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Multinational firms and cash holdings: Evidence from China[☆]

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ABSTRACT

To adapt to globalization, Chinese multinational firms have more exploitation of cash. This paper shows that Chinese multinational corporations (MNCs) do not hold significantly more cash relative to domestic firms unless these multinationals heavily rely on the foreign sales. In addition, the multinationals of non-State-Owned Enterprises (Non-SOEs) exhibit the insignificant difference in cash holdings for non-multinationals. We also find that Chinese MNCs invest more but are less profitable, especially in non-SOE subsample. Overall, we conclude that the need of cash liquidity of multinational corporations in China is different from those in U.S.

1. Introduction

Cash holding of multinational corporations (MNCs hereafter) is an essential issue in the literature of corporate capital structure and corporate cash holding. Considerable media attention has been devoted to the increase in cash holdings of U.S. multinationals, such as Apple which holds trillion dollars of cash overseas but borrows money in the domestic market.¹

The explanations offered by academic research are based on trade-offs motivated by repatriation tax. [Foley et al. \(2007\)](#) show that the reason for cash buildup is that U.S. firms had foreign profits that would have been taxed had they been repatriated. However, [Pinkowitz et al \(2016\)](#) document that in the U.S. domestic firms and multinationals (MNCs) are no different at the median, but the right tail of MNCs pushes up the average cash holding. In the most recent work by [Fernandes and Gonenc \(2014\)](#), the authors compare the determinants of cash holdings across developed and emerging market using international data, and do not find MNCs holding more cash.

Compared with fruitful studies on MNCs in the developed markets, little attention has been paid on companies' cash holding in the emerging markets. This paper shed new light on the determinants of cash holdings for multinationals in emerging markets, China.

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¹ Peter Lattman and Peter Eavis, "To Satisfy Its Investors, Cash-Rich Apple Borrows Money", the New York Times (April 30, 2013).

From existing literatures, we find Chinese firms to become multinationals for many reasons. First, firms want to have access on the foreign capital market (Deng, 2007; Ding et al., 2009). Unlike MNCs from other emerging markets, Chinese MNCs tend to invest and operate their business in the most industrialized countries, like U.S. or Japan. Wang (2002) notes that more than 70% Chinese foreign branches are operating in developed regions excluding Hong Kong and Macau. Another reason might be to seek for natural resources (Lee, 1996). Most of the big State-Owned MNCs, like Sinopec and PetroChina, run branches in some developing but rich-resource countries, like Sudan, Indonesia etc. Besides, the fiercely competing domestic market forces many Chinese firms to globally enlarge market share. Finally, another plausible explanation for global extension is to seek for segment diversification. Generally, in the early stage of global expansion, Chinese multinationals would invest plenty of cash to support their international operations and try to diversify their risks in other developed countries so that holding of cash is reduced for taking various investment opportunities.

In this study, we use different proportions of foreign sales ratio as proxies for multinationals and focus on explaining the difference in cash holdings of MNCs relative to non-MNCs. Contrary to the hypothesis that MNCs hold more cash, we do not find significantly positive result for MNC dummies unless we use foreign sales ratio of 50% cutoff (MNC50) in full sample.

Also, government in China has a significant influence in firm's ownership structure and outward investment decision. So, we divide the sample into two types, state-owned enterprises (SOEs) and non-SOEs. We find that SOEs in average hold 3% less cash than non-SOEs. In addition, the positive coefficient for MNCs with 50% foreign sales ratio is only significant for SOE subsample. Thus, we conclude that the insignificance in full sample is mainly caused by non-SOEs.

To further explore why Chinese MNCs do not hold more cash, we study the investment behaviors of our sample firms. We find that MNCs with more than 50% foreign sales ratio invest more than other non-MNC firms and this effect is accentuated in non-SOE subsample. Different from non-SOEs, MNC50s in SOE subsample actually invest less compared to non-MNCs. When examining the difference of future profitability, we see that MNC dummies are negatively related to profitability. The results also show that this difference is accentuated in non-SOEs regardless of the cutoff of MNC dummies, while a significantly negative result for SOEs is not found. Our findings suggest that Chinese MNCs do not hold significantly more cash than the domestic ones because they tend to spend the cash flows and are less profitable, and those two effects together might prevent the accumulation of firm's excess cash.

