



**ARE SOE REFORMS IN CHINA GOING ANYWHERE?
EVIDENCE FROM CORPORATE BORROWING CONSTRAINTS**

Key points:

- *Credit misallocation between SOEs and private firms has been a key distortion in Mainland China's economy. By exploring the dynamics of the borrowing constraint facing Mainland SOEs, this study analyses whether credit allocation efficiency has improved recently amid ongoing SOE reforms in Mainland China.*
- *Non-financial listed Mainland firm data suggests that while SOEs in general still enjoyed better access to credit compared with private firms in recent years, there are some signs of a hardening in the borrowing constraint of SOEs, especially those with weaker repayment ability.*
- *The tightened borrowing constraints was likely driven by reduced support from local governments, which suggests that Mainland China has made some progress in the reforms aimed at lowering implicit guarantees for inefficient SOEs. However, further reforms are still needed as the soft budget constraint remains largely unchanged for weaker SOEs in protected industries with restricted foreign entry.*

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I. INTRODUCTION

The misallocation of credit between SOEs and private firms has been a key distortion in the Mainland economy. While the private sector in total contributed around 60% of GDP, it only accounted for around 40% of the outstanding bank loans in recent years.¹

This misallocation is mainly due to the fact that Mainland SOEs, compared with private firms, have generally been less productive, but with support from governments, usually enjoy better access to the credit market, especially bank loans. Therefore, hardening the borrowing constraint of inefficient SOEs by removing the implicit guarantee from governments has become a major focus of the structural reforms in Mainland China. These reforms are the key to successfully containing financial risks and promoting sustainable economic growth.

Despite the importance of addressing this credit misallocation, little information is available for policy makers to assess the progress being made. This is likely due to the fact that the borrowing constraint of SOEs, or indeed for any firm, cannot be directly observed. One way to measure the borrowing constraint of firms is to estimate the sensitivity of their investment to the cash flow the firm generates. In general, a firm is deemed to be more financially constrained if it has to rely more on internal cash flows rather than borrowing to invest.

By estimating the investment-cash flow sensitivity of Mainland firms, this study examines the evolution of the borrowing constraints faced by Mainland SOEs and private firms during the recent economic transition. The study also explores whether the changes in the borrowing constraints of SOEs, if any, could be due to reduced support from governments. This may shed some light on the recent progress of the SOE reforms in Mainland China.

¹ Loan figures were reported by the PBoC. Contribution of the private sector to GDP was cited from the State Council Circular on Private Investment, Circular no. 2016–12.

II. EMPIRICAL FRAMEWORK TO MEASURE THE BORROWING CONSTRAINT OF FIRMS

To estimate the borrowing constraint of Mainland firms, we follow the approach by Fazzari, Hubbard and Petersen (1988) to measure the investment sensitivity of firms to the availability of the internally generated cash flows.² The idea is that firms with tighter borrowing constraints usually have to rely more on internally generated cash flows to invest, and therefore tend to have higher investment-cash flow sensitivity. Our baseline regression specification is detailed as follows,

$$Inv_i = \beta_0 + \beta_1 CF_i + \beta_2 SOE_i + \beta_3 SOE_i * CF_i + \beta_4 X_i + u_i, \quad (1)$$

where Inv_i is newly increased investment, proxied by the change in tangible assets for firm i , and CF_i is firm i 's internally generated cash flow, measured by EBITDA. Both Inv_i and CF_i are normalised by the book value for firms' tangible assets. To compare the borrowing constraints facing SOEs and private firms, a dummy variable SOE_i and its interaction term with cash flow are added into the specification. $SOE_i = 1$ if the firm is a state-owned enterprise and $SOE_i = 0$ otherwise. X_i is the set of controlling variables in the specification, which captures other factors that could affect the investment of a firm such as industry, leverage, size of sales, revenue growth, age of the firm and repayment ability.³

The coefficients of key interest are β_1 and β_3 , which capture firms' investment-cash flow sensitivity. In particular, β_1 measures the investment-cash flow sensitivity of private firms, while the sum of β_1 and β_3 captures the sensitivity of SOEs. A higher value of coefficient therefore suggests greater sensitivity, and thus a tighter borrowing constraint facing firms.

Our dataset consists of around 2,400 non-financial listed firms in Mainland China, covering the period between 2010 and 2016. The investment-cash flow sensitivity of both SOEs and private firms are estimated in a rolling two-year period, which allows us to study the dynamics of the borrowing constraints of Mainland firms over time.⁴

² Similar methodology for estimating borrowing constraints has been adopted in the literature to analyse Mainland firms. For example, Xu, Xu and Yuan (2013) used this to study the role of political connections in the investment behaviour of family firms, while Hericourt and Poncet (2009) investigated whether foreign direct investment helps alleviate domestic firms' credit constraints.

