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Original Paper

Cash Demand and Financing Decisions

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Abstract

Recent literature starts to focus on the effects of the urgency of cash demand on the choice of financing sources. Extant studies use data from the U.S. and conclude that firms use debt financing to meet immediate cash demand and equity financing to meet longer-term cash demand. Using data from China, this paper uncovers opposite findings: Firms are more likely to use equity financing to meet immediate cash demand and debt financing to meet cash demand in longer terms. We discuss the possible mechanisms behind the pattern.

Keywords

capital structure, cash demand, financing decisions

1. Introduction

Capital structure is one of the fundamental issues in corporate finance. The capital structure depends on a firm's choice of financing sources. and there is already a large literature in this area. Recently emerging literature has begun to examine the impact of the urgency of cash demand on the financing method. Huang and Ritter (2021) use U.S. data to show that firms with immediate cash demand are more likely to engage in debt financing, while firms with medium-term cash demand are more likely to engage in equity financing. Firms with debt financing tend to use up all of their raised funds immediately, while firms with equity financing do not use all of their funds immediately, but rather set aside some of the funds for cash holdings.

These findings seem intuitive but are limited to developed economies. There are many differences between emerging markets and developed economies. For example, the degree of financial market development varies, resulting in firms facing different constraints in their choice of financing. Whether these findings are broadly applicable to other markets, especially emerging markets, is still unclear.

We exploit Chinese data to examine how the urgency of a firm's cash demand in an emerging market affects the firm's choice of financing method. China is a typical emerging market where capital markets have grown very rapidly over the past few decades. In the debt market, while China is dominated by bank credit, the bond market has become the second largest in the world since 2019. For the equity market, China has formed a multi-level financing market, ensuring that most enterprises can access capital in the stock market as much as possible.

We use the information on listed firms from 2000 to 2020, and following Huang and Ritter (2021), we classify cash demand into immediate cash demand, near-term cash demand, and medium-term cash demand, and find that firms with immediate cash demand are more likely to choose equity financing, while firms with near-term and medium-term cash demand are more likely to choose debt financing. This pattern holds for State-Owned Enterprises (SOEs) and non-SOEs. We also find that regardless of the financing method, firms do not use up all the funds immediately after raising them, but keep some of them as cash holdings, suggesting that firms do not raise funds solely to meet their immediate cash demand. This is inconsistent with the findings of the existing literature.

We also discuss the possible reasons behind this phenomenon. Firms facing immediate cash demand indicate that the firms are in high growth and in need of cash or that their business is currently in poor condition. In emerging markets where the financial market is underdeveloped and creditors do not have much technique to obtain borrowers' soft information, suppliers of debt capital are concerned about the rollover risk of such firms and are unwilling to extend loans. Therefore, the firms will choose equity financing. When firms face medium-term cash demand, they have sufficient cash to sustain their growth, and they will choose debt financing because debt financing is less costly and more beneficial for long-term growth, while equity financing can mitigate existing shareholders' control over the firms.

We contribute to the literature in the following way. Corporate financing decision has long been the center of corporate finance, and there have been many classical theories that explain capital structure including the MM theorem (Modigliani & Miller, 1958), tradeoff theory (Robichek, 1967; Rubinmstein, 1973), agency theory (Jensen & Meckling, 1976), signaling (Ross, 1977; Leland & Pyle, 1977), pecking order theory (Mayers, 1984; Narayanan, 1978; Townsend, 1978), growth potential (Erkko Autio & Annareetta Lum, 1998). Emerging literature focuses on how the essence of cash demand affects financing decisions. DeAngelo and Whited (2011) propose a theoretical model in which firms with direct cash demand will raise external financing. Firms with temporary cash shortages issue bonds, while firms with sustained cash shortages issue stocks. For empirical evidence, Huang and Ritter (2021) use the data from the U.S. and find that firms with debt financing are more likely to have short-term cash demand, and firms with equity financing are more likely to have long-term cash demand. Firms with debt financing usually immediately use up all the funds they raise, while firms with equity financing usually do not use all the funds they finance but retain part of the funds as cash holdings. However, whether firms in other countries also behave in the same way is still unclear. Our paper fills this gap and provides novel evidence inconsistent with existing literature. The findings enrich our

understanding of corporate financial decisions and call for new theories to reconcile the new pattern in corporate financing decisions.

