

# Customer Concentration and Corporate Performance

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**Abstract:** The reliance on large customers is common among Chinese listed companies, with nearly half of the companies trading with the top five customers exceeding 30%, and around 20% even exceeding 50%, thus, reasonable handling of customer relationships is an important part of a company's operation and strategy. This paper empirically investigates the effect of customer concentration on firm performance using a sample of Chinese A-share companies listed in the non-financial industry from 2007 to 2020. The results show that higher customer concentration tends to be accompanied by higher Tobin's Q, i.e., higher firm market value. In addition, research shows that although customer concentration is negatively correlated with firm ROA, high customer concentration binds the interests of customers and firms, and customers are more willing to provide firms with technical support and information such as industry insiders, which are invisible resources that bring higher market value to firms. This paper provides empirical evidence for enterprises about customer relationships in the strategic development of the firm, enriches the research on the impact of customer concentration on firm performance and expands the analytical perspective of firm performance from the market value of the firm, thus the findings of this study provides certain practical implications.

**Keywords:** Customer Concentration; Corporate Performance; Tobin's Q.

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## 1. Introduction

In the highly competitive environment, a critical factor for success is investment into long-lasting skills and relationships with customers (Čierna et al., 2022), and customer concentration is an important indicator of customer relationships, including customer dependence and riskiness. For example, Minth Group, when founded in the 1990s, won the contract from BMW as an automobile parts supplier and became famous after supplying more than 600 parts to BMW within two months. On the one hand, the existence of key accounts brings a great sense of security for planning production and securing revenue, on the other hand, companies are always exposed to potential risks to business operation caused by the loss of large customers or by the changes in business demand, as well as bankruptcy or financial difficulties of customers (Wang et al., 2020). In this situation, how customer concentration affects firm performance and how firms should deploy customer concentration and customer structure according to their own characteristics has become a critical issue to the industry.

In recent years, regulators and investors has paid great attention to the information of major customers of listed companies, but two contrasting views have emerged from existing studies on whether higher customer concentration can have a beneficial effect on firm performance. One view is that firms are able to create greater market value than operating independently through the integration of supply chain resources and cooperation with trading partners (Kim & Henderson, 2015); On the other hand, from the risk perspective, higher customer concentration implies that customers have stronger bargaining power and that customers can readily use their dominant position to transfer their own risks to suppliers (Rezaul & Nor, 2018).

Scholars have not yet agreed on the economic consequences of customer concentration because most of the existing literature assess firm performance in terms of profitability and asset operation levels, such as the number of patents, sales growth rate, and return on assets, ignoring the ability of sustainable development. In view of the above facts,

this paper uses Tobin's Q to analyze the long-term impact of customer concentration on firm performance from the perspective of firm value. This paper uses the data of listed companies from 2007 to 2020 to examine the effect of customer concentration on the market value of enterprises. The research findings show that firms with higher customer concentration also have higher long-term enterprise value.

The contributions of this paper are as follows: First, the existing literatures focus on the average effect of customer concentration on firm performance and analyze the mechanism of customer concentration on firm performance only from the perspective of profitability and output capacity, ignoring the impact of customer concentration on the overall market value of the firm. This paper extends the research perspective to the long-term market value of the firm, which is a useful extension of the research field of customer concentration. In addition, a sample survey shows that the average life span of private enterprises in China is about 3.7 years, and the average life span of small and medium-sized enterprises is even shorter, only 2.5 years. Therefore, how private enterprises can reasonably layout their own customer concentration from the perspective of long-term market value in the face of large customers is a problem of practical significance. The findings of this paper help business operators to understand the risk of customer concentration from the perspective of long-term corporate development and provide some reference for effective corporate operations.

The remainder of the paper is structured as follows: Part II contains the literature review and research hypotheses; Part III is the research design of the paper; Part IV includes the empirical results and analysis; and Part V contains the conclusions and further direction of the study.