Our paper contributes to the literature of cash management by multinational firms. Opler et al. (1999) suggests a tradeoff theory of cash holdings in firms. Bates et al. (2009) find that U.S firms hold more cash for precautionary motives rather than agency problem. And shareholders discount companies' foreign cash holdings as Harford et al. (2014) mentioned. Cai and Warnock (2012) show that US domestic multinationals hold significant foreign exposure by holding domestic equities. Recent literature has studied the benefits and costs of cash with firm's investment decision (Almeida et al., 2004; Acharya et al., 2007; Bates et al., 2009; Duchin et al., 2010) as well as agency problem (Pinkowitz et al., 2006; Dittmar and Mahrt-Smith, 2007; Kalcheva and Lins, 2007; Harford et al., 2008). Our results show that, contrary to the case in developed country like U.S., multinational corporations in China do not hold significantly more cash than the domestic firms since they tend to invest more and are less profitable.

The rest of paper is organized as follows. Section 2 presents the data and sample used in this paper. Section 3 studies the determinants of cash for MNCs in China. Section 4 explores MNCs' cash holdings from the investment and profitability angles. Section 5 summarizes the paper.

2. Data description and summary statistics

Our baseline sample covers China-incorporated firms that are listed on the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE). We only consider the main board market because the Growing Enterprise Market (GEM) in SZSE starts from 2009. Those financial and utility firms are also excluded since they have different disclosure regulations and their liquidity positions are different from other firms. Our main variables are obtained from the Chinese Stock Market Accounting Research (CSMAR) for the period from 2000 to 2013. The sample period is chosen to match the availability of foreign sales in WIND database as WIND starts to collecting foreign sales from 2000. Besides, the year 2000 is the first year that firms are required to adopt a unified set of accounting standards and principles (Chen et al., 2012). We drop off delisted firms, such as ST or S*T because they have more strict regulation requirement. Considering the impact of extreme values and outliers, we winsorize all firm characteristics at the 1st and 99th percentiles. As a result, the whole sample consists of 18,135 firm-year observations with 1873 firms from 2000 to 2013.

Based on the current political and economic systems, Chinese government plays a crucial role in firm's outward investment and business activities. We group Chinese companies into two types, state-owned enterprises (SOEs) which are owned directly by the central or provincial or municipal governments and non-SOEs. Meggion et al. (2014) indicates that SOEs hold less cash because of soft budget constraint (SBC) effect. So in this paper, we add a SOE dummy to control for different cash level and further separate it into two subsamples.

Our main measure of foreign sales ratio is the proportion of a firm's total foreign sales divided by the total revenue. This variable is used as a proxy for how much cash firms are held abroad. All missing foreign sales ratio are replaced with zero value. In China, firms are recommended to disclose their foreign sales ratio starting from year 2000 and required to disclose

Table 1
Descriptive statistics of firm level.

Key variable	MNC10		NMNC10		MNC50		NMNC50	
	N	Mean	N	Mean	N	Mean	N	Mean
Foreign sales ratio	4482	0.3598	13,653	0.0088	1170	0.6984	16,965	0.0539
Cash	4482	0.2899	13,648	0.2860	1170	0.3706	16,960	0.2812
Real size	4482	21.3921	13,650	21.2677	1170	21.1502	16,962	21.3087
Market/Book	4372	1.8759	13,307	2.0625	1129	2.0319	16,550	2.0153
ROE	4482	0.0723	13,644	0.0677	1170	0.0839	16,956	0.0678
Revenue growth	4132	0.1835	12,771	0.2162	1047	0.1998	15,856	0.2088
Cash flow	4426	0.0871	13,174	0.0903	1161	0.1009	16,439	0.0887
Net working capital	4482	-0.0283	13,648	-0.0830	1170	-0.0175	16,960	-0.0730
CAPX	4482	0.0837	13,648	0.0734	1170	0.0919	16,960	0.0748
Leverage	4467	0.1982	13,595	0.1982	1166	0.1911	16,896	0.1987
Div dummy	4482	0.6294	13,653	0.5770	1170	0.6530	16,965	0.5856

