

# Research on the Mechanism and Effect of Shared Finance Relieving Small and Micro Enterprises' Financing Constraints

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**Abstract**— At present, getting into financing constraints is the main obstacle to the sustainable development of small and micro enterprises. With the integration and reorganization of Internet financial platforms, the emergence of shared finance provides new ideas for solving the financing constraints of small and micro enterprises. From the perspective of shared finance, this paper discusses the theoretical mechanism of shared finance to relieve the financing constraints of small and micro enterprises, puts forward hypotheses, selects the variables that shared finance relieves the financing constraints of small and micro enterprises, and establishes a multi-regression-based model of the adjustment effect of shared finance for empirical testing. The results show that the cash-cash flow sensitivity of small and micro enterprises is relatively strong, and there are financing constraints. Shared finance can have a negative impact on the changes in corporate cash holdings and cash flow, ease the financing constraints of small and micro enterprises, and reduce the impact of sharing financing. It is of great significance to promote the development of shared finance and small and micro enterprises by putting forward relevant suggestions from the perspectives of financial platforms and small and micro enterprises themselves.

**Keywords**— Shared finance; Small and micro enterprises; financing constraints.

## I. INTRODUCTION

In recent years, China's small and micro enterprises have developed rapidly and have become the main force in promoting economic recovery in the post-epidemic period. By the end of 2021, there were 48.423 million registered enterprises nationwide, including 40.34 million small and micro enterprises, accounting for 83.3% of the total number of enterprises, providing up to 60% of GDP contribution and 79.4% of employment contribution. Small and micro enterprises are stable An important force for employment and people's livelihood. Based on this, China has repeatedly issued relevant policies to support the development of small and micro enterprises from various aspects such as finance and finance. In 2021, the "14th Five-Year Plan" to Promote the Development of Small and Medium Enterprises issued by the Ministry of Industry and Information Technology of the People's Republic of China proposes to focus on "relieving the difficulty and high cost of financing for small and medium-sized enterprises" to further improve the comprehensive integration of small and micro enterprises. strength and core competitiveness, and promote the high-quality development of small and micro enterprises.

Since Yao Yudong and Yang Tao put forward the concept of "sharing finance under the background of sharing economy" in a brainstorm of "Contemporary Financier" magazine in 2015, shared finance has begun to attract attention from all walks of life. China's 14th Five-Year Plan proposes to "accelerate the process of digitalization and promote the healthy development of the sharing economy". Sharing finance is derived from the sharing economy. Using Internet information technology, with online lending and crowdfunding as the main forms, can make

the allocation of financial resources more efficient. Reasonable and efficient. Therefore, this paper explores the mechanism and effect of alleviating the financing constraints of small and micro enterprises from the perspective of shared finance, and provides a new solution path for alleviating the financing constraints of small and micro enterprises.

## II. RESEARCH STATUS

The academic community has carried out active research on shared finance and financing constraints of small and micro enterprises, and mainly put forward the following points: Qiang Chen (2021) believes that Internet lending has become a new mode of financing for small and micro enterprises, which can improve financing efficiency. EdsonMbedzi (2020) believes that the main channel for small and micro enterprises to obtain financing is still through financial institutions such as banks, and emphasizes the need to pay attention to the impact of loan technology on credit rationing. AbbasiKaleemullah (2021) argues that SMEs can borrow online to meet liquidity needs. Yu Guo (2020) believes that shared finance uses Internet technology to make the marginal cost zero, and can increase the speed and frequency of capital circulation, thereby reducing the financing cost of small and micro enterprises. Wang Zijing, Zhang Yuming, etc. (2020) believe that intelligent and decentralized shared finance can not only effectively diversify various risks in the financing market, but also meet the unique capital needs of small and micro enterprises. Li Xin and Tian Xiujuan (2019) believe that Internet finance can make funds out of the virtual and real, and can make up for the lack of services, lack of products, and unreasonable prices in traditional financial institutions in the process of small and micro enterprise financing. Qiao Haishu and Tian Feng (2018) believe that

shared finance combined with blockchain technology can improve the relationship between supply and demand, obtain potential long-tail benefits, and better meet the financing needs of small and micro enterprises. Liu Lei and Yan Zhanhua (2017) believe that the disintermediation of shared finance enables capital suppliers to directly provide financial resources to end users, and the model of direct matching between supply and demand makes financing for small and micro enterprises more convenient, and supply demand and consumer demand can be met in a timely manner. Zhang Yuming (2017) believes that shared finance can reduce the information asymmetry between subjects and achieve de-trust, thereby helping small and micro enterprises to finance.

