

Study on the Influence of Customer Volatility on the Financial Performance of Manufacturing Enterprises

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Abstract

Customers are the main source of corporate interests and have an important impact on the operation and development of enterprises. This paper takes the dynamic dimension of customer relationship as the entry point, based on stakeholder theory, signaling theory and resource dependence theory, and takes Shanghai and Shenzhen A-share manufacturing enterprises from 2014-2023 as the research object, and draws on the existing research to construct the mediation effect model to deeply analyze the impact of customer volatility on financial performance. The results show that customer volatility has a significant negative impact on the financial performance of manufacturing firms, and conclusions still hold after the robustness test; further analysis reveals that customer volatility inhibits the improvement of firms' financial performance by raising agency costs and increasing commercial credit. The findings of the study shed light on how companies manage customer relationships.

Keywords

Customer Volatility; Agency Costs; Commercial Credit; Financial Performance.

1. Introduction

Under the background of vigorously developing the real economy, as an important carrier of the real economy, the level of development of manufacturing enterprises is related to the quality of the development of the real economy, enterprises want to be bigger and stronger to achieve sustainable development, it is necessary to pay great attention to the financial performance, the improvement of the financial performance of manufacturing enterprises not only from the micro impact on the growth of the enterprise, but also from the macro impact of the entire economic and social effective operation. At the same time, with the market competition environment is becoming more and more intense and product renewal and iteration speed up, customer production and operation by the customer-oriented trend is more and more obvious, China's manufacturing industry listed companies nearly 30% of the revenue from major customers, and in recent years, year by year, customer relations by the practice of the community and academia's high attention. However, regarding the impact of customer relationship on corporate financial performance, the academic community has not yet reached a consistent conclusion, and most of the research is to start from the static dimension of customer relationship customer concentration, and rarely from the dynamic dimension of customer relationship customer volatility research. Based on this, this paper is based on signaling theory, stakeholder theory and resource dependence theory to unveil the influencing factors of the financial performance of manufacturing enterprises from the perspective of dynamic customer relationship, and to explore the possible path of customer volatility on enterprise performance, so as to conduct a more detailed and deeper exploration of the relationship between customer volatility and enterprise financial performance.

2. Theoretical Analysis and Assumptions

2.1. Customer Volatility and Firm Financial Performance

Chang et al.'s research shows that customers have strong motivation and ability to intervene in corporate governance, such as customers will improve the internal governance environment of the enterprise through the board of directors' cross-shareholding^[1]. From the viewpoint of signaling theory, stable customers can exert the reputation mechanism to alleviate information asymmetry and reduce enterprise costs. Higher customer stability greatly improves the financing ability of the enterprise^[2], reduces the cost of enterprise capital occupation, and is conducive to the improvement of financial performance. Secondly, the stable relationship between enterprises and customers prompts core enterprises to improve technology^[3], adjust the direction of research and development to occupy market opportunities, rapidly expand market share, and enhance profitability^[4]. In addition, stable customers can hedge the risk of market changes, reduce operational uncertainty, and improve enterprise profitability. Similarly, along the above lines, fluctuations in customer relationships can affect the interaction and communication between enterprises and supply chain parties^[5], leading to interference in the performance of customer governance effects. Therefore, unstable customer relationships will force enterprises to adjust the original business planning^[6], increase business risks, and enterprise performance will be affected accordingly, therefore, this paper proposes hypothesis H1:

H1: In the case of other conditions are established, the greater the customer volatility, the worse the enterprise financial performance.

2.2. The Mediating Effect of Agency Costs

According to existing research, the existence of agency costs tends to harm firms' financial performance, so would agency costs be a possible path for customer volatility to affect firms' financial performance? From the stakeholder theory, it is known that stable customer groups have the ability and motivation to pay attention to the operation of the enterprise, exert governance mechanisms, monitor and restrain management, thus reducing agency costs and improving financial performance^[7]. On the one hand, the stable relationship established in long-term transactions helps customers to form an information advantage allows customers to have the ability to monitor the operation of the enterprise, thus restraining the opportunistic behavior of management; on the other hand, customers are also more likely to make relational asset-specific investments to maintain a specific transactional relationship with the enterprise, which can produce a bundling effect^[8], in order to reduce the investment loss of the subsequent dedicated assets, customers In order to reduce the loss of subsequent investment in specialized assets, customers have incentives to assess and monitor the financial status of the enterprise, which reduces the moral hazard behaviors of the management, such as using their positions for on-the-job spending to build a "business empire" and so on. Following the above analysis, the more unstable the customer is, the higher the agency cost of the enterprise, which is not conducive to improving enterprise performance, so the following hypothesis H2 is proposed:

H2: Customer volatility inhibits corporate performance by increasing agency costs.

