer concentration, which is the squared sum of the ratio of operating revenue accounted for by each of the top five customers of the enterprise, and the closer its value is to 1, the higher the customer concentration.

3) Control variables. Zhang, Qifeng and Wang, Zhenlin et al. (2010) argue that financial status is the main influencing factor in the process of evaluating audit risk. Therefore, the control variables selected in this paper are gearing ratio and total gearing ratio. The main variables and their definitions are shown in Table 1.

Table 1. Definition and calculation of study variables

Variable type	Variable Symbol	Variable name	Description of specific variable definition
Explanatory variable	LNFEE	Audit cost	Natural logarithm of audit fees
Explanatory variable	CC	Client concentration	Herfindahl index of the share of sales of the top five customers
Control variable	LEV	Gearing ratio	Ratio of long-term liabilities to total assets at the end of the year
	ROA	Return on total assets	Net profit/total assets balance at year-end

In order to test the relationship between client concentration and audit pricing, a regression model is constructed in this paper as follows:

$$\text{Lnfee} = \alpha_0 + \alpha_1 CC + \alpha_2 LEV + \alpha_3 ROA + \varepsilon$$

Where: is the main coefficient of interest in this paper, denotes the regression coefficient of client concentration, and if it is statistically significant, then client concentration has a significant effect on audit fees, and ε is a random error term.

4. Analysis of the Empirical Results

4.1. Descriptive Statistics

The results of descriptive statistics for each variable are shown in the report in Table 2. The natural logarithm mean of audit fees is 13.65, the great and small values are 16.53 and 11.51 respectively, and the standard deviation is 0.559, which indicates that there is some variation in the audit service fees charged by CPAs in auditing manufacturing companies. In terms of how customer concentration is measured, the table shows that the mean value of Herfindahl index for the proportion of sales of the top five customers is 5.42, the great value is 106.21, the small value is 0.01, and the standard deviation is 9.69, which can indicate that the concentration of customers of listed companies in China is still relatively high, and some companies have extremely dispersed customers. The maximum and minimum values of gearing and total assets return are significantly different, and the standard deviations are small, which indicates that the sample observations of these groups are stably and evenly distributed, with large differences in values, and therefore the impact on audit fees varies.

Table 2. Descriptive statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Client concentration	9,183	5.425839	9.697702	.000052	106.211
Audit cost	9,183	13.65572	.5592105	11.51293	16.53351
Gearing ratio	9,183	.3744205	.2035038	.0084	4.5963
Return on total assets	9,183	.0539836	.0970297	-2.0947	.7912

4.2. Correlation Analysis

As can be seen from Table 3, the correlation coefficient between client concentration and audit fees is -0.064 and is significant at the 1% level, indicating that the higher the client concentration of listed companies, the lower the audit fees determined by the CPA as a consideration, i.e., the relationship between the two is negatively correlated, and hypothesis 1 can be initially verified. Among the control variables, gearing ratio and audit fees still show a positive relationship at the 1% significance level, indicating that the lower the gearing ratio of listed companies, the lower the impact financial risk and the lower the audit fees. The correlation coefficient between total assets return and audit fees is -0.074, which is significant at the 1% level, indicating that the more profitable the company is, the business risk and audit risk are also reduced, so the audit fees decrease. Moreover, the correlation coefficients are all less than 0.5, which means that there will be no multicollinearity problem among the variables of the model constructed in this paper, and multiple regression analysis can be performed.

Table 3. Correlation analysis

	Audit cost	Client concentration	Gearing ratio	Return on total assets
Audit cost	1.000			
Client concentration	-0.064***	1.000		
Gearing ratio	0.355***	0.000	1.000	
Return on total assets	-0.074***	-0.025**	-0.330***	1.000

Note: ***. Significant at the 1% level; **. Significant at the 5% level; *. Significant at the 10% level.

4.3. Regression Analysis

Table 4 shows the results of the multiple linear regression between client concentration and audit fees under the model of this paper. It can be seen that the F-value of the model is 464.22 and the R2 is 0.242, which indicates that the equation fit passed the significance test, the explanatory power of the equation is good, and the regression effect is good. The coefficient of client concentration and audit fee is -0.003, and this conclusion is basically consistent with the hypothesis of this paper, that is, the increase of client concentration increases the probability of audit fee reduction, which indicates that the company increases the client concentration will reduce the audit risk, so that the CPA's cost in the work will be reduced, and the audit fee charged by the CPA will be reduced, and hypothesis 1 is verified.