After reviewing the existing domestic and foreign literatures, it is found that scholars have mostly conducted separate researches on shared finance and small and micro enterprise financing. There are few studies on the impact of shared finance on the financing mechanism and empirical analysis of small and micro enterprises. Therefore, this paper focuses on exploring the mechanism of shared finance to relieve the financing of small and micro enterprises, builds a model of the adjustment effect of shared finance, and conducts empirical tests to provide new ideas for alleviating the financing difficulties of small and micro enterprises.

### III. MECHANISM ANALYSIS AND RESEARCH ASSUMPTIONS OF SHARED FINANCE RELIEVING SMALL AND MICRO ENTERPRISES' FINANCING CONSTRAINTS

#### A. Analysis on the Mechanism of Shared Finance Relieving Small and Micro Enterprises' Financing Constraints

##### 1. Information asymmetry mitigation mechanism

In the traditional financial model, both parties to the transaction may create better data and information in order to facilitate the transaction, and there is a large information asymmetry. Small and micro enterprises at the long tail end of lending transactions with financial institutions are at a disadvantage because they have less information. financing through traditional financial channels. Information asymmetry is one of the important reasons for the current financing constraints of small and micro enterprises. Severe information asymmetry will lead to poor competition in the market and affect the market order. Shared finance utilizes big data and other Internet technologies to display information on supply and demand of funds on the shared financial platform in a timely and comprehensive manner. The identity information of both parties to the transaction can be queried through search, and the transparency of the information provides a fairer financing environment for small and micro enterprises. Through cloud computing technology, we will screen the business and financial status of small and micro enterprises, and conduct comparative analysis with similar enterprises in the market to ensure the authenticity and reliability of the information of small and micro enterprises. Fund providers can understand the real situation of small and micro enterprises through the shared financial platform and provide a basis for their investment decisions.

##### 2. Cost reduction mechanism

For traditional financial institutions such as banks, offline

outlets are the main carrier for them to provide financial services, and there are large labor and rental costs. In addition, the review of the financial identity information of small and micro enterprises before issuing loans increases their information. search cost. For small and micro enterprises, loan applications need to be processed at the branch, which has a time cost, and the increase in bank operating costs will lead to an increase in loan interest, thereby increasing the borrowing cost of small and micro enterprises. The shared financial platform relies on the Internet to operate and has the characteristics of decentralization. It does not need to rely on offline outlets and avoids rental costs. Fund supply and demand parties can carry out loan transactions through the Internet anytime, anywhere, without the limitation of time and space, the scope of fund raising is wider, not limited to the same area, and the realization of transactions is more convenient and efficient. The operation of the shared financial platform only requires a small number of professional and technical personnel. The search and arrangement of information and the matching of supply and demand sides rely on Internet technology, which greatly reduces the expenditure of various handling fees and labor costs.

##### 3. Channel widening mechanism

The main ways for small and micro enterprises to obtain funds include private loans and bank loans, but the financing amount of private loans is limited, and the threshold for bank loans is relatively high, making traditional financing channels unsuitable for small and micro enterprises. Under the background of shared finance, the financing channels of small and micro enterprises are no longer limited to the one-to-one mode of traditional channels, and multiple fund providers can jointly provide a sum of funds. There are many platforms for sharing finance. In addition to specialized online lending platforms, some traditional financial institutions have also innovated their financing models and started to develop online credit loan services, such as the quick loan of China Construction Bank. And financing is no longer limited to meeting business needs, but also developed consumer credits such as Ant Huabei, which can meet the diversified financing needs of those who need funds. The rise and development of shared finance not only promotes the innovation and reform of traditional financial institutions, but also promotes the production of many financing products and services for small and micro enterprises, providing strong support for alleviating the financing constraints of small and micro enterprises.