2. Method

In this section, we introduce data sources and sample construction. Since we use multiple empirical models, we introduce the details of those models along with empirical results in Section 4.

We obtain the financial data of all firms listed in the China A-Share market from the China Stock Market & Accounting Research Database (CSMAR) and construct a firm-year-level panel sample.

Our key measure is cash demand urgency. We modify the way from Huang and Ritter (2021) and classify cash demand into three categories: Immediate, Near, and Long. Immediate equals one if the cash flow at the end of the current year is less than 0 in absence of external financing and zero otherwise. Near equals one if cash flow at the end of the following year is less than 0 and zero otherwise without external financing. These three dummies measure the urgency of cash demand. Table 1 shows the detailed definitions of the variables, and Table 2 displays the summary statistics.

Table 1. Definition of Key Variables

Variable	Definition
FNC	Categorical variable for financing sources. 0 for no financing; 1 for only debt financing; 2 for debt and equity financing; 3 for equity financing
Immediate	A dummy which equals 1 if cash flow at the end of the current year without external financing is smaller than zero and zero otherwise
Near	A dummy which equals 1 if cash flow at the end of the next year without external financing is smaller than zero and zero otherwise
Medium	A dummy which equals 1 if cash flow at the end of the year after the next year without external financing is smaller than zero and zero otherwise
Cash_change	100 × the growth in year-end cash balance/ total assets in the previous year
Net income	Net income in the previous year
Total assets	Total assets in the previous year
Total liabilities	Total liabilities in the previous year
Ln(Operating income)	The natural logarithm of operating income in the previous year
Debt ratio	The debt-to-asset ratio in the previous year
Cash_Vol	The cash volatility for the previous year. Cash volatility is defined as the standard deviation of the ratio (cash/total assets) with a three-year rolling window from *t-2* to *t*
Risk-free rate	The risk-free rate of the current year

Table 2. Summary Statistics

Variable	Min	Max	Mean	Std. dev
FNC	0	3	0.7894065	.7137036
immediate	0	1	0.6055144	0.488747
Near	0	1	0.2185169	0.413246
Medium	0	1	0.0800174	0.2713241
Net income	-4.67e+10	1.51e+11	4.00e+08	2.89e+09
Total assets	1408532	2.73e+12	1.18e+10	6.36e+10
Total liabilities	302427.2	1.53e+12	7.00e+09	3.88e+10
Ln(Operating income)	7.124728	28.7183	21.02225	1.761994
Debt ratio	0.000124	124.0223	.4988181	1.180931
Cash_Vol	0.00009	36.78183	.0558795	.2983943
Risk-free rate	1.4892	3.2772	2.135489	.6500661

Before we conduct the regression analyses, we first examine the relationship between financing decisions and cash demand emergency from descriptive statistics in Table 3. 71.8% of all firms with debt financing have immediate cash demand, and 97.5% of firms with equity financing have immediate cash demand, so firms with equity financing are more likely to have immediate cash demand.

We then divide the sample into two subsamples: SOEs and non-SOESs. 74.0% of SOEs with only debt financing have immediate cash demand and 95.9% of firms with only equity financing have immediate cash demand. This pattern is also found in non-SOEs. The only differences are that SOEs with only equity financing are less likely to have immediate cash demand than non-SOEs with only equity financing and that SOEs with only debt financing and both types of financing are more likely to have immediate cash demand.

