

# Study on the Influencing Factors of Cash Holdings of Listed Companies in China

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**Abstract:** Cash holding is a very important theoretical and practical problem in modern enterprise financial management. This paper puts forward the theoretical hypothesis about the influence of corporate cash holdings from the three aspects of corporate financial characteristics, corporate governance structure and external environmental factors. At the same time, it takes GDP growth rate, the measure variable of external environmental factors, as the adjustment variable, and further explores the effect of each explanatory variable on the explained variable caused by macroeconomic changes.

## 1. Introduction

Compared with other assets, cash has incomparable flexibility and liquidity, and plays an extremely important role in the daily production and operation activities of enterprises. On the one hand, it is the comprehensive performance of enterprise operation and management, on the other hand, it is closely related to the level of enterprise governance, but at the same time, it will also be affected by changes in the external environment. By observing the consequences of corporate cash holdings, investors can judge whether the enterprise is "value increase" or "value decrease", which answers the most concerned questions of investors. Therefore, corporate cash holding behavior has become a hot research topic and has been widely concerned by scholars.

## 2. Research hypothesis presentation

### 2.1 Influencing factors of corporate financial characteristics

#### (1) Enterprise scale

According to trade-off theory, large-scale enterprises can easily get lower external financing costs than small-scale enterprises. As a result, small businesses are more motivated to keep more cash.

Hypothesis 1: the size of the enterprise is negatively correlated with its cash holdings.

#### (2) Financial leverage

According to agency theory, because there is agency conflict between shareholders and management, managers who pursue the maximization of personal interests and are risk averse tend to hold a large amount of cash. Moreover, if the debt level of the enterprise is lower, the management of the enterprise will be less supervised by external creditors, and the agency problem will be more serious, so the enterprise is in a low debt situation. In this case, the management may hold a large amount of cash.

Hypothesis 2: asset liability ratio is negatively correlated with cash holdings.

#### (3) Cash substitutes

According to the transaction cost theory, the more cash substitutes an enterprise has, the less cash it will hold.

Hypothesis 3: cash substitutes are negatively correlated with cash holdings.

### 2.2 Influencing factors of corporate governance structure

#### (1) Management shareholding ratio

According to the free cash flow theory, the managers have the motivation to hold more cash than the normal payment needs of the enterprise. The appropriate incentive measures and strict supervision mechanism can help the enterprise management to give full play to their own ability to help the enterprise maximize the interests of shareholders and obtain the corresponding return through their own shares. Therefore, the higher the shareholding ratio of enterprise managers, the lower the cash holdings of enterprises.

Hypothesis 4: there is a negative correlation between managerial ownership and cash holdings.

#### (2) Ownership concentration

Due to the imperfection of China's regulatory system, when there are large shareholders and they have absolute control over the enterprise, they may sacrifice the interests of small and medium shareholders in various ways to seek their own interests. According to the agency theory, as a kind of asset with higher flexibility and easier operation, cash is most convenient for large shareholders to hold for the benefit of others. Therefore, enterprises with high equity concentration have the motivation to hold more cash.

Hypothesis 5: equity concentration is positively correlated with cash holdings.

### **2.3 Influencing factors of external environment regulation**

#### (1) Macro economy

The impact of macro-economy on enterprises can not be avoided by any enterprise. Generally speaking, the macro-economy is a cyclical process. When the economy is on the rise, enterprises generally choose to hold less cash; when the economy is in recession, enterprises usually choose to increase their cash holdings in response to the impact of the external macro environment. However, the impact of macro-economy on corporate cash holdings is usually not direct, but indirect through influencing other factors related to corporate cash holdings decision-making

Therefore, under the assumption that hypothesis 1 to Hypothesis 5 are all valid (if a hypothesis is not valid, the corresponding variable does not need to be adjusted), macroeconomic (GDP growth rate) is taken as the adjusting variable, and further explore the influence of each explanatory variable on the effect of the explained variable caused by macroeconomic changes.

1) Although according to the trade-off theory, it is believed that large-scale enterprises can easily get lower external financing costs than small-scale enterprises, when the macro economy is in recession, both large and small enterprises will face higher external financing costs, and the economic downturn will also make the market transactions decline.

Hypothesis 6: when the macro economy is in recession, the negative impact of enterprise size on enterprise cash holdings is weakened.