This table contains summary statistics of key variables for the full sample. The data comprises 18,135 firm-year observations with 1873 firms from 2000 to 2013. Multinational Corporation and Non-Multinational Corporation are classified into three bracket using 10% and 50% cutoffs (*MNC10*, *MNC50* are used separately). *Foreign Sales Ratio* is the proportion of foreign sales by total revenue. *Cash* is cash and cash equivalents plus marketable securities divided by the net assets. *Real Size* is the natural log of total assets deflated using CPI into the year 1998. *Market/Book* is the ratio of market value of assets divided by the book value of the net assets. *ROE* is the net income divided by book value of shareholder's equity. *Revenue Growth* is the firm level annual total revenue growth rate. *Net Working Capital* is the current assets minus the current liability and cash holding divided by net assets. *CAPX* is the capital expenditure divided by net assets. *Leverage* is the short term borrowing plus long term debt divided by net assets. *Div Dummy* is a dummy variables equals to one if a firm pay dividend at a given year. All firm level variables are winsorized at the 1st and 99th percentiles.

if this ratio is more than 10% since year 2007.² Thus, we defined a dummy variable, *MNC10*, for Chinese multinational corporations, which is one if the foreign sales ratio is greater than 10% and zero otherwise. And this cutoff is widely used in the literature (Jorion, 1990; He & Ng, 1998; Guo, 2012). Other researchers suggest to use different cutoffs of foreign sales ratio to define MNCs. Shaked (1986) and Tallman & Li (1996) define MNCs as ones having 20% of sales abroad. Fernandes & Gonenc (2014) use 25 percent above as the standard in their international studies. For robust concern, we employ four kinds of cutoff in this paper: *MNC* (if positive), *MNC10* (if more than 10%), *MNC25* (if more than 25%) and *MNC50* (if more than 50%). Beside, *MNC10* and *MNC50* are our main focus since they are most widely used in the literature. We also include a dummy variable *MNC1050* to be one if the foreign sales ratio is more than 10% but less than 50%. All the other key variables' definitions and constructions can be seen in online Appendix.

We use a number of control variables suggested by previous authors to explain firm's cash holding. Table 1 presents the summary statistics of those variables in the sample we used. In each sample we compare the MNCs with the counterparts using the cutoff of 10% and 50% respectively. We can see that *MNC10* sample accounts for less than one quarter of the total sample while *MNC50* sample constitutes around only 7%. For the sample with 10% cutoff, MNCs have smaller market-to-book ratio, lower revenue growth, fewer cash flow but more investment and more dividend payout. There are not significant differences of cash holding, size and leverage ratio in this cutoff. As for the 50% cutoff, MNCs significantly hold more cash than non-MNCs and those multinational firms seem to be more profitable.

3. Determinant of cash holding for MNCs

3.1. Methodology

Our basic specification for the determinant of cash holdings is as follows:

$$Cash_{i,t} = \gamma MNC_{i,t} + \beta_0 SOE_i + \beta_k X_{i,t} + \alpha_i + \lambda_t + \varepsilon_{i,t} \quad (1)$$

where i and t denote firm i at the end of year t . The dependent variable $Cash_{i,t}$ is cash holdings measured as cash plus marketable securities scaled by net assets. *MNC* dummy is our main interest and is calculated as different cutoffs of foreign sales ratio. According to the previous literature we expect a positive and significant relation between cash holding and multinational firms (i.e. a positive γ). The *SOE* dummy is introduced to control for the difference between SOEs and non-SOEs. Soft-budget constraint theory predicts that *SOE* dummy should be negative since SOEs are usually with SBC that less financially constrained resulting in holding less cash. $X_{i,t}$ are k -vector (k equals to the number of controls) control variables which are chosen according to Opler et al. (1999).

There are two econometric techniques commonly used to ruled out potentially unobserved individual effect and variable yearly economic cycles: the pooled ordinary least squares (OLS) regression controlling for industry and year fixed effects, and

² Accounting Standards for Enterprises No.35-Segment Report by Ministry of Finance of P.R.C. required firms to disclose the proportion of sales more than 10% by region (both domestic and international). These standards are effective after the year 2007.

Table 2
Determinants of cash.