Table 3. Immediate Cash Demand and Financing Sources

Full Sample	Only debt financing	Both debt & equity	Only equity financing	No financing
Total	18683	2605	1102	12065
Cash<0	13411	2562	1075	3815
Proportion	71.8%	98.3%	97.5%	31.6%
Non-SOE	Only debt financing	Both debt & equity	Only equity financing	No financing
Total	9441	1567	786	7614
Cash<0	6572	1541	772	2498
Proportion	69.6%	98.3%	98.2%	32.8%

SOE	Only debt financing	Both debt & equity	Only equity financing	No financing
Total	9242	1038	316	4451
Cash<0	6839	1021	303	1317
Proportion	74.0%	98.4%	95.9%	29.6%

Table 4. Immediate Cash Demand and Financing Sources

Financing sources	Debt	Debt & equity	Equity
Full Sample	54.2%	7.6%	3.2%
Non-SOE	48.6%	8.1%	4.0%
SOE	61.4%	6.9%	2.1%

Table 4 displays the proportion of firms with debt financing only, equity financing and debt financing at the same time, and equity financing only for the full sample, SOEs, and non-SOEs. The statistics show that SOEs are 61.4% more likely to engage in debt financing than non-SOEs, while non-SOEs are 8.1% more likely to engage in both types of financing and 4.0% more likely to engage in only equity financing than SOEs. This indicates that SOEs are more likely to engage in debt financing than non-SOEs, while non-SOEs are more likely to engage in only equity financing or both equity financing and debt financing.

3. Result

Following Huang & Ritter (2021), we perform the following multinomial logit regression:

$$\text{Logit}(FNC_j) = ln[(p(y=j|x)/p(y=0|x)] = a_j + b_{j1} X_1 + \ldots + b_{jn} X_n \quad (j = 0,1,2,3) \qquad (1)$$

where j represents a particular financing source. X_i includes variables that could affect financing decisions, including *Immediate*, *Near*, *Medium*, and control variables. n is the number of factors that affect financing decisions.

Table 5. Financing Sources: Without Controls

	Full Sample	Non-SOE	SOE
Debt Financing			
immediate	2.771***	2.611***	3.005***
	(56.64)	(39.02)	(41.44)
Near	1.596***	1.553***	1.696***
	(31.34)	(22.35)	(22.44)
Medium	0.594***	0.624***	0.579***
	(9.57)	(7.43)	(6.25)

Debt & Equity			
immediate	5.710***	5.491***	6.076***
	(13.94)	(10.95)	(8.57)
Near	1.253***	1.054*	1.588**
	(2.78)	(1.89)	(2.06)
Medium	0.724	0.484	1.098
	(1.37)	(0.72)	(1.27)
Equity Financing			
Immediate	4.235***	4.577***	3.763***
	(13.93)	(10.18)	(9.08)
Near	-0.382	-0.211	-0.522
	(-0.87)	(-0.35)	(-0.81)
Medium	-0.288	-0.250	-0.288
	(-0.57)	(-0.34)	(-0.41)
N	34455	19408	15047
R^2	0.1383	0.1317	0.1517

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

We first perform regression (1) without controls. Table 5 reports the results. The coefficients for immediate cash demand for the choice of only debt financing are 2.771, while the coefficients for immediate cash demand for the choice of only equity financing are 4.235, which implies that firms with immediate cash demand are more likely to choose equity financing. The coefficients for near-term cash demand and medium-term cash demand are 1.596 and 0.594 for the choice of only debt financing and -0.382 and -0.288 for the choice of only equity financing. Although these two coefficients are statistically insignificant for the choice of equity financing, they still indicate that firms with near-term cash demand and medium-term cash demand are more likely to choose debt financing. At the same time, considering the heterogeneity in credit constraint, we divide the sample into SOEs and non-SOEs and repeat the regressions, which generate the same conclusion as the full sample.

Table 6 adds the control variables of net income, total assets, total liabilities, and operating income to the analysis again, and the above conclusion is still reached. Therefore, it can be concluded that firms are more likely to raise equity financing when there is an immediate cash demand, and more likely to raise debt financing when there is a short-term or medium-term cash demand.