2) According to the agency theory, because of the agency problem between the shareholders and the management, the managers who pursue the maximization of personal interests and are risk averse tend to hold a large amount of cash, and if the debt level of the enterprise is lower, the management will be less supervised by the external creditors, and the agency problem will be more serious, so the enterprise is in low debt. In this case, management may hold a large amount of cash. However, when the macro-economy is in recession, the business performance of the enterprise declines, and the cash flow created by the enterprise decreases. Even if the management wants to hold more cash out of personal interests, it will be more than enough.

Hypothesis 7: when the macro economy is in recession, the negative impact of asset liability ratio on corporate cash holdings is weakened.

3) According to the transaction cost theory, the more cash substitutes an enterprise has, the less cash it will hold. However, when the macro-economy is in recession, even if the enterprise has enough cash substitutes, the success rate of the transaction will decline due to the depression of the market. Therefore, when the enterprise has a shortage of cash, the enterprise may not be able to successfully convert the cash substitutes into the cash needed by the enterprise at a lower conversion cost.

Hypothesis 8: when the macro economy is in recession, the negative impact of cash substitutes on the cash holdings of enterprises weakens.

4) According to the free cash flow theory, there is a fundamental conflict of interest between the

management and the shareholders. Business managers have the motivation to hold extra cash beyond the normal payment needs of the business. The appropriate incentive measures and strict supervision mechanism can help the enterprise management to play their best ability to help the enterprise maximize the interests of shareholders and obtain the corresponding return through their own shares. Therefore, the higher the shareholding ratio of enterprise managers, the lower the cash holdings of enterprises. However, when the macro-economy is in recession, the operating performance of the enterprise will decline, and the cash flow created by the enterprise will also decrease accordingly. Therefore, even if the management of the enterprise wants to hold more cash, it is difficult to realize it.

Hypothesis 9: when the macro economy is in recession, the negative impact of managerial ownership on corporate cash holdings weakens.

5) Because the regulatory system in China is not perfect, when there are large shareholders and they have absolute control over the enterprise, they may sacrifice the interests of small and medium shareholders in various ways to seek their own interests. Therefore, enterprises with high equity concentration have the motivation to hold more cash. However, when the macro-economy is in recession, the business performance of the enterprise will decline or even lose money, and the cash flow created by the enterprise will also decrease or even be negative. Therefore, at this time, in order to reduce their losses as much as possible, the major shareholders of the enterprise tend to hold more cash, so as to obtain more private benefits.

Hypothesis 10: when the macro economy is in recession, the positive impact of equity concentration on corporate cash holdings increases.

Table 1 Summary of assumptions

Hypothetical Classification	Hypothetical Content
Financial Characteristics	enterprise size is negatively correlated with cash holdings
	Asset liability ratio is negatively correlated with cash holdings
	Cash substitutes are negatively correlated with cash holdings corporate governance
Corporate Governance	Managerial ownership is negatively correlated with cash holdings
	Ownership concentration is positively correlated with cash holdings
External Environment	When the macro economy is in recession, the negative impact of enterprise size on cash holdings is weakened
	When the macro economy is in recession, the negative effect of asset liability ratio on cash holdings is weakened
	When the macro economy is in recession, the negative effect of cash substitutes on cash holdings is weakened
	When the macro economy is in recession, the negative effect of managerial ownership on cash holdings is weakened
	When the macro-economy is in recession, the positive effect of ownership concentration on corporate cash holdings increases

### 3. Empirical research

#### 3.1 The establishment of simulation model

This paper uses the following basic econometric model to test the relevant assumptions in this paper:

$$\text{Model 1: } y = A_0 + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + a_5X_5 + a_7X_7 + a_8X_8 + \varepsilon$$

$$\text{Model 2: } y = A_0 + a_1X_1 * X_6 + a_2X_2 + a_3X_3 + a_4X_4 + a_5X_5 + a_6X_6 + a_7X_7 + a_8X_8 + \varepsilon$$

$$\text{Model 3: } y = A_0 + a_1X_1 + a_2X_2 * X_6 + a_3X_3 + a_4X_4 + a_5X_5 + a_6X_6 + a_7X_7 + a_8X_8 + \varepsilon$$

$$\text{Model 4: } y = A_0 + a_1X_1 + a_2X_2 + a_3X_3 * X_6 + a_4X_4 + a_5X_5 + a_6X_6 + a_7X_7 + a_8X_8 + \varepsilon$$

$$\text{Model 5: } y = A_0 + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 * X_6 + a_5X_5 + a_6X_6 + a_7X_7 + a_8X_8 + \varepsilon$$

$$\text{Model 6: } y = A_0 + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + a_5X_5 * X_6 + a_6X_6 + a_7X_7 + a_8X_8 + \varepsilon$$

Among them,  $y$  is the cash holding amount of the enterprise,  $A_i$  is the regression coefficient (model parameter) to be estimated,  $\varepsilon$  is the random error term, and  $X$  is the data of the enterprise.