	Full sample					SOE	Non-SOE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MNC	0.010* (0.005)				0.002 (0.006)	0.002 (0.007)	0.003 (0.009)
MNC10		0.014** (0.006)			-0.001 (0.007)	-0.007 (0.008)	-0.005 (0.010)
MNC25			0.021*** (0.007)		0.010 (0.007)	0.003 (0.009)	0.018 (0.012)
MNC50				0.037*** (0.011)	0.029*** (0.011)	0.048*** (0.015)	0.011 (0.015)
SOE	-0.030*** (0.005)	-0.030*** (0.005)	-0.030*** (0.005)	-0.029*** (0.005)	-0.029*** (0.005)		
Market/Book	0.018*** (0.002)	0.018*** (0.002)	0.018*** (0.002)	0.018*** (0.002)	0.018*** (0.002)	0.032*** (0.004)	0.011*** (0.003)
Real size	-0.015*** (0.003)	-0.015*** (0.003)	-0.015*** (0.003)	-0.014*** (0.003)	-0.014*** (0.003)	-0.006* (0.003)	-0.022*** (0.005)
Cash flow	0.778*** (0.037)	0.778*** (0.037)	0.776*** (0.037)	0.774*** (0.037)	0.774*** (0.037)	0.573*** (0.055)	0.891*** (0.048)
Net working capital	-0.130*** (0.014)	-0.130*** (0.014)	-0.130*** (0.014)	-0.129*** (0.014)	-0.130*** (0.014)	-0.177*** (0.020)	-0.117*** (0.018)
CAPX	0.142*** (0.025)	0.141*** (0.025)	0.140*** (0.025)	0.139*** (0.025)	0.138*** (0.025)	0.041 (0.034)	0.201*** (0.036)
Leverage	-0.331*** (0.020)	-0.331*** (0.020)	-0.332*** (0.020)	-0.332*** (0.020)	-0.333*** (0.020)	-0.340*** (0.027)	-0.348*** (0.028)
Div dummy	0.020*** (0.004)	0.020*** (0.004)	0.020*** (0.004)	0.020*** (0.004)	0.019*** (0.004)	0.011** (0.005)	0.035*** (0.007)
Constant	0.509*** (0.058)	0.503*** (0.058)	0.497*** (0.058)	0.496*** (0.058)	0.496*** (0.058)	0.303*** (0.073)	0.634*** (0.096)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	17,096	17,096	17,096	17,096	17,096	9445	7651
adj. R-sq	0.404	0.404	0.405	0.405	0.406	0.407	0.435

This table presents the firm-level cash determinants from 2000 to 2013. The last two columns separate the full samples into SOE and non-SOE subsamples. The dependent variable in all regressions is the natural log of cash, which is calculated as cash holding divided by the net assets. SOE is a dummy variable set to one if the firm is state-owned enterprise. All the other independent variables are defined in Online Appendix. Industry dummy variables are constructed for each industry defined as three-level CIS code. All specifications include industry and year fixed effect. The standard errors are clustered at firm level. ***, ** and * indicate significance level at the 1%, 5% and 10% level, respectively.

the panel regression controlling for firm and year fixed effects. As shown in the [Table 1](#), most of firms are non-multinational so it is difficult to distinguish the invariant firm effect from the MNC dummy. Thus, we choose pooled OLS regression to avoid potential multicollinearity problem existing between the MNC dummy and the firm identity. The following reported *t*-statistics are based on robust standard errors which are clustered by firm level as [Peterson \(2009\)](#) suggests in order to rule out the potential heteroscedasticity.

3.2. Empirical results

We start our analysis by estimating specification of [Eq. \(1\)](#) using four different cutoffs. [Table 2](#) shows the multivariate regression of firm-level cash determinants. The dependent variable in all regressions is the natural log of cash divided by net assets and the independent variables are following [Opler et.al \(1999\)](#) and [Meggion et.al \(2014\)](#). In order to control for industry-adjust and year-adjust unobserved effects, we include dummy variables for each industry³ and each year.

We find that our main interest variables, MNC dummies, are all significantly positive in those models, seemingly consistent with the hypothesis that multinational firms do hold more cash, and the magnitude is larger in column (3) and (4). However, if all MNC dummies are introduced (column 5) we notice that only MNC50 is significant and positive. It shows that only for those firms with 50% or more foreign sales ratio that significantly hold more cash compared with the domestic oriented firms.

The result further indicates that SOE firms hold less cash.⁴ This is consistent with SBC theory and the empirical finding of [Meggison et al. \(2014\)](#). Besides, we find that smaller firms and firms with higher market-to-book hold more cash. Net

³ Three level CIS industry is used here. We also try to use 2-digit SIC B classifications defined by China Security Regulatory Commission ([Meggison et al., 2014](#)) and the result is still robust.