2.3. The Mediating Effect of Commercial Credit

Scholars at home and abroad have not reached a consensus on the relationship between commercial credit and enterprise performance, this paper argues that commercial credit is likely to be one of the paths through which customer volatility affects the financial performance of enterprises. Specifically, the positive fluctuation of customer relationship, a certain period of time the trend of customer concentration is increasing, the customer status to enhance the right to speak more and more, easy to "customers bully the store", such as credit purchases, the

requirement to extend the repayment period and more favorable credit conditions^[9]; customer relationship negative fluctuation, a certain period of time the trend of customer concentration is decreasing, in order to improve customer stickiness to establish long-term stable customer relationships, companies will take the initiative to provide more commercial credit to customers. Based on the above analysis, unstable customer relationship, whether it is positive or negative fluctuation, will make the enterprise passively or actively provide more commercial credit, which will lead to the enterprise's funds being occupied without compensation, greatly increase the enterprise's collection costs and bad debt losses, and impede the improvement of financial performance. Therefore, this paper proposes the following hypothesis H3:

H3: Customer volatility impedes financial performance growth by increasing commercial credit supply and thus.

3. The Design of Study

3.1. The Selection of Sample and Sources of Data

In this paper, China's manufacturing companies listed on the main board of Shanghai and Shenzhen A-shares from 2014 to 2023 are selected as the research sample, and in order to make the research more satisfying, the following principles are used to screen the sample companies: (1) selecting the manufacturing industry in accordance with the industry classification standards in the Guidelines for Industry Classification of Listed Companies revised by the Securities and Exchange Commission (SEC) in 2012; (2) excluding the samples of the companies that have been ST, *ST, and PT during the research period; (3) excluding samples with missing data disclosure; (4) winsorizing all continuous variables at the upper and lower quartile 1% levels. The final unbalanced panel data consisting of 6307 firm-year observations are obtained.

3.2. The Definition of Variables

(1) Explained variables

Financial performance (Roa). Drawing on Patatoukas^[10] and others, this paper chooses return on assets as a measure of firms' financial performance, and uses net asset margin as a replacement variable for financial performance for robustness testing.

(2) Explanatory variables

Customer volatility (Cs). Referring to Shi Jinyan^[11] and others, this paper measures customer volatility as the variance of the ratio of the top five customers' sales to the total annual sales for three consecutive years.

(3) Intermediary variables

agency cost (Mr). Referring to Gao Minghua and Tan Yueqing^[12], this paper uses the management expense ratio to measure the agency cost, and a larger management expense ratio means a higher agency cost.

commercial credit (Cre). Referring to the research of Lu Zhengfei and Yang Deming and Wang Luyu^[13] ^[14], this paper defines the commercial credit provided by the enterprise to customers = (accounts receivable + notes receivable - advance receipts) / total assets at the beginning of the period.

(4) Control variables

In order to eliminate the influence of other factors on the financial performance of the explanatory variables, referring to the existing literature and combining with the research topic of this paper, the size of the enterprise (Size), the growth capacity of the enterprise (Growth), the gearing ratio (Lev), the proportion of shareholders' ownership (Share), the age of the enterprise (Age), and the proportion of intangibles (Iar) are used as control variables.

3.3. The Specification of Model

(1) Benchmark model

In order to test hypothesis H1, this paper constructs model (1) to test the relationship between customer volatility and firm performance, if the coefficient α_1 of Cs is significantly negative, it means that customer volatility will have a significant negative impact on the financial performance of the firm, and H1 is proved.

$$Roai,t = \alpha_0 + \alpha_1 Cs_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 Growth_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 Share_{i,t} + \alpha_6 Age_{i,t} + \alpha_7 Iar_{i,t} + \Sigma Firm + \Sigma Year + \varepsilon_{i,t} \quad (1)$$