##### 4. Financing Facilitation Mechanism

The loan approval process of traditional financial institutions is relatively complicated, and the time from the receipt of the loan application to the issuance of the loan is long, and the capital needs of small and micro enterprises are often more urgent. Even if the loan is finally obtained, it may have missed the best time to use it. In addition, financial institutions will make loans based on the credit status and collateral conditions of small and micro enterprises, and the loan amount often deviates from the actual needs and application amounts of small and micro enterprises. When the fund demander finances through the shared financial platform, the demand for funds is filled by the demander, which is not affected by their own credit

status, and can apply at any time. Fund providers can also provide funds according to their own abilities and preferences, and the amount of diversification is not limited. The sharing financial platform takes a short time to issue funds. Once the fund provider is willing to provide funds, the account will flow into the account of the demander immediately, without waiting for approval, which can meet the urgent needs of small and micro enterprises and greatly improve the small and micro enterprises. Ease of business financing.

5. Risk diversification mechanism

The instability of small and micro enterprises makes loans more risky. Even if financial institutions conduct pre-loan review, they may not be able to correctly judge the risk level of small and micro enterprises due to the lack of transparency of information, resulting in economic losses. And small and micro enterprise loans are usually undertaken independently by a single financial institution. Once the enterprise fails to operate normally, it may become a bad debt of the financial institution. The operation of small and micro enterprises is greatly affected by the overall market environment. Bad signals in the market may cause small and micro enterprises to collectively malfunction, causing huge losses to financial institutions. Traditional financial institutions are inherently vulnerable, and excessive accumulation of bad debts may lead to run-on risks or even bankruptcy crises. The shared financial platform uses the central bank credit information system and the private credit information system to collect the historical information data of the supply and demand side of funds, forms an independent credit information platform, and uses cloud computing technology to predict the existing risks. When the object involves small and micro enterprises, the analogy is used. The operation of similar enterprises is simulated and predicted to analyze the future operation of the enterprise, so as to effectively evaluate its risk, and control the risk at the source. In addition, the funds of the shared financial platform can be jointly provided by multiple fund suppliers. Once the fund demander cannot repay the loan, the risk will be shared by all participants, avoiding the huge loss caused by the concentration risk to investors.

B. Research Hypothesis

1. Small and micro enterprises and financing constraints

According to the previous analysis, compared with large enterprises, small and micro enterprises are more likely to face financing constraints due to their own capabilities and the impact of the external environment. The solvency, mortgage guarantee and profitability of small and micro enterprises will all have an impact on financing. Investors judge their risks according to the ability of the enterprise, and demand high returns from enterprises with poor ability, further increasing the financial burden of small and micro enterprises. In summary, hypothesis 1 is put forward:

H1: There are financing constraints for small and micro enterprises in China.

2. Shared finance and financing constraints

Shared finance centered on Internet technology has created conditions for improving the supply and demand relationship in the current credit market. Shared finance can make information transparent through big data technology and alleviate the

information asymmetry of small and micro enterprises. The diversified financial services of the platform can meet the individualized capital needs of small and micro enterprises and broaden their financing channels. Shared finance facilitates financing through mobile terminals, and provides new ideas for solving the financing constraints of small and micro enterprises. Therefore, this study puts forward the second hypothesis: H2: Shared finance can relieve the financing constraints of small and micro enterprises to a certain extent.

IV. ANALYSIS ON THE EFFECT OF SHARED FINANCE RELIEVING SMALL AND MICRO ENTERPRISES' FINANCING CONSTRAINTS

A. Variable selection and model setting

1. Variable selection

The variables and their definitions used in the empirical analysis in this paper are shown in Table I.