³ The repayment ability of a firm is proxied by the interest coverage ratio.

⁴ In order to get smooth and less volatile estimates for each year, we use the two-year average for each variable for estimation. For example, 2010/11 denoted estimation for the two-year period covering 2010 and 2011.

III. CORPORATE BORROWING CONSTRAINTS IN MAINLAND CHINA: EMPIRICAL EVIDENCE

Our estimation results of Equation (1) are presented in Table 1. To better examine the evolution of the borrowing constraints facing Mainland private firms and SOEs, estimated investment-cash flow sensitivity of these firms is plotted in Chart 1. This chart shows that SOEs tended to have notably lower investment-cash flow sensitivity compared with private firms for most of the time during the period 2010 – 2016, even after controlling for the differences in firm characteristics such as credit risk. Our finding seems to confirm the common belief that SOEs in general have better access to the credit markets than private firms in Mainland China.

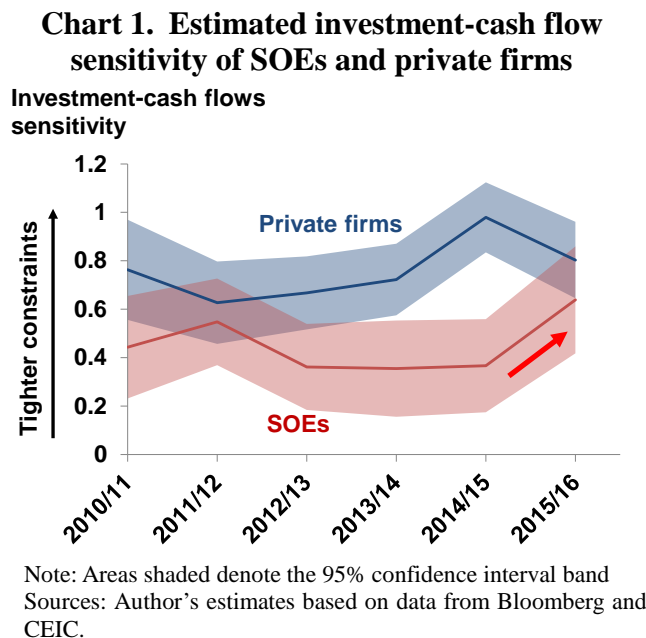


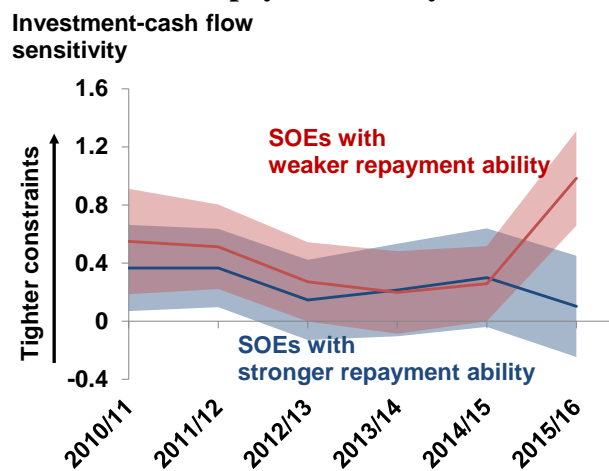
Chart 1 also points to some signs of hardening in the borrowing constraint of SOEs in 2015/16, as the investment-cash flow sensitivity of SOEs picked up and became closer to the level of the sensitivity of private firms. One natural question is whether such hardening in borrowing constraints was mainly concentrated in less efficient SOEs with weaker repayment ability? To answer this question, we took a closer look at whether the repayment ability of SOEs was a concern for the borrowing constraints facing them. A dummy variable $WEAK_i$ and its interaction terms are therefore introduced into Equation (1) as follows:

$$Inv_i = \beta_0 + \beta_1 CF_i + \beta_2 SOE_i + \beta_3 SOE_i * CF_i + \beta_4 WEAK_i + \beta_5 WEAK_i * CF_i + \beta_6 SOE_i * WEAK_i + \beta_7 SOE_i * WEAK_i * CF_i + \beta_8 X_i + u_i, \quad (2)$$

where $WEAK_i$ is equal to 1 if a firm's interest coverage ratio is below the sample median and equal to 0 otherwise. Therefore, similar to the baseline analysis, the investment-cash flow sensitivity of SOEs with different repayment ability will be captured by the coefficients $\beta_1 + \beta_3$ (SOEs with stronger repayment ability) and $\beta_1 + \beta_3 + \beta_5 + \beta_7$ (SOEs with weaker repayment ability).