## 2. Literature Review and Hypothesis Development

### 2.1. Literature Review

Theory of innovation argues that the economy breaks the old equilibrium and achieves a new one mainly from internal forces, the most important of which is innovation, and it is

innovation that causes economic growth and development (Schumpeter, 2008). Therefore, most of the existing researches start from innovation theory to analyze the boosting and hindering effects of customer concentration on firms' innovation performance. From the perspective of benefit distribution, the more concentrated the vertical partnership is, most of the profits of technological innovation will be obtained by upstream and downstream enterprises with stronger bargaining power, which will reduce the enthusiasm of enterprise technological innovation (Zheng & Zhang, 2016); in addition, the fluctuation of customer relationship will make the upstream enterprises face difficulties in the normal implementation of production and sales plans, which will intensify the business risks. At the same time, fluctuations in the relationship between enterprises and major customers can cause uncertainty risks such as impairment of dedicated assets and high customer replacement costs, so that enterprises have to set aside a certain risk reserve for this purpose, thus affecting the stability and sustainability of enterprise technological innovation (Zhao, et al., 2022). From the perspective of knowledge transfer and social capital, when the cooperative relationship is more stable between enterprises and their upstream and downstream enterprises. Due to the converged interests of key accounts and enterprises, upstream suppliers have stronger willingness to cooperate with enterprises' innovation, which is conducive to the transfer of business information and the sharing of internal proprietary technology (Czarnitzki & Kraft, 2010). On the other hand, the external knowledge source of enterprises is relatively single, which is not conducive to the acquisition of diversified knowledge and thus has a negative effect on technological innovation (Inderst & Wey, 2007).

Many academics have also introduced some mediating factors in the study of customer concentration and firm performance. According to Zhao et al., capital flow and logistics, as direct carriers of customer relationships, are the specific paths and manifestations of customer relationships that affect business operations, and play a mediating role in the study of the impact of customer concentration on business performance. The increase of bargaining power of large customers will significantly increase the scale of corporate accounts receivable and crowd out corporate financial resources, thus intensifying the level of corporate financing constraints and inhibiting corporate technological innovation investment; while customer volatility implies the increase of unstable factors in customer relationships, which will directly affect the efficiency of inventory turnover and the completion of sales plan. In addition, technological innovation is closely related to the external environment and social policies, so the level of regional sustainable development of the firm's location may also play a moderating role when exploring the relationship between customer relationship and technological innovation (Zhao, et al., 2022). According to Guo et al., in the absence of incentives, professional managers do not actively implement technological innovation due to private motives such as job security, personal reputation, and material compensation, etc. When firms implement equity incentives to bundle the interests of professional managers with those of shareholders and enhance the motivation of professional managers to innovate, the negative impact of supplier concentration and customer concentration on firms' innovation performance can be effectively mitigated (Guo, et al., 2022). Huang et al. argue that the economic cycle

moderates the relationship between bargaining power and firm performance, and the bargaining power of a firm plays a positive role in its performance, so the positive relationship is more significant during economic contraction (Huang & Zhang, 2017). Xu et al. introduce the moderating effects of firm ownership and market position in the management of customer concentration. Compared with non-state-owned enterprises, state-controlled enterprises have less competitive pressure, weaker dependence on important customers and stronger position in market competition, so that the effect of customer bargaining power on state-controlled enterprises is not significant; compared with state-owned enterprises, the negative relationship between customer concentration and R&D performance of non-state-controlled enterprises is more significant (Xu & Wang, 2021). Su et al. (2021) investigated the effect of customer geographic on customer concentration and firm innovation performance. The relationship between customer geographic proximity and firm innovation performance was inverted U-shaped, in which customer geographic proximity within a certain threshold pulled up firm innovation performance, while beyond the threshold customer geographic proximity inhibited firm innovation performance (Su & Zhang, 2021).

Most of the current studies about the impact of customer concentration on firm performance stay on the paths of customer concentration on firm innovation performance, like large customers exert negative impact on firm innovation performance through financing constraints, bad debt risk, inventory backlog, and bargaining power. However, the long-term market value dimension of firms has been less studied in the current research.