TABLE I. Variable Definition and Calculation

Variable name		Variable meaning	Variable definitions
Explained variable	$\Delta$ Cash	Change in cash holdings	Increase in cash and cash equivalents/total assets at the beginning of the period
Explanatory variables	CF	cash flow	Net cash flow from operating activities/total assets at the beginning of the period
regulated variable	SF	Shared Financial Index	Constructing Comprehensive Indicators by Principal Component Analysis
	CF*SF	Multiplication term	Shared financial index $\times$ cash flow
control variable	ROA	profitability	Net profit/total assets
	LR	liquidity ratio	Current assets/liabilities
	Fixed	Fixed assets ratio	Fixed assets/total assets

(1) Explained variable: This study reflects the degree of financing constraint of small and micro enterprises according to the change of cash holdings with cash flow, and the explained variable is the change of cash holdings. Since the liquidity of bank time deposits is not as good as cash and cash equivalents, the increase of cash and cash equivalents is selected as the explanatory variable. In order to eliminate the influence of enterprise scale, the beginning total assets of the enterprise are standardized as the denominator.

(2) Explanatory variable: cash flow. All the business, investment and fund-raising activities of enterprises can generate cash flow, which is limited by their own characteristics. Small and micro enterprises have fewer opportunities to participate in investment and fund-raising activities, and cash flow mostly comes from business activities. Therefore, the cash flow generated from business activities is relatively stable, which can more accurately reflect the financial situation of enterprises. Therefore, this paper selects the net cash flow from operating activities as the numerator of cash flow variable, and takes the total assets at the beginning of the period as the denominator to eliminate the influence of enterprise scale.

(3) Regulated variable: shared financial index and multiplication term. According to the requirements of regulatory effect analysis, the shared financial index is multiplied by cash flow to construct a cross-product term.

(4) Control variables: In order to further control the influence of other possible factors on the cash holdings of enterprises, the profitability, current ratio and fixed asset ratio of enterprises are selected as control variables. The current ratio is the ratio of current assets to current liabilities, and the ratio of profitability to fixed assets takes the total assets of the enterprise as the denominator to remove the influence of enterprise size on the data.

2. Model setting

In recent years, scholars at home and abroad have mainly used the following three methods to measure financing constraints: First, the single index method, that is, using a single enterprise's financial index to measure capital constraints. Common methods include dividend payout ratio and mortgage guarantee ability. The higher the company's financial leverage, the lower the dividend payout ratio and interest protection multiple, and the greater the financing constraint. Second, the comprehensive index method, that is, using multiple financial data of the company to jointly construct an index, such as KZ index, SA index, etc. The SA index is based on the size and age of the enterprise, while the KZ index consists of the increase of cash and cash equivalents, net cash flow from operations, etc. The larger the absolute value of SA index and the larger the value of KZ index, the greater the financing constraints faced by the enterprise, and the former can overcome the endogenous data. Thirdly, cash-cash flow sensitivity measurement method, by exploring the relationship between the amount of cash change and the net cash flow generated by business activities, can judge whether the enterprise has financing constraints. Under normal circumstances, because of the low yield of cash assets, enterprises pursuing profit maximization will hold less cash, and invest cash in projects with higher returns and weak liquidity, while enterprises with financing constraints will hold more cash in case the capital chain breaks. The greater the sensitivity of cash-cash flow means that enterprises will retain more cash for possible future investments, that is, the greater the financing constraints faced by enterprises.

The single index method can only reflect the financial situation of an enterprise from a single angle, and lacks comprehensiveness; There may be multiple collinearity between the index obtained by linear regression of multiple indexes by comprehensive index method and the control variables, which will affect the regression effect. In contrast, the cash flow used in the cash-cash flow sensitivity model can reflect the financial and operating conditions of enterprises more truly, which is more suitable for this research topic.

Based on the above analysis, this paper uses cash-cash flow sensitivity model to measure the financing constraints of China's small and micro enterprises, and uses multiple regression method for empirical analysis. Model one is as follows:

$$\Delta Cash_{i,t} = \alpha_0 + \alpha_1 CF_{i,t} + \alpha_2 ROA_{i,t} + \alpha_3 LR_{i,t} + \alpha_4 Fixed_{i,t} + \mu_{i,t}$$

Model one judges whether the enterprise has financing constraints through the coefficient  $\alpha_1$ ,  $\alpha_1$  is positive, indicating that the enterprise will retain more cash, that is, there is financing constraints, and the larger the value of  $\alpha_1$ , the more serious the financing difficulties the enterprise faces.  $\alpha_2$ ,  $\alpha_3$ ,  $\alpha_4$  are the regression coefficients of corporate profitability, current

ratio and fixed asset ratio, respectively,  $\mu_{i,t}$  is the regression error term,  $i, t$  is the company logo and time. Generally speaking, the stronger the profitability of an enterprise, the higher the proportion of fixed assets, and the less cash it needs to hold, so the signs of  $\alpha_2$  and  $\alpha_4$  are expected to be negative. The higher the company's current ratio, the increase in the proportion of current assets means an increase in cash holdings, so the sign of  $\alpha_3$  is expected to be positive.