Table 2 Summary of variable definitions

Variable type	Variable name	Variable symbol	Definition
Explained variable	Cash holdings	Y	Cash and cash equivalents / Total assets
Explanatory variable	Enterprise size	X1	Ln (Total assets))
	Financial leverage	X2	Total liabilities / Total assets
	Cash substitutes	X3	Net working capital less cash and cash equivalents / Total assets
	Management shareholding ratio	X4	Company management shares / Total shares
	Equity concentration	X5	Number of shares held by the largest shareholder / Total number of shares
Adjustment variable	Macro economy	X6	GDP growth rate
Control variable	Profitability	X7	Net profit / Total assets
	Cash flow	X8	Net profit + depreciation of fixed assets and amortization of intangible assets / Total assets

### 3.2 Analysis of experimental results

Table 3 Regression analysis of model 1

	Model	Coefficient	t	Sig.
1	(Constant)	.625	14.495	.000
	Enterprise scale	-.012	-5.556***	.000
	Asset liability ratio	-.369	-26.053***	.000
	Cash substitutes	-.291	-23.714***	.000
	The shareholding ratio of management	.011	.963	.336
	Equity concentration	.041	3.173***	.002
	Profitability	3.073	23.799	.000
	Cash flow	-2.874	-21.938	.000
R square = 0.330, adjusted R square = 0.328				

\*\*\*. at 1% level, \*\*. At 5% level, \*. At 10% level, the same below.

From the regression results of the explanatory variables, most of the results are the same as the hypotheses in this paper, but some are different:

(1) There is a negative correlation between enterprise scale and cash holdings at the significance level of 1%, which is consistent with hypothesis 1. It shows that the larger the enterprise scale, the lower the cash holdings. This is mainly because the larger enterprises are faced with relatively less information asymmetry, which makes the larger enterprises face lower external financing costs. At the same time, large-scale enterprises are more likely to carry out diversified operations to disperse enterprise risks, so that in the case of cash shortage, they can sell non core assets to obtain the required cash flow, which reduces the prevention motivation of large-scale enterprises to hold cash.

(2) According to the principal-agent theory, this is mainly due to the agency conflict between the shareholders and the management of the enterprise, which leads to the management's efforts to reduce

the risk from the outside The supervision of creditors, so more inclined to hold more cash, at the same time, cash assets are conducive to the control of managers.

(3) There is a negative correlation between cash substitutes and cash holdings at the 1% restrictive level, which is consistent with hypothesis 3. It shows that the more cash substitutes there are, the less cash holdings there are. According to the transaction cost theory, enterprises with more cash substitutes can transfer cash substitutes in time when they are short of funds Turn it into cash.

(4) There is a positive correlation between the proportion of managerial ownership and cash holdings, and it is not significant, which is inconsistent with Hypothesis 4. This may be because the proportion of managerial ownership has not reached a certain standard, so that the managers will not bear most of the costs caused by their self-interest behavior. Therefore, the management does not have enough motivation to reduce the cost of the enterprise In order to reduce the agency cost of holding too much cash.

(5) According to the principal-agent theory, cash, as a more flexible and easier to operate asset, is the most suitable for large shareholders to hold for the benefit of others. Therefore, for the enterprises with high proportion of the largest shareholder, the largest shareholder has the motivation to make the enterprise hold more cash.

Table 4 Regression analysis of model 2

Model	Variable	Coefficient	t	Sig.
2	(Constant)	.274	7.138	.000
	Enterprise scale crossover	-.157***	-5.373	.000
	Asset liability ratio	-.369	-26.072	.000
	Cash substitutes	-.290	-23.647	.000
	The shareholding ratio of management	.009	.806	.420
	Equity concentration	.038	2.891	.004
	GDP growth rate	4.851	6.140	.000
	Profitability	3.059	23.707	.000
	Cash flow	-2.864	-21.883	.000
R square = 0.331, adjusted R square = 0.330				

It can be seen from the above table that the coefficient of the cross product of enterprise size is -0.157, and it is significant at the level of 1%, which indicates that the negative impact of enterprise size on enterprise cash holdings will weaken in the macroeconomic recession, which is consistent with hypothesis 6.