Table 6. Financing Sources: with Controls

	Full Sample	Non-SOE	SOE
Debt Financing			
Immediate	2.644***	2.511***	2.734***
	(32.26)	(24.18)	(20.95)
Near	1.532***	1.474***	1.538***
	(19.42)	(14.38)	(12.37)
Medium	0.552***	0.559***	0.468***
	(6.86)	(5.28)	(3.68)
Net income	-1.56*10^{-11}	2.91*10^{-10***}	-2.45*10^{-10*}
	(-0.11)	(3.97)	(-1.87)
Total assets	-3.06*10-11	-4.46*10-11	6.59*10-11
	(-1.24)	(-1.59)	(1.42)
Total liabilities	-2.47*10-10***	3.76*10-10***	1.12*10-11
	(3.41)	(4.85)	(0.11)
Ln(Operating income)	0.195***	0.138***	0.158***
	(6.38)	(4.89)	(3.66)
Debt ratio	-0.022	-0.051*	1.661***
	(-1.19)	(-1.73)	(3.72)
Cash_Vol	-0.057	-0.030	-2.921***
	(-0.58)	(-0.51)	(-3.68)
Risk-free rate	0.262***	0.195***	0.325***
	(8.69)	(4.97)	(7.02)
Debt & Equity			
Immediate	5.654***	5.537***	5.783***
	(13.70)	(11.06)	(8.06)
Near	1.242***	1.075*	1.418*
	(2.73)	(1.94)	(1.81)
Medium	0.707	0.457	0.966
	(1.33)	(0.68)	(1.11)
Net income	8.45*10-11	6.30*10-10***	-2.10*10-10
	(0.62)	(6.90)	(-1.58)
Total assets	-5.82*10-11**	-1.27*10-10***	5.30*10-11
	(-2.29)	(-4.04)	(1.14)
Total liabilities	2.76*10-10***	4.57*10-10***	2.51*10-11
	(3.81)	(5.77)	(0.24)

Ln(Operating income)	0.287***	0.281***	0.276***
	(8.27)	(7.98)	(5.36)
Debt ratio	-0.011	-0.048	2.162***
	(-0.52)	(-0.90)	(4.48)
Cash_Vol	-0.719	-1.308*	-2.719*
	(-1.38)	(-1.85)	(-1.82)
Risk-free rate	0.195***	0.110**	0.373***
	(4.56)	(2.00)	(5.47)
Equity Financing			
Immediate	4.638***	5.085***	3.960***
	(14.93)	(11.17)	(9.54)
Near	-0.117	0.102	-0.408
	(-0.27)	(0.17)	(-0.63)
Medium	-0.129	-0.132	-0.217
	(-0.25)	(-0.18)	(-0.31)
Total assets	-2.83*10-10***	-2.20*10-10**	-2.03*10-10**
	(-3.39)	(-1.99)	(-2.26)
Total liabilities	2.94*10-10*	-1.50*10-11	-2.34*10-10
	(1.66)	(-0.06)	(1.55)
Ln(Operating income)	0.394***	0.449***	0.387***
	(8.13)	(9.22)	(4.83)
Debt ratio	-1.520**	-0.698	-0.539
	(-2.04)	(-0.81)	(-0.78)
Cash_Vol	-0.077	-0.268	-0.943
	(-1.40)	(-0.57)	(-1.16)
Risk-free rate	-0.032	0.028	-0.080
	(-0.56)	(0.42)	(-0.75)
N	34455	19408	15047
R^2	0.2038	0.1978	0.2232

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

We then verify the above findings from another perspective. If a firm finances its Immediate cash demand, i.e., if the cash is used immediately, then the firm's cash holdings do not change from previous years. Therefore, the relationship between the financing method and the firm's cash holdings reflects the urgency of the cash requirement associated with that financing method. Before examining the relationship, we need to test whether the firm will use up all the funds immediately after the financing or not:

$$Cash\_change = \beta_0 + \beta_1 X_1 + \beta_2 a_1 + \ldots + \beta_{n+1} a_n + FEs + \varepsilon \quad (2)$$

Cash_change equals 100 × (Current year ending cash balance - Last year ending cash balance)/Total assets. X_1 represents last year's cash divided by Total assets. a_i are control variables. *FEs* represents firm and year fixed effects. The standard error is clustered at the firm level. Table 7 reports the results. When the cash balance at the end of last year increases, the difference between the cash balance at the end of the current year and the end of last year decreases. This means that when a firm receives additional funds, the firm does not spend all of the funds immediately, but keeps a portion of the funds as cash holdings of the firm.