Based on model one, the model two is obtained by introducing the adjustment variables shared financial index and multiplication term, so as to verify the adjustment effect of shared finance.

$$\Delta Cash_{i,t} = \alpha_0 + \alpha_1 CF_{i,t} + \alpha_2 ROA_{i,t} + \alpha_3 LR_{i,t} + \alpha_4 Fixed_{i,t} + \alpha_5 SF_{i,t} + \alpha_6 CF_{i,t} * SF_{i,t} + \mu_{i,t}$$

$\alpha_5$  and  $\alpha_6$  are the regression coefficients of the shared finance index and the multiplication of the shared finance index and cash flow, reflecting the adjustment effect of shared finance on the company's cash holdings and cash flow. The negative sign of  $\alpha_6$  means that shared finance will reduce the company's cash flow. The amount of holdings can relieve the financing constraints of enterprises. By comparing the degree of fit (ie  $R^2$ ) of model 1 and model 2, the explanatory power of the model after the addition of the shared financial index is judged. If the  $R^2$  of model two is closer to 1 than that of model one, it indicates that the shared financial index has better good effect.

3. Measurement of Shared Financial Index

Shared finance is a new type of financial model that relies on Internet technology, and there are currently no indicators that directly indicate its development status. Therefore, based on the research of previous scholars and considering the interoperability of Internet finance and shared finance, this paper selects five indicators: the number of online lending platforms, the transaction volume of Internet payment, the number of active Internet users, the cumulative transaction volume of Internet crowdfunding, and the transaction volume of online lending. As the item, principal component analysis was performed to construct a shared amount index, as shown in Table II.

The original data of the items came from the reports published by the Guotai'an database and the website of the State Information Center. In order to eliminate the influence of dimensions, the sample data were standardized by SPSS software.

According to the requirements of principal component analysis, the partial correlation and correlation between the items of the shared financial scale are tested, and the results are shown in Table III.

TABLE II. Shared Finance Scale

Variable	Serial number	item
shared finance	SF1	Number of online lending platforms
	SF2	Internet payment transaction volume
	SF3	Active Internet Users
	SF4	The cumulative transaction volume of Internet crowdfunding
	SF5	Online lending transaction volume

TABLE III. KMO test and Bartlett sphericity test for shared financial scale

KMO Sampling Suitability Quantity	0.726	
Bartlett's sphericity test	approximate chi-square	351.666
	degrees of freedom	10
	salience	0.00

According to Table III, both KMO and Bartlett sphericity tests meet the requirements, indicating that the five items selected in this paper are feasible. The principal components were extracted according to the principle that the eigenvalue was greater than 1, and the total variance explanation and component matrix obtained were shown in Tables IV and V.

TABLE IV. Total variance explained

Element	initial eigenvalues			Extract the load sum of squares		
	total	percent variance	accumulation%	total	percent variance	accumulation%
1	3.436502	68.730036	68.730036	3.436502	68.730036	68.730036
2	1.291317	25.826335	94.556371	1.291317	25.826335	94.556371
3	0.134126	2.682520	97.238891			
4	0.083507	1.670139	98.909030			
5	0.054548	1.090970	100.000000			

Extraction method: principal component analysis

TABLE V. Composition matrix

	Element one	Element two
Number of online lending platforms	0.953	-0.045
Internet payment transaction volume	0.975	-0.102
Active Internet Users	-0.939	0.210
The cumulative transaction volume of Internet crowdfunding	-0.087	0.986
Online lending transaction volume	0.830	0.513

Extraction method: principal component analysis

According to the Composition matrix, two factors were extracted from the five items in the shared financial scale, and the scores of the two principal components were calculated by formula I.

$$F_i = \omega_{i1}X_1 + \omega_{i2}X_2 + \omega_{i3}X_3 + \omega_{i4}X_4 + \omega_{i5}X_5 \text{ (Formula I)}$$

Among  $\omega_{ij} = \theta_j / \sqrt{\lambda_i}$  Indicates the weight of item j in the i-th principal component  $\theta_j$  is the coefficient of item j in the component matrix  $\sqrt{\lambda_i}$  is the root value of the i-th principal component eigenvalue  $X_j$  is the standardized value of item j.