## 2.2. Hypothesis Development

The promotion effect of customer concentration on enterprise performance has been extensively explained in existing studies. High customer concentration is beneficial for enterprises to form stable cooperative relationships with suppliers or customers (Zheng et al., 2016), and good supply chain management can help enterprises to quickly perceive market changes and respond to market demand (Guo et al., 2022), and enterprises can obtain valuable knowledge through technical support provided by customers at low cost, absorb and utilize it to improve their own R&D capability (Xu et al., 2021). However, a high customer concentration also means a lack of heterogeneity in customer resources, which is an important source of innovation, and its absence is not conducive to enterprise technological innovation (Zhao et al., 2020).

In addition, existing studies generally agree that the higher the concentration of customers, the greater the firm's dependence on them and the stronger the bargaining power of customers, so that the pressure from major customers may lead the firm to compromise on lowering sales prices, extending commercial credit, and stocking excess inventory, which will thus harm the firm's business performance (Piercy & Lane, 2006). However, if the company keeps developing new customers in order to avoid the dominance of key accounts, the product turnover of the company will be fluctuating or even declining in the process, and the new customers also need some time to anticipate and grasp the market response such as the market acceptability and sales cycle of the products, which will lead to the crowding of the company's resources and reduce the flexibility of financial resources (Zhao et al., 2020). This behavior of actively

reducing customer concentration in order to avoid the phenomenon of "holdup problems" will also have a negative impact on corporate performance. Secondly, customer bargaining power does not only depend on customer concentration. Research has shown that product uniqueness increases the degree of interdependence between customers and suppliers, so customers would pay more attention to long-term relationships with suppliers (Titman & Wseels, 1988). The likelihood of uncontrolled "holdup problems" "by key accounts would be reduced. In addition, some scholars argue that the stronger bargaining power of suppliers and customers is not entirely negative; the stronger the bargaining power of suppliers and customers, the more stable the dependence between upstream and downstream firms, and the more accurate the firms' demand forecasts for products, which is more conducive to technological innovation (KELLER, 2001).

The impact of customer concentration on firm performance is in academic settings controversial because it ignores factors other than firm profitability. Corporate performance encompasses a variety of dimensions, such as profitability, asset operation level, solvency and subsequent development ability, so it cannot be measured solely by the return on investment nor by the ratio of upstream and downstream profit distribution. When customers have a relatively high market share, more industry resources, and more insider information about market trends, even though there may be conflicts in the distribution of interests, with bundled interests of customers and enterprises, customers are more willing to help enterprises obtain information needed for technological innovation as well as support (Zhao Shuang et al., 2020), all of which help to reduce enterprises' information barriers, to adjust business strategies, and subsequently to improve the market value of enterprises. Therefore, the facilitating effect of customer concentration is likely to exceed its inhibiting effect. Based on the above analyses, this paper proposes the following hypothesis:

Hypothesis: Customer concentration has positive impact on long-term firm performance

### 3. Research design

#### 3.1. Sample and Data

The research sample of this paper is the companies listed in Shanghai and Shenzhen Stock Exchange from 2007 to 2020. All financial indicators and corporate governance data of the sample companies come from CSMAR database, and the following treatments were made to the data during sample selection: (1) financial and insurance companies are excluded; (2) ST, ST\*, incomplete data, and observations that are not continuously disclosed or are obviously abnormal are excluded. Finally, this paper has 65501 observations. (3) All continuous variables are minorized at the upper and lower 1% level to eliminate the effect of extreme values (Meng et al., 2018).

#### 3.2. Variable definitions

①Dependent Variable: Firm Performance. Following Hejazi et.al. (2016), this paper uses Tobin's Q to measure firm performance. Specifically, the Tobin's Q ratio divides the total market value of a firm by the total value of assets owned by the firm.

②Independent Variable: Customer Concentration. Based on the information of the Top five customers disclosed in the

annual report, Customer Concentration will be measured by Herfindahl index.

③Control variable: Firm Size, Leverage, PPE, Cash Flow From Operating Activities (Cfo), Tobin's Q, Independent Directors, Board Size, Herfindahl-Hirschman Index (HHI), Duality of COB and CEO (Dual).

The empirical model is as follows:

$$\text{Tobin's Q} = \beta_0 + \beta_1 \text{Customer Concentration} + \beta_2 \text{Controls} + \text{Industry FE} + \text{Year FE} + \varepsilon_1$$

Detailed variable definition is presents in Table 1.