Table 7. Financing for Immediate Cash Demand?

	Full Sample	Non-SOE	SOE
$Cash_{t-1}/Asset_{t-1}$	-85.473***	-91.316***	-17.887*
	(-8.46)	(-12.62)	(-1.94)
Net income	7.28*10-10*	4.64*10-9***	2.01*10-10
	(1.81)	(4.53)	(1.26)
Total assets	4.29*10-11	-1.16*10-9***	3.12*10-11
	(0.38)	(-2.83)	(0.67)
Total liabilities	-1.13*10-10	-1.07*10-9**	-9.00*10-11
	(-1.10)	(2.14)	(-0.91)
Ln(Operating income)	-9.592***	-10.102***	-5.708***
	(-4.44)	(-3.04)	(-3.60)
Debt ratio	1.875	1.966	0.496
	(1.08)	(1.11)	(0.08)
Cash_Vol	4.422	2.938	86.282
	(0.90)	(0.84)	(0.93)
Firm FE & Year FE	Yes	Yes	Yes
N	34066	19078	14987
R^2	0.100	0.104	0.081

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The choice of a firm's financing method affects equity and liabilities. Therefore, we use the change in total equity and the change in total liabilities to measure the choice of financing method and explore the effects of financing method on firm cash holdings. We conduct the following regression:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 a_1 + \ldots + \beta_{n+2} a_n + FEs + \varepsilon \quad (3)$$

where Y represents cash holdings, X_1 represents the change in total equity of the firm divided by total assets, and X_2 represents the change in total liabilities of the firm divided by total assets. a_i are control variables. *FEs* represents firm and year fixed effects. The standard error is clustered at the firm level.

We first perform regression (3) without controls and fixed effects for firms with debt and equity financing, respectively. Table 8 reports the results for firms with debt financing. For debt-financed firms, one unit increase in debt leads to an increase in cash holdings of five cents, which is not used immediately. For non-SOEs, this number is larger, and more cash holdings are retained. While for SOEs, this is not the case. They do not use debt financing to cover all the expenditures, and for one dollar increase in debt, the firm uses an additional 20 cents of cash holdings.

Table 9 reports the results for firms with equity financing. The results show that for equity-financed firms, one dollar increase in equity leads to an additional 86 cents of cash holdings. This coefficient is greater for non-SOEs and smaller for SOEs. However, both SOEs and non-SOEs do not use the funds from *equity* financing as cash holdings, but choose to spend them immediately.

The results above show that equity financing issuers generally spend all the funds they obtain immediately, while debt financing issuers keep part of the proceeds in cash. Thus, it can be assumed that equity financing is used more for urgent expenditures, while debt financing is used more for long-term expenditures.

We then add control variables and fixed effects and clustered the standard errors at the firm level. Table 10 and Table 11 report the results. Although the statistical significance of the independent variables is weakened, the above conclusions can still be drawn. Thus, equity-financed issuers generally spend all of the funds raised immediately, while debt-financed issuers retain some of the funds in the form of cash. These findings provide additional evidence that firms with near-term cash demand are likely to use equity financing, and that funds financed by equity financing are often used for immediate expenditures. Compared to the U.S. where firms with short-term cash demand are likely to use debt financing and firms with long-term cash demand are likely to use equity financing, our findings in China are different.

Table 8. Debt Financing: without Controls

	Full Sample	Non-SOE	SOE
ΔEquity/Total assets	-86.199***	-88.509***	-51.859***
	(-297.93)	(-239.48)	(-72.45)
ΔDebt/Total assets	5.244***	11.547***	-20.674***
	(16.54)	(20.81)	(-40.52)
N	21283	11005	10278
R^2	0.873	0.869	0.911

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9. Equity Financing: without Controls

	Full Sample	Non-SOE	SOE
ΔEquity/Total assets	-86.091***	-87.137***	-46.112***
	(-95.40)	(-84.73)	(-27.02)
ΔDebt/Total assets	20.288***	32.054***	-25.479***
	(23.35)	(28.80)	(-20.74)
N	3703	2349	1354
R^2	0.767	0.769	0.940