Finally, the comprehensive score is calculated according to formula II.

$$F = \frac{\lambda_1}{\lambda_1 + \lambda_2} F_1 + \frac{\lambda_2}{\lambda_1 + \lambda_2} F_2 \text{ (Formula II)}$$

## B. Empirical Analysis

### 1. Data sources and sample selection

Combined with the development history of shared finance and the research subject of small and micro enterprises, and considering the availability of financial data, The initial sample of this paper selects China's 2017-2021 New Third Board Small and Micro Enterprises. The data required for this study were obtained from the Guotai'an database and the company's annual report, and stata was used for statistical measurement analysis. In order to overcome the instability of the sample, the following processing is performed for the initial data: excluding specially treated ST and PT companies; excluding financial companies; excluding companies with incomplete data and extreme samples. After processing, 100 companies and 500 observations were obtained as valid research samples in this paper.

### 2. Descriptive Statistical Analysis

This paper selects 500 observations of 100 small and micro enterprises from 2017 to 2021 for demonstration, and performs descriptive statistical analysis on the sample data through stata, and obtains Table VI.

TABLE VI. Descriptive statistics

Variable	number of observations	mean	minimum	maximum	variance
ΔCash	500	0.032092	-9.198325	9.519864	0.618985
CF	500	0.097567	10.830121	10.301581	0.722311
SF	500	1.194002	0.401591	2.552778	0.853239
CF*SF	500	0.109902	-4.681064	4.137019	0.439209
ROA	500	0.098282	-0.735626	8.675201	0.448622
LR	500	3.378327	0.011800	25.370000	3.112668
Fixed	500	0.155104	0.001261	0.619183	0.134063

According to descriptive statistics, there are large differences in data among small and micro enterprises, but the overall variance is small, and the fluctuation of sample data is in a relatively reasonable range. The average value of ΔCash and CF is small, indicating that small and micro enterprises have less cash flow from operations during the epidemic, and less increase in cash and cash equivalents. The average value of ROA is positive, indicating that even in the context of the epidemic, small and micro enterprises still have certain profitability, but the amount of net profit obtained is small compared with assets. The variance of LR is relatively large, indicating that the short-term debt solvency gap between small and micro enterprises is large. The average value of Fixed is 15.51%, indicating that small and micro enterprises have less fixed assets, which is in line with the current situation of insufficient collateral for small and micro enterprises.

### 3. Correlation test

The correlation test was performed using stata software to obtain the results shown in Table VII.

TABLE VII. Correlation test

	ΔCash	CF	SF	CF*SF	ROA	LR	FIXED
ΔCash	1.000						
CF	0.928**	1.000					
SF	0.001	-0.011	1.000				
CF*SF	0.664**	0.822**	0.143**	1.000			
ROA	0.211**	0.159**	0.025	-0.048	1.000		
LR	0.044*	0.019	-0.027	0.034*	0.075*	1.000	
Fixed	0.009*	0.005	-0.006	0.005*	0.048*	0.180**	1.000

Note :\*p<0.1,\*\*p<0.05,\*\*\*p<0.01

According to the correlation test, the sign of the correlation coefficient between ΔCash and CF is positive, which is consistent with the expectation. The correlation between the explanatory variables and the explained variables is strong, and the absolute value of the correlation coefficient between the variables is small, indicating that the selected variables are suitable for regression analysis.

### 4. Empirical Test Results

The sample in this study is short panel data. According to

the results of F test and Hausman test, the fixed effect model is used to perform panel data regression. The regression results obtained are shown in Table VIII.