Table 5 Regression analysis of model 3

Model	Variable	Coefficient	t	Sig.
3	(Constant)	.366	5.966	.000
	Enterprise scale	-.011	-5.174	.000
	Asset liability ratio multiplier	-5.218***	-26.359	.000
	Cash substitutes	-.290	-23.735	.000
	The shareholding ratio of management	.008	.723	.470
	Equity concentration	.036	2.786	.005
	GDP growth rate	3.451	6.418	.000
	Profitability	3.049	23.674	.000
		Cash flow	-2.856	-21.873
R square = 0.333, adjusted R square = 0.331				

It can be seen from the above table that the coefficient of the cross product of the asset liability ratio is - 5.218, and it is significant at the level of 1%, indicating that the negative impact of the asset liability ratio on the enterprise's cash holdings weakens in the macroeconomic recession, which is consistent with the hypothesis 7 in this paper.

Table 6 Regression analysis of model 4

Model	Variable	Coefficient	t	Sig.
4	(Constant)	.496	8.264	.000
	Enterprise scale	-.011	-5.250	.000
	Asset liability ratio	-.369	-26.070	.000
	Cross product of cash substitutes	-4.061***	-23.557	.000
	The shareholding ratio of management	.010	.915	.360
	Equity concentration	.038	2.928	.003
	GDP growth rate	1.651	3.110	.002
	Profitability	3.060	23.682	.000
	Cash flow	-2.867	-21.873	.000
R square = 0.330, adjusted R square = 0.328				

As can be seen from the above table, the coefficient of cash substitutes is -4.061, and it is significant at the level of 1%, indicating that the negative impact of cash substitutes on corporate cash holdings weakens in the macroeconomic recession, which is consistent with Hypothesis 8.

Table 7 Regression analysis of model 6

Model	Variable	Coefficient	t	Sig.
6	(Constant)	.527	8.620	.000
	Enterprise scale	-.011	-5.236	.000
	Asset liability ratio	-.370	-26.147	.000
	Cash substitutes	-.290	-23.655	.000
	The shareholding ratio of management	.009	.832	.405
	The cross product of ownership concentration	.511***	2.799	.005
	GDP growth rate	1.218	2.246	.025
	Profitability	3.060	23.708	.000
	Cash flow	-2.866	-21.895	.000
R square = 0.331, adjusted R square = 0.329				

From the above table, we can see that the coefficient of equity concentration is 0.511, and it is significant at the level of 1%, which indicates that the positive impact of equity concentration on corporate cash holdings is enhanced in the macroeconomic recession, which is consistent with hypothesis 10.

#### 4. Conclusions

(1) In terms of corporate financial characteristics, there is a significant negative correlation between corporate size, asset liability ratio, cash substitutes and corporate cash holdings. ② It shows that the higher the asset liability ratio, the lower the cash holdings. ③ It shows that the more cash substitutes an enterprise has, the less cash it holds.

(2) In the aspect of corporate governance structure: ① there is a significant positive correlation

between ownership concentration and corporate cash holdings, which indicates that the higher the proportion of the largest shareholder, the higher the corporate cash holdings. ② There is a positive correlation between the proportion of managerial ownership and cash holdings, but it is not significant, which is inconsistent with the relevant assumptions in this paper. This may be because the proportion of managerial ownership has not reached a certain standard, so that the managers will not bear most of the costs caused by their self-interest behavior. Therefore, the management does not have enough motivation to reduce the cost of cash holdings. In order to reduce the agency cost of holding too much cash.

(3) Taking the GDP growth rate as the adjusting variable, we find that: 1) in the macroeconomic recession, the negative impact of enterprise size on enterprise cash holdings will weaken. 2) In the macroeconomic recession, the negative impact of asset liability ratio on corporate cash holdings is weakened. 3) In the macroeconomic recession, the negative impact of cash substitutes on corporate cash holdings is weakened. 4) In the macroeconomic recession, the positive impact of ownership concentration on corporate cash holdings increases.

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