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10. Debt Financing: With Controls

	Full Sample	Non-SOE	SOE
Δequity/Total assets	-85.738***	-88.288***	-47.945***
	(-12.28)	(-14.31)	(-3.15)
ΔDebt/Total assets	3.872	9.767	-24.149**
	(0.58)	(0.74)	(-2.35)
Net income	$-1.86*10^{-11}$	$-1.53*10^{-9}$	$-1.67*10^{-10}$
	(-0.04)	(0.86)	(-0.74)
Total assets	$-1.92*10^{-10}$	$-8.06*10^{-10}$	$-9.37*10^{-11}$
	(-1.61)	(-0.70)	(-1.51)
Total liabilities	$3.33*10^{-10*}$	$1.33*10^{-9}$	$1.44*10^{-10}$
	(1.76)	(1.04)	(1.43)
Ln(Operating income)	-9.489***	-9.872***	-8.875***
	(-2.81)	(-2.59)	(-4.85)
Debt ratio	28.580	33.716	-40.351***
	(0.62)	(0.67)	(-3.75)
Cash_Vol	2.777	2.921	-48.763*
	(1.22)	(1.19)	(-1.84)
Firm FE & Year FE	Yes	Yes	Yes
N	20917	10700	10217
R^2	0.886	0.884	0.923

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11. Equity Financing: With Controls

	Full Sample	Non-SOE	SOE
ΔEquity/Total assets	-95.672***	-97.702***	-40.878***
	(-16.32)	(-16.68)	(-2.76)
ΔDebt/Total assets	26.294*	44.454***	-28.585***
	(1.91)	(2.81)	(-2.84)
Net income	$-1.87*10^{-10}$	$-3.15*10^{-8}$	$6.36*10^{-9}$**
	(-0.05)	(-1.58)	(2.44)
Total assets	$-2.02*10^{-9}$	$-1.61*10^{-8}$	$-1.46*10^{-9}$*
	(-1.02)	(-4.17)	(-1.93)
Total liabilities	$2.80*10^{-9}$	$2.22*10^{-8}$	$1.63*10^{-9}$
	(0.93)	(3.67)	(1.65)
Ln(Operating income)	5.426	49.058	-30.346***
	(0.27)	(1.55)	(-3.86)
Debt ratio	-116.974	-310.236**	-130.034***
	(-0.80)	(-2.26)	(-3.17)
Cash_Vol	-740.909	339.982	-574.717**
	(-1.07)	(1.44)	(-2.57)
Firm FE & Year FE	Yes	Yes	Yes
N	2634	1642	989
R^2	0.914	0.930	0.974

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

4. Discussion

We use data on Chinese firms and find that firms with equity financing tend to have immediate cash demand, while firms with debt financing tend to have more medium-term and near-term cash demand. On the other hand, firms with equity financing tend to spend all the funds they raise immediately, while those with debt financing retain part of the proceeds in cash. Thus, we conclude that when a firm often chooses equity financing for a short-term cash demand and debt financing for a longer-term cash demand.

This evidence is inconsistent with findings in the literature which uses data in the U.S. We discuss the potential reasons as follows. A firm facing immediate cash demand indicates that the company is in high growth and in need of cash or that its business is currently in poor condition. In emerging markets where the financial market in underdeveloped creditors do not have much in emerging markets where the financial market in underdeveloped creditors do not have much technique to obtain borrowers' soft information, debt capital suppliers will be concerned about the rollover risk of such companies, and

therefore such firms face greater debt financing constraints. Therefore, firms will choose equity financing, which does not require repayment and can significantly reduce the financial pressure on the firm. When firms face medium-term cash demand, they still have sufficient cash to sustain their development. Compared with equity financing, debt financing is less costly and would not mitigate existing shareholders' control over the firm, so debt financing is preferable.

Our findings have important policy implications. For emerging markets, it is important to promote the development of financial markets to provide more options for corporate financing and reduce distortions in financing decisions.

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