TABLE VIII. Empirical test

Variable	Model one	Model two
CF	0.786*** (0.014)	1.018*** (0.023)
SF		0.045*** (0.011)
CF*Sf		-0.457*** (0.037)
ROA	-0.094*** (0.023)	-0.058*** (0.020)
LR	0.006* (0.003)	0.007** (0.003)
Fixed	-0.050 (0.077)	-0.051 (0.067)
Cons	-0.047** (0.021)	-0.080** (0.022)
N	500	500
R-squared	0.867	0.898
F	808.51***	727.16***

Note : \*p<0.1, \*\*p<0.05, \*\*\*p<0.01

It can be seen from the regression results that the F values of the two models are significant at the level of 1%, indicating that the regression effect of the model is good.

Model one shows that at the 1% significance level, for every additional unit of cash flow of an enterprise, the cash holdings will increase by 0.786 units, and the cash-cash flow sensitivity of small and micro enterprises is relatively strong. The ROA and Fixed coefficients are negative, and the LR coefficient is positive, indicating that the improvement of profitability and fixed asset ratio can reduce the company's cash holdings and ease the company's financing constraints, while the current ratio has the opposite effect, but the three influence coefficients are small. For every 1 unit increase in profitability, the company's cash holdings will decrease by 0.094 units. In contrast, the current ratio and fixed asset ratio have a smaller impact on the company's cash holdings, only 0.006 and 0.05.

In Model two, at the 1% significance level, the CF coefficient is 1.018, and the multiplier coefficient is -0.457, with opposite signs, indicating that the moderating effect of shared finance is opposite to that of CF, and the development of shared finance can reduce the cash flow of small and micro enterprises. After adding the adjustment variable shared financial index, the fitting degree of the model has improved, indicating the existence of the adjustment effect of shared finance.

### 5. Robustness check

Since shared finance originated from the shared economy and is closely connected with the shared economy, the development of shared finance can be shown by the transaction scale of the shared economy. In order to ensure the accuracy of the regression results, this paper uses the natural logarithm of the transaction scale of the sharing economy to replace the shared financial indicators for robustness test regression, and the results are shown in Table IX.

TABLE IX. Empirical test

Variable	Model one	Model 2 after replacement
CF	0.786*** (0.014)	1.518*** (0.159)
SF		0.001* (0.000)
CF*Sf		-0.232*** (0.050)
ROA	-0.094*** (0.023)	-0.066*** (0.023)
LR	0.006* (0.003)	0.006* (0.003)
Fixed	-0.050 (0.077)	-0.054 (0.075)
Cons	-0.047** (0.021)	-0.143** (0.058)
N	500	500
R-squared	0.867	0.873
F	808.51***	564.97***

Note : \*p<0.1, \*\*p<0.05, \*\*\*p<0.01

After the replacement, the CF coefficient and the multiplication term coefficient are still in opposite signs, and are significant at p<0.01, indicating that shared finance can reduce the cash holdings of small and micro enterprises. Compared with the original model, the signs of the coefficients are the same, and the coefficient of the control variable There is no major change, but the significance of the coefficient and the fitting degree of the model have decreased, indicating that the shared financial index selected in this paper is relatively representative and the empirical results are robust.

### C. Empirical conclusion

The symbols of each variable in Model one and Model two are consistent with expectations, indicating that the regression results are reliable. According to the regression of Model one, the value of a<sub>1</sub> is positive, and the increase of corporate cash flow will increase its cash holdings, indicating that small and micro enterprises are facing financing constraints, that is, the hypothesis H1 is established.

In model two, the coefficients of CF, CF\*Sf and the F value of model two are all significant at the level of 1%, indicating that shared finance can have an impact on changes in corporate cash holdings and cash flow, and the impact is reversed. of. Shared finance can weaken the positive impact of corporate cash flow on cash holdings, reduce corporate cash storage, and ease the financing constraints of small and micro enterprises, which means that hypothesis H2 holds. Since the coefficient of SF in Model two is significant and positive, it shows that when the development of shared finance is insufficient, cash flow has a greater impact on the company's cash holdings. The positive influence of the quantity will gradually decrease until it disappears completely.