⁴ SOE hold about 3% percent less cash than non-SOE: the magnitude is about $0.287 \times (-0.03) = -0.0086$ or 0.86% less of cash ratio.

working capital and leverage ratio are significantly negative with cash holdings, supporting the tradeoff theory that cash and working capital are substitutes. It also shows that cash ratio is significantly positive with cash flow and investment, which is consistent with previous empirical evidence (Opler et al., 1999 and Harford, 1999, Dittmar et al., 2003; Ozkan and Ozkan, 2004; Kalcheva and Lins, 2007). However, the dividend-paying firms seem to hold more cash in China, which is contrary to the existing findings. It suggests that Chinese firms hold more cash for precautionary motive to avoid raising funds from the underdeveloped bond market or the seasoned equity market (Liu and Lu, 2007; Megginson, 2014).⁵

Columns 6 and 7 examine the influences on SOEs and non-SOEs. For SOEs (column 6), the coefficient of MNC50 is much larger in the subsample than that in full sample, which indicates that multinational firms hold even more cash in SOE sample. As for non-SOEs (column 7), the coefficients of all MNC dummies are positive but not significant. Compared with SOE subsample, we notice that significance of the MNC dummies vanishes in non-SOE sample, which implies that non-SOEs multinational firms do not hold significant more cash than their counterparts.

Overall, the results indicate that multinational firms in China do not hold significantly more cash relative to the non-multinationals, except for the 50% foreign sales ratio cutoff and this insignificance is dominant in non-SOE subsample. The latter result reflects the explanations.

4. MNCs, investment decision, and valuation

The previous section shows that multinational firms do not hold more cash in non-SOE subsample and SOEs do not hold more cash unless they have more than 50% foreign sales ratio. In this section, we attribute the reason to some specific firm characteristics.

In this section, we follow the methods applied by Harford et al. (2008) to study firm's cash position through the channels of investment and profitability. To simplify the study, we reduce the foreign sales ratio into three brackets: ratio less than 10%, with 10% to 50% (MNC1050) and more than 50% (MNC50). We assume that MNCs are more likely to invest cash because they are globally diversified with more investment opportunities. However, the investment of MNCs may not be more profitable than their domestic peers due to the diversification concern, which further gets the difference in cash holdings insignificant.

4.1. Cash and investment decision

In this part, we examine the relation between firms' investment decisions and multinationals. Specifically, we focus on the sign of MNC dummy variable related to firm's future investment decision. The investment variable is defined as capital expenditures which equal to net investment in fixed assets scaled by net assets. We define firms' cash position as the unexplained proportion of cash holdings using the column (1) in Table 2. That is, the residual from regressing cash holdings by net assets on SOE dummy, firm real size, investment opportunities, cash flow, net working capital, capital expenditure on net assets, leverage and dividend dummy as well as industry and year indicators. Besides, we also introduce the change of excess cash position, revenue growth, net working capital, leverage and lagged firm size as Harford et al. (2008).

The result is shown in Table 3. In the full sample regression, we only find that firms with 50% more foreign sales ratio invest more than non-MNC. Naturally, lagged investment level accounts for a significant portion of firm's current investment. SOE dummy is positive but not significant in all the models. Both the lagged and the change in cash residuals are positively related to the investment decision, which means that firms with more excess cash tend to invest next year or firms tend to accumulate the cash to invest in the long-run. We also note that firms with high revenue growth and lagged size tend to increase their current investment level.

We next separate the sample into SOE and non-SOE subsample. For SOEs, MNC50 is marginally significant and negative but we do not see significance for MNC1050 (column 5). It can partially explain why SOE firms with more than 50% foreign sales ratio hold more cash. Contrary to the SOE sample, we also find that in non-SOEs, the coefficient of MNC50 is significantly positive and the magnitude is much larger than that in full sample. More specifically, in column 7, MNC1050 also has a significant and positive coefficient which indicates that MNC10 also invest more than NMNC10. This result indicates that non-SOE MNCs do not hold more cash since they tend to invest more, while SOE MNCs have more cash because they invest less and it exacerbates when SOE MNC's foreign sales ratio is larger than 50%.