Table 4. Results of basic regression analysis

Source	SS	df	MS			
				Number of obs	=	9,183
				F(3, 9179)	=	464.22
Model	378.256873	3	126.085624	Prob > F	=	0.0000
Residual	2493.10448	9,179	.271609596	R-squared	=	0.1317
				Adj R-squared	=	0.1315
Total	2871.36135	9,182	.312716331	Root MSE	=	.52116

Audit cost	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Client concentration	-.0036345	.000561	-6.48	0.000	-.0047343	-.0025348
Gearing ratio	1.016188	.0283145	35.89	0.000	.9606853	1.071691
Return on total assets	.2657966	.0594033	4.47	0.000	.1493529	.3822402
_cons	13.28061	.0136031	976.29	0.000	13.25395	13.30728

In summary, our evidence points in line with hypothesis 1 of this paper, that the integration of supply chains makes the presence of large customers simplify audit complexity and improve audit efficiency, and that firms with higher customer concentration are more likely to have discounted audit fees, which well validates the hypothesis that customer concentration can significantly reduce audit fees. The main point is that the closer the Herfindahl index of a major client is to 1, the more solid the client is and the less risk the firm faces in this area, while at the same time, the CPA's workload for the supply chain decreases and the audit fee tends to decrease.

5. Research Conclusions and Countermeasure Suggestions

5.1. Research Conclusions

Domestic and international studies show that customers, as important stakeholders of the company, have a decisive influence on the company's performance, development direction, financial decisions, risk intensity and other economic activities. Unlike the existing literature, this paper investigates the influence of customers on the audit fees of supplier firms. By combining theoretical and empirical research methods, this paper further discusses the correlation study between customer concentration and audit fees in the supply chain using empirical evidence from A-share manufacturing companies listed in China from 2015 to 2020, using the Herfindahl index (CC) of the sales weight of the top five customers as a variable and applying a multiple linear regression model. After empirical evidence shows that, controlling for other conditions, audit fees tend to decrease as customer concentration increases in listed companies, empirically demonstrating the significant impact of customers as important non-financial stakeholders of firms on corporate audit fees, i.e., customer concentration and audit fees are negatively correlated, i.e., for units with a more concentrated customer base than the average firm, there is a decrease in audit fees In this case, client concentration is negatively related to audit fees. This suggests that high customer concentration does bring integration advantages to the supply chain, which offsets or outweighs the possible risks associated with high customer concentration that is endured. In addition, there is an increase in efficiency in the audit process due to reduced audit complexity. Therefore, as customer concentration increases, the more likely the CPA perceives that its customer relationships are relatively stable and that it is exposed to less risk, while the CPA's workload in the audit process is reduced and audit fees are lower.

5.2. Suggestions for Countermeasures

Based on the findings in the full paper, this paper finds the conclusion that client concentration has a reducing effect on audit fees. Based on this conclusion, this paper gives the following policy insights.

(1) Companies should take the initiative to strengthen supply chain management, establish long-term good cooperative relationships with customers, stabilize supply and demand relationships, rely on customers to better understand market demand thereby enhancing core competencies and maintaining competitive advantages, and build an efficient supply chain system. China is a relationship-based society, and companies need the support of customers, an important non-financial stakeholder, for their sound operation in order to gain a larger market share. The increasing number of success stories related to cooperation shows that the days of going it alone in the business world are almost coming to an end. Companies can optimize supply chain performance through demand sharing, improved supplier product development, joint innovation and shared rewards to achieve overall cost reduction and customer value improvement. Previous research and practice has demonstrated that strong supply chain

collaboration leads to increased profits and competitive advantage, whether through operational efficiency improvements or operating cost reductions. In general, if we can always cooperate with our customers in a friendly way and take advantage of the positive integration effect brought by large customers, we can improve the operational efficiency and profitability of the enterprise, reduce the volatility of the enterprise's revenue, enhance the competitiveness of the whole supply chain, and improve the profitability and performance level of the whole supply chain. At the same time, companies should follow the requirements of the China Securities Regulatory Commission regarding customer information disclosure and be alert to the downside risks associated with an overly concentrated customer base to avoid the dominance of large customers, which could ultimately harm the sustainable operation of the company. Companies with a more concentrated client base can also establish new cooperative relationships with their key large clients that are risk-sharing, mutually supportive and complementary to strengthen the level of trust and enhance the supply chain integration function.

(2) From the perspective of accounting firms and CPAs, CPAs in China have begun to pay attention to audit risks when performing audit procedures and are gradually shifting to risk-based auditing. CPAs should strengthen the application of risk-oriented auditing, paying attention not only to the characteristics and risks of the audited entity itself, but also to the economic consequences of its non-financial stakeholders acting on the audited entity. Another new direction regarding audit disclosure is the inclusion of more detailed data about the audit engagement (e.g., the time when the audit work started). If specific audit hours data are available, the most intuitive proxy variable for audit workload can be obtained.

(3) The government should establish a sound market competition mechanism. The survival and development of an enterprise depends to a large extent on the influence of the competitive market environment within the industry. Further analysis of this paper shows that the degree of market competition plays a role in regulating the negative relationship between customer concentration and audit costs, and when the market is too competitive, it will not help stabilize the "supplier-customer" relationship, which also weakens the supply chain integration effect. If the government establishes a reasonable and effective competition mechanism, it will help strengthen the relationship between the company and its downstream customers to a certain extent. The government should also strengthen the regulation of audit pricing. The current pricing standards in China's audit market are not uniform, so the government and regulators should strive to promote the healthy development of the audit market and guide the pricing and fees of accounting firms.

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