**Table 1.** Variable Definitions

Variable	Definition
Leverage	Ratio of long-term debt plus debt in current liabilities to total assets
Cfo	Net cash flow from operating activities divided by total equity
Independent Directors	Proportion of independent directors on the board
Board Size	Total number of board members
Firm Size	Natural logarithm of total assets
Tobin's Q A	Market Value A / Total Assets [Market value A] - market value of equity + market value of net debt. Market value of non-tradable equity is calculated by net assets instead.
Tobin's Q C	Market value B / Total assets [Market Value B] - Market Value of Equity + Market Value of Net Debt. Market value of non-tradable equity is calculated by the market value of outstanding shares instead.
PPE	property, plant and equipment
Dual	Whether the general manager and the chairman are the same person. 1=same 2=different
HHI	a measure of market concentration, calculated by squaring the market share of each firm competing in a market and then summing the resulting numbers.

## 4. Empirical Results

### 4.1. Descriptive Statistics

As shown in Table 2, the mean value of Tobin's Q A of the companies is 2.067, with a maximum value of 9.334, a minimum value of 0.871, and standard deviation greater than 1, indicating that there is a large variability in the Tobin's Q of the companies. The Tobin's Q A of the 25th percentile is greater than 1, showing that the market value of the companies is generally higher than the replacement cost of their assets. When it comes to Tobin's Q C, the statics reflect a similar tendency. In terms of the size of the companies (Size), the difference is not significant because the logarithm has been taken for the total assets. Net fixed assets (PPE) has a mean value of 0.215, standard deviation of 0.163, maximum value of 0.699, minimum value of 0.002 and median of 0.182, indicating that there is no significant difference in net fixed assets between companies. Cash flow from operating activities (Cfo) has a minimum value of -0.192, maximum value of 0.25, mean value of 0.045 and standard deviation of 0.073, with no extreme values. The minimum value of leverage (Lev) is 0.05, the maximum value is 0.975, and the median is 0.421, indicating that the overall leverage of companies is low. There are no extremes in independent directors, board size and duality of COB and CEO. The

maximum value of Herfindahl index is 0.459, the minimum value is 0.2, and the 75th percentile is 0.26, showing that the overall industry concentration is low.

**Table 2.** Descriptive Statistics

variable	N	mean	sd	min
TobinQA	65501	2.067	1.380	0.871
TobinQC	65501	2.677	2.004	0.853
Size	65501	22.02	1.296	19.49
PPE	65501	0.215	0.163	0.00200
Cfo	65501	0.0450	0.0730	-0.192
Lev	65501	0.431	0.216	0.0500
Indep	65501	0.377	0.0630	0.250
Board	65501	2.203	0.235	1.609
HHI	65501	0.239	0.0430	0.200
Dual	65501	1.722	0.448	1

(Continued to Table 2)

variable	p25	p50	p75	max
TobinQA	1.254	1.624	2.318	9.334
TobinQC	1.400	2.027	3.182	12.26
Size	21.09	21.85	22.76	26.05
PPE	0.0870	0.182	0.308	0.699
Cfo	0.00600	0.0450	0.0870	0.250
Lev	0.258	0.421	0.590	0.975
Indep	0.333	0.364	0.429	0.583
Board	2.079	2.197	2.303	2.833
HHI	0.208	0.227	0.260	0.459
Dual	1	2	2	2

## 4.2. Baseline Results

Customer Concentration was put into the model described previously in the regression analysis, and the regression results are shown in Table 3. The first column shows the relationship between customer concentration and Tobin's Q without control variables, and the second presents the relationship between customer concentration and Tobin's Q, when control variables are taken into account.