4.2. Cash and market-to-book value

Using similar approach, we now examine how multinational dummies are related to firm's future market to book value. Similarly, we include firm's lagged MNC dummies together with lagged market to book value in the models and introducing industry and yearly fixed effects. Additional control variables, such as revenue growth, net working capital and lagged real size, are included.

The result is reported is shown is Table 4. Lagged market to book value explains the majority part of firm's current value. Neither the level of cash residual nor the change in the cash residual is related to the current market to book of the

⁵ The Chinese Security Regulatory Commission (CSRC) uses return of equity (ROE) as criterion for rights offering and seasoned new issues and the latest requirement for a firm to be eligible for the right offerings and seasoned new issues is at least have a three-year average ROE (Liu and Lu, 2007).

Table 3
Cash and investment decision.

	Full sample			SOE		Non-SOE	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MNC1050(Lag)	0.001 (0.001)		0.002 (0.001)		-0.001 (0.002)		0.005** (0.002)
MNC50(Lag)		0.005** (0.002)	0.005** (0.002)	-0.005* (0.003)	-0.005* (0.003)	0.009*** (0.003)	0.010*** (0.003)
SOE	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)				
CAPX(Lag)	0.522*** (0.009)	0.521*** (0.010)	0.521*** (0.010)	0.558*** (0.013)	0.558*** (0.013)	0.500*** (0.014)	0.498*** (0.014)
Real size(Lag)	0.002*** (0.001)	0.002*** (0.001)	0.002*** (0.001)	0.001 (0.001)	0.001 (0.001)	0.003*** (0.001)	0.003*** (0.001)
Cash Res(Lag)	0.015*** (0.005)	0.015*** (0.005)	0.014*** (0.005)	0.003 (0.007)	0.003 (0.007)	0.030*** (0.006)	0.030*** (0.006)
ΔCash Res(Lag)	0.020*** (0.005)	0.020*** (0.005)	0.020*** (0.005)	0.035*** (0.008)	0.035*** (0.008)	0.007 (0.007)	0.007 (0.007)
Revenue growth	0.008*** (0.001)	0.008*** (0.001)	0.008*** (0.001)	0.007*** (0.002)	0.006*** (0.002)	0.009*** (0.002)	0.009*** (0.002)
Net working capital	0.004 (0.002)	0.004 (0.002)	0.004 (0.002)	-0.004 (0.003)	-0.004 (0.003)	0.002 (0.003)	0.002 (0.003)
Leverage	-0.007 (0.004)	-0.007 (0.004)	-0.007 (0.004)	-0.006 (0.005)	-0.005 (0.005)	-0.008 (0.007)	-0.008 (0.007)
Constant	-0.018 (0.011)	-0.018* (0.011)	-0.018* (0.011)	0.004 (0.014)	0.004 (0.014)	-0.035* (0.018)	-0.034* (0.018)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	13,095	13,095	13,095	7605	7605	5490	5490
adj. R-sq	0.373	0.373	0.373	0.387	0.387	0.345	0.346

This table present the firm-level investment decision from 2000 to 2013. The dependent variable in all regression is CAPX, calculated as the capital expenditures divided by net assets. SOE is a dummy variable set to one if the firm is state-owned enterprise. Specially, the cash residual from regression cash determines on firm-specific characteristics represents the firms' excess cash holdings. All the other independent variables are defined in Online Appendix. Industry dummy variables are constructed for each industry defined as three-level CIS code. All specifications include industry and year fixed effect. The standard errors are clustered at firm level. ***, ** and * indicate significance level at the 1%, 5% and 10% level, respectively.

firm. As for multinational dummies, we find that both MNC1050 and MNC50 are negative and significant. For MNC50, the multinational firms have 7.3% lower valuation than their industry peers and for MNC10 it has 2.9% ($= -7.3\% + 4.4\%$) lower valuation. And if we separate sample into SOE and non-SOE subsample, the coefficient of MNC dummies are still negative and but only significant in non-SOE subsample (column 7).

In sum, all the empirical results show that firms' multinational characteristics, as measured by MNC dummies, are significantly positive related with firm's future investment but negative related to firm's future value. It strengthens the statement that those MNCs do not hold more cash since they have more investment and are usually less profitable, especially in non-SOE subsample.