(2) Mediation effects model

Referring to the three-step test method of Wen Zhonglin et al ^[15] to construct model (2) and model (3) on the basis of model (1). Firstly, test whether customer volatility has a significant effect on corporate financial performance through model (1), secondly, test whether customer volatility has a significant effect on agency cost through model (2); finally, use model (3) to link customer volatility, agency cost and corporate financial performance.

$$Mr_{i,t} = \theta_0 + \theta_1 Cs_{i,t} + \theta_2 Size_{i,t} + \theta_3 Growth_{i,t} + \theta_4 Lev_{i,t} + \theta_5 Share_{i,t} + \theta_6 Age_{i,t} + \theta_7 Iar_{i,t} + \Sigma Firm + \Sigma Year + \varepsilon_{i,t} \quad (2)$$

$$Roai,t = \delta_0 + \delta_1 Cs_{i,t} + \delta_2 Kz_{i,t} + \delta_3 Size_{i,t} + \delta_4 Growth_{i,t} + \delta_5 Lev_{i,t} + \delta_6 Share_{i,t} + \delta_7 Age_{i,t} + \delta_8 Iar_{i,t} + \Sigma Firm + \Sigma Year + \varepsilon_{i,t} \quad (3)$$

Models (4) and (5) are constructed based on model (1) to test whether business credit is an intermediate pathway through which customer volatility affects financial performance using a mediated effects model.

$$Cre_{i,t} = \theta_0 + \theta_1 Cs_{i,t} + \theta_2 Size_{i,t} + \theta_3 Growth_{i,t} + \theta_4 Lev_{i,t} + \theta_5 Share_{i,t} + \theta_6 Age_{i,t} + \theta_7 Iar_{i,t} + \Sigma Firm + \Sigma Year + \varepsilon_{i,t} \quad (4)$$

$$Roai,t = \delta_0 + \delta_1 Cs_{i,t} + \delta_2 Cre_{i,t} + \delta_3 Size_{i,t} + \delta_4 Growth_{i,t} + \delta_5 Lev_{i,t} + \delta_6 Share_{i,t} + \delta_7 Age_{i,t} + \delta_8 Iar_{i,t} + \Sigma Firm + \Sigma Year + \varepsilon_{i,t} \quad (5)$$

4. Empirical analysis

4.1. Analysis of Benchmark Model Regression

The regression results in Table 1 show that customer volatility (Cs) and financial performance ($Roai$) are significantly negatively correlated at the 1% level, and the coefficient of customer volatility (Cs) is -0.013 in the robustness test and remains significant at the 5% level. This suggests that, all other factors being equal, the higher the customer volatility, the worse the firm's performance, and H1 is validated.

Table 1. The regression results of benchmark model

	Model (1)	Robustness Check
	Roa	Roa
Cs	-0.004*** (-3.72)	-0.013** (-2.05)
Lev	-0.194*** (-28.97)	-0.248*** (-26.23)
Size	0.014*** (7.60)	0.028*** (10.34)
Growth	0.049*** (23.88)	0.004*** (6.32)
Share	0.001*** (5.08)	0.001*** (4.23)
Iar	-0.182*** (-5.56)	-0.147*** (-4.54)
Age	-0.002*** (-5.33)	-0.003*** (-7.40)
Constant	-19.830*** (-5.03)	-0.453*** (-8.10)
Observations	6,307	6,307
R-squared	0.229	0.134
Firm Fe	Yes	Yes
Year Fe	Yes	Yes
F	220.1	115.0

Note: t-values are in parentheses; *, **, and *** indicate significant at the 10%, 5%, and 1% levels, respectively.

4.2. Analysis of the Mediating Effect of Agency Costs

Table 2. The regression results of mediation effects model

	Model (2)	Model (3)
	Mr	Roa
Cs	0.001** (2.11)	-0.003*** (-3.30)
Mr		-0.384*** (-18.58)
Lev	-0.019*** (-4.48)	-0.201*** (-31.01)
Size	-0.005*** (-3.79)	0.013*** (6.87)
Growth	-0.022*** (-16.57)	0.041*** (19.86)
Share	-0.000*** (-3.75)	0.000*** (4.27)
Iar	0.128*** (6.01)	-0.133*** (-4.18)
Age	-0.004*** (-21.73)	-0.003*** (-10.64)
Constant	25.285*** (9.86)	-10.114*** (-2.62)
Observations	6,307	6,307
R-squared	0.226	0.277
Firm Fe	Yes	Yes
Year Fe	Yes	Yes
F	217.0	248.5

Note: t-values are in parentheses; *, **, and *** indicate significant at the 10%, 5%, and 1% levels, respectively.