**Table 3.** Baseline Results

	(1) TobinQA	(2) TobinQA
Customer Concentration	0.010*** (10.34)	0.005*** (6.18)
Size		-0.444*** (-21.21)
PPE		-0.626*** (-6.16)
Cfo		2.135*** (11.30)
Lev		0.377*** (3.26)
Indep		0.533*** (3.45)
Board		0.086* (1.88)
HHI		-0.216 (-0.87)
Dual		0.071** (2.56)
_cons	2.282*** (18.33)	11.289*** (27.81)
N	64649	64649
r <sup>2</sup> <sub>a</sub>	0.149	0.281
F	126.980	113.340
t statistics in parentheses		
***1% **5% *10%		
==** p<0.1	** p<0.05	*** p<0.01"

Without regard to control variables, the Customer Concentration is significant at the 1% level (t=10.34) with the coefficient of 0.010; When we take into account several control variables in second column, the Customer Concentration is also significant at the 1% level (t=6.18) with the coefficient of 0.05, implying that Customer Concentration has a significant positive relationship with firm performance, and the empirical results are consistent with the original hypothesis.

The regression results also show the relationship between other control variables and firm performance. The regression coefficients of firm size (Size), fixed assets (PPE) and HHI are all negative, indicating that firm size, fixed assets and industry concentration have a significant negative impact on the improvement of firm performance. The larger the size of the firm, the easier it is for small flaws in production and management plans to be multiplied in large-scale production, resulting in larger economic losses. The higher the fixed asset ratio, the less efficient the use of fixed assets and the poor operating capacity of the company, which is likely to face losses. The higher the industry concentration, the more the market tends to be monopolized, and most of the enterprises except the head enterprises have little room for survival, which has a negative impact on the enterprise performance. The regression coefficients of cash flow from operating activities (Cfo), Leverage (Lev), independent director (Indep) and Dual are positive.

## 4.3. Robustness tests

Tobin'Q C is used instead of Tobin'Q A to test the relationship between customer concentration and firm performance. Market value of non-tradable equity in Tobin'Q C is calculated by the market value of outstanding shares instead of net assets in Tobin'Q A. The column (1) does not take into account control variables, and the column (2) contains control variables.

**Table 4.** Robustness tests

	(1) TobinQC	(2) TobinQC
Customer Concentration	0.017*** (13.32)	0.008*** (8.61)
Size		-0.630*** (-24.00)
PPE		-1.485*** (-11.37)
Cfo		3.632*** (14.45)
Lev		-0.436*** (-2.92)
Indep		0.911*** (4.47)
Board		0.079 (1.32)
HHI		-0.907*** (-2.72)
Dual		-0.141*** (-3.77)
_cons	3.215*** (22.49)	17.299*** (33.60)
N	64649	64649
r <sup>2</sup> <sub>a</sub>	0.198	0.377
F	166.281	162.429
t statistics in parentheses		
***1% **5% *10%		
==** p<0.1	** p<0.05	*** p<0.01"

The results show that there is still a positive relationship between customer concentration and firm performance, no matter whether control variables exist or not. Thus, the empirical results are still consistent with Tobin's Q, indicating that the empirical results are robust.

## 5. Conclusion

According to statistics, the average life span of private enterprises in China is about 3.7 years, and the average life span of small and medium-sized enterprises is even shorter, only 2.5 years. At present, the market competition is becoming increasingly fierce, and the market environment is full of big uncertainties, so a stable customer relationship between upstream and downstream of the supply chain can help enterprises integrate business resources and overcome the negative impact brought by the turbulent market environment, thus helping them to stand under the fierce competition. However, the apparently stable supply chain relationship may also conceal risks. So how to deal with the risks and opportunities brought by key accounts and how to reasonably dispose the company's own customer development strategy are important to companies.

This paper analyzes the relationship between customer concentration and corporate performance from the perspective of corporate asset replacement cost (Tobin's Q). The research shows that customer concentration is significantly and positively related to corporate performance.

The conclusions of this paper provide references for listed companies in customer relationship management. First, supplier companies should raise their awareness of risk prevention and control of customer concentration, and reasonably control customer concentration according to their own development strategies to prevent large customers from holding excessive bargaining power and harming corporate interests; second, companies should also consciously filter high-quality customers and strive to reach a community of shared interests with large customers, so as to improve their own market value in this process.

The limitation of this paper is that it fails to explain the impact of customer concentration on firm performance when market capitalization and profitability are in conflict.

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