5. Conclusions

This study examines the cash holdings of multinationals in China. We find that Chinese multinational firms do not significantly hold more cash than non-multinationals, except for MNCs with more than 50% foreign sales ratio. Analysis on the SOEs and non-SOEs show that the impact of multinational on cash holdings is not significantly positive in those non-SOEs. Furthermore, non-SOEs with more 50% foreign sales, which imply more investing in capital expenditure. Finally, we examine if the differences are reflected with firm's future value. The relation of multinationals and profitability are negative and this relation is more pronounced in non-SOEs subsample. This unprofitability partly explains the insignificance of the relation between multinationals and cash holdings in China. We conclude that multinational corporations in China do not hold significantly more cash since they tend to invest more and are less profitable, expect for those SOEs with more than 50% foreign sales.

The results suggest that, contrary to U.S., Chinese multinational corporations do not hold significantly more cash than the domestic ones since they have more investment projects and are not such profitable. A further explanation might be that, as in the early stage of global expansion, Chinese multinationals invest plenty of cash to support their international operations and try to diversify their risks in other developed countries. The diversification concern might result in the unprofitability.

Table 4
Cash and valuation.

	Full sample			SOE		Non-SOE	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MNC1050(Lag)	-0.034* (0.020)		-0.044** (0.021)		-0.024 (0.026)		-0.064* (0.036)
MNC50(Lag)		-0.060** (0.030)	-0.073** (0.031)	-0.058 (0.040)	-0.066 (0.041)	-0.063 (0.044)	-0.084* (0.046)
SOE	-0.055*** (0.020)	-0.057*** (0.020)	-0.056*** (0.020)				
MB(Lag)	0.693*** (0.015)	0.693*** (0.015)	0.692*** (0.015)	0.649*** (0.022)	0.649*** (0.022)	0.696*** (0.022)	0.694*** (0.022)
Cash Res(Lag)	0.047 (0.081)	0.053 (0.081)	0.054 (0.081)	0.212** (0.104)	0.211** (0.104)	-0.025 (0.127)	-0.022 (0.128)
ΔCash Res(Lag)	0.131 (0.098)	0.129 (0.098)	0.128 (0.098)	-0.017 (0.124)	-0.017 (0.124)	0.279* (0.143)	0.278* (0.143)
Revenue growth	-0.217*** (0.037)	-0.217*** (0.037)	-0.218*** (0.037)	-0.106*** (0.036)	-0.106*** (0.036)	-0.313*** (0.059)	-0.314*** (0.059)
Net working capital	-0.811*** (0.072)	-0.812*** (0.072)	-0.810*** (0.072)	-0.586*** (0.096)	-0.585*** (0.096)	-1.026*** (0.111)	-1.027*** (0.111)
Leverage	-0.978*** (0.083)	-0.978*** (0.083)	-0.975*** (0.083)	-0.825*** (0.089)	-0.822*** (0.088)	-1.228*** (0.158)	-1.229*** (0.158)
Real size(Lag)	-0.178*** (0.013)	-0.178*** (0.013)	-0.178*** (0.013)	-0.153*** (0.016)	-0.153*** (0.016)	-0.244*** (0.026)	-0.243*** (0.026)
Constant	4.900*** (0.301)	4.908*** (0.301)	4.916*** (0.301)	4.299*** (0.387)	4.304*** (0.386)	6.424*** (0.577)	6.420*** (0.577)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	12,931	12,931	12,931	7536	7536	5395	5395
adj. R-sq	0.685	0.685	0.685	0.652	0.652	0.705	0.705

This table present the firm-level market-to-book from 2000 to 2013. The dependent variable in all regression is *Market/Book*, defined as market value divided by the book value of net assets. SOE is a dummy variable set to one if the firm is state-owned enterprise. Specially, the cash residual from regression cash determines on firm-specific characteristics represents the firms' excess cash holdings. Due to the endogeneity concerns, we include firms' lag market-to-book into the models. All the other independent variables are defined in Online Appendix. Industry dummy variables are constructed for each industry defined as three-level CIS code. All specifications include industry and year fixed effect. The standard errors are clustered at firm level. ***, ** and * indicate significance level at the 1%, 5% and 10% level, respectively.

Supplementary materials

Supplementary data associated with this article can be found, in the online version, at [10.1016/j.frl.2016.09.024](https://doi.org/10.1016/j.frl.2016.09.024).

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