## V. SUGGESTIONS

### A. Improve the financing mechanism of shared financial services for small and micro enterprises

1.Starting from the top-level design, improve laws and regulations. Shared finance is still in its nascent stage, and a complete legal system has not yet been formed. The disintermediation of shared finance facilitates financial

transactions, but there are also hidden dangers in information security. Law is a powerful guarantee for controlling financial risks and safeguarding consumers' rights and interests. Relevant departments should pay attention to the security of financing information of small and micro enterprises, put forward targeted measures to protect the rights and interests of consumers under the conditions of shared finance, and optimize the financing environment of shared finance. At the same time, shared financial financing should be defined from a legal perspective, the boundaries of illegal fundraising should be clarified, and the safety and reliability of shared financial transactions should be guaranteed.

2. Increase policy support. The online financing and crowdfunding involved in shared finance can become a supplementary financing channel for small and micro enterprises, and provide help to alleviate the financing difficulties of small and micro enterprises. Relevant departments should strengthen policy support for shared finance, promote the popularization of shared finance and the development of private capital, form a shared finance financing system, improve the financing and financing channels of shared finance, and increase the rate of capital acquisition by small and micro enterprises and the utilization of funds by the society Rate.

3. Improve the data sharing mechanism. Data is the basis of shared financial transactions. Relevant departments should continuously promote the construction of social credit system, form a data system covering various industries, platforms, and businesses, build a data sharing mechanism with a reasonable and efficient framework, and break the information barriers between both parties in shared financial transactions. Standardize data collection channels to ensure consumer privacy and security. Establish a unified and standardized data collection format to avoid duplication and errors of data information.

#### *B. Strengthen the construction of shared financial platform*

1. Promote innovation and research and development of shared finance-related technologies. The development of shared finance is inseparable from Internet high-tech such as big data and cloud computing. Major shared finance platforms should increase technological investment in platform construction, strengthen their own risk control capabilities, improve the security of the Internet, and promote the update and improvement of software and hardware. Avoid data leakage of small and micro enterprises caused by hackers and network viruses intrusion into the system. Use big data to analyze the authenticity of information on both sides of the transaction to avoid moral hazard and adverse selection problems caused by information asymmetry.

2. Actively promote the talent training mechanism. Discover management talents, enhance the platform's capital management and business income capabilities, and promote the sustainable development of the platform; introduce technical talents to control the risks of the platform and ensure the safety of the platform's funds.

3. Strengthen the construction of industry self-discipline. The platform should disclose information in a timely manner to form a standardized business process. Strengthen information

exchange between platforms, promote healthy competition between shared finance and traditional finance, and better serve the financing of small and micro enterprises.

#### *C. Strengthen shared financial supervision*

There is a big difference between shared finance and traditional finance in the transaction process, which makes it no longer suitable for the separate supervision model of traditional finance. The regulatory authorities should clarify the access and exit mechanisms of the shared financial market, and use the platform as the benchmark to conduct flexible mixed-industry supervision of the businesses involved, so as to avoid excessive or lack of supervision. At the same time, improve the information disclosure mechanism of the platform, use big data to monitor the operation of the shared financial platform, and timely prevent possible risks.

#### *D. Promote self-improvement of small and micro enterprises*

The defects of small and micro enterprises themselves are one of the important reasons for their financing constraints. Scientific and standardized enterprise management can effectively avoid the breakage of the capital chain and promote the sound development of enterprises. Small and micro enterprises should start self-improvement from the following aspects: First, enhance credit awareness and maintain a good credit image. Promoting the high-quality development of the social credit system is a requirement put forward by the current state to form a new development pattern. The status of credit in the digital age is becoming more and more prominent. Good credit investigation can improve the success rate of loans for enterprises in financial institutions and shared financial platforms. Second, strengthen the awareness of financial management, and combine the company's business and financial planning. Perfect financial management can "open source and reduce expenditure" for enterprises, effectively improve the company's economic benefits, and lay a solid financial foundation for future financing activities. Third, optimize the internal structure of enterprises and improve their ability to withstand pressure. Under the complex and changeable environment of the epidemic situation, the epidemic prevention and control requirements of the company's location will directly affect the company's business volume and operating income. Enterprises should follow the trend of the times, use big data and other technologies to improve their core competitiveness, and take emergency measures in special circumstances.

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