The regression results in Table 2 show that customer volatility (Cs) and agency costs (Mr) are significantly and positively correlated at the 5% level, i.e., customer volatility raises agency costs, and after accounting for the effect of agency costs, the regression coefficient of customer volatility (Cs) on financial performance (Roa) is -0.003, and it is significant at 1% level, which indicates that agency costs play a role in the inhibition of financial performance by customer volatility plays a partial mediating effect.

4.3. Analysis of the Mediating Effect of Commercial Credit

The regression results in Table 3 show that the coefficient of customer volatility (Cs) on commercial credit (Cre) is 0.01, which is significant at the 1% level, i.e., customer volatility increases the supply of commercial credit, and after the addition of commercial credit, the coefficient of the effect of customer volatility (Cs) on the firm's financial performance (Roa) is -0.004, which is significant at the 1% level, and it is still inhibitory, and the result suggests that commercial credit plays a mediating role in the relationship of customer volatility negatively affecting firm performance.

Table 3. The regression results of mediation effects model

	Model (4)	Model (5)
	Cre	Roa
Cs	0.010***	-0.004***
	(4.08)	(-3.56)
Cre		-0.015***
		(-2.85)
Size	0.022***	0.015***
	(4.50)	(7.77)
Lev	-0.062***	-0.195***
	(-3.57)	(-29.10)
Growth	-0.061***	0.048***
	(-11.35)	(23.16)
Share	0.000	0.001***
	(1.53)	(5.14)
Age	-0.003***	-0.002***
	(-3.88)	(-5.48)
Iar	-0.307***	-0.186***
	(-3.63)	(-5.70)
Constant	-16.448	-20.080***
	(-1.61)	(-5.09)
Observations	6,307	6,307
R-squared	0.030	0.230
Firm Fe	Yes	Yes
Year Fe	Yes	Yes
F	23.26	193.9

Note: t-values are in parentheses; *, **, and *** indicate significant at the 10%, 5%, and 1% levels, respectively.

5. Conclusion and Recommendations

5.1. Conclusion

(1) The greater the customer volatility, the worse the financial performance of the firm. Unlike the positive impact of stable customer relationships, volatile customer relationships increase operational uncertainty, signal high risk to the outside world, reduce the firm's ability to obtain external assistance, and depreciate the firm's asset-specific investments, impairing its profitability.

(2) Agency costs and commercial credit are intermediate paths through which customer volatility negatively affects firm performance. Larger customer volatility increases information asymmetry, does not play the role of external governance, it is difficult to effectively constrain and supervise the management, so that it is easy to use their positions to occur moral hazard and adverse selection behavior, harming the interests of the company; when customer volatility is positive or negative fluctuations, based on the purpose of maximizing the interests of the main customers and the enterprise to improve the motivation of the stickiness of the customers, the enterprise tends to provide a higher number of commercial credit, which leads to cash flow shortages and poor liquidity difficulties, and also increases the cost of collection and bad debt losses. When customer volatility is positive or negative, based on the purpose of maximizing the interests of major customers and the motivation of enterprises to improve customer stickiness, enterprises tend to provide more commercial credit, which leads to the enterprise is very easy to cash flow shortages into the poor liquidity predicament, and also increase the cost of debt collection and bad debt losses, which seriously impedes the improvement of corporate financial performance.

5.2. Recommendations

In today's competitive market, the establishment of long-term partnership between enterprises and customers is the "main theme" of future development. Enterprises should pay attention to the impact of customer volatility, establish a correct understanding of customer relations, formulate reasonable customer management policies and effective commercial credit policies, integrate customer resources, optimize the customer structure, and avoid the negative impact of temporary or permanent fluctuations in customer relations on enterprises as far as possible. To avoid the negative impact of temporary or permanent fluctuation of customer relationship on the enterprise as much as possible, and to improve customer adhesion; at the same time, enterprises should also be vigilant about the principal-agent problem, and should continuously improve the management evaluation mechanism, and motivate the management to improve their own ability and professional quality through various evaluations, in order to reduce the management's opportunistic behavior.

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