Table 2 presents the estimation results of Equation (2) and points to a significant hardening in the borrowing constraint of SOEs with weaker repayment ability. Specifically, the investment-cash flow sensitivity of SOEs with an interest coverage ratio below the sample median seemed to have increased notably in 2015/16 compared to those with a higher interest coverage ratio, as Chart 2 shows.⁵

Chart 2. Estimated investment-cash flow sensitivity of SOEs with stronger and weaker repayment ability



Note: Areas shaded denote the 95% confidence interval band
Sources: Author's estimates based on data from Bloomberg and CEIC.

⁵ As a robustness check, we examined other ways of identifying the weak borrowers, such as using an absolute cut-off point of interest coverage ratio or singling out the group of borrowers whose interest coverage ratios were consistently below the sample median during the entire sample period. We find that such alternations do not affect our conclusion.

There are two competing explanations behind the hardening in the borrowing constraint of SOEs with weaker repayment ability. The first explanation is that Mainland banks have become increasingly sensitive to credit risk when lending to SOEs because of the structural reforms which have successfully reduced government support in the form of implicit guarantees. Alternatively, the hardening in the borrowing constraint of SOEs with weaker repayment ability could simply reflect that these enterprises were located in provinces with worse fiscal positions and thus received less support from their local governments in recent years. Therefore, the hardening of the SOEs' borrowing constraints may not necessarily be related to the structural reforms.

A further examination of the location of Mainland firms provides little evidence that weaker SOEs were more concentrated in provinces with worse fiscal positions in 2015/16. In fact, the distribution of weaker SOEs across different provinces remained largely stable in recent years, with around half found to be located in the coastal area where for years local governments have enjoyed better economic performance, a lower debt burden and smaller fiscal deficits (Table 3).

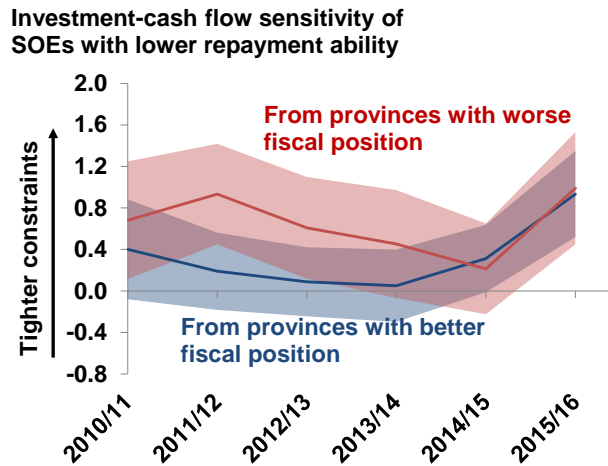
To explore whether reduced government support explains the hardening in borrowing constraints of SOEs with weaker repayment ability, we take a further look at *weaker SOEs* only and examine the dynamics of the borrowing constraint facing these SOEs in provinces with different fiscal positions. In particular, Equation (2) is re-estimated by two sub-samples: SOEs located in provinces with better fiscal positions and those in provinces with worse fiscal positions⁶.

Table 4A and 4B present the estimation results for two sub-samples respectively.⁷ These results suggest that in the early sample period, fiscal positions of local governments seemed to be an important factor in determining the extent to which they could support weaker SOEs to get credit. Therefore, weaker SOEs in provinces with better fiscal positions appeared to have enjoyed a relatively lower borrowing constraint than those located in provinces with worse fiscal positions (Chart 3).

⁶ In this study, the fiscal position of a province is defined by the indebtedness of the province, proxied by the debt-to-GDP ratio of the provincial government. In particular, Beijing, Shanghai and provinces with debt-to-GDP ratios less than 30% are classified as provinces with better fiscal positions, while the remaining 17 provinces are classified as provinces with worse fiscal positions.

⁷ To check the robustness, we re-estimate equation (2) by adding a dummy variable capturing fiscal positions of provinces and its interaction terms to the specification. Our results remain robust.

Chart 3. Estimated investment-cash flow sensitivity of weaker SOEs in provinces with different fiscal positions



Note: Areas shaded denote the 95% confidence interval band
Sources: Author's estimates based on data from Bloomberg and CEIC.

The gap between the borrowing constraints facing weaker SOEs in provinces with different fiscal positions, however, has disappeared in recent years, accompanied by a significant increase in their investment-cash flow sensitivity. This seems to indicate that Mainland China has made some progress with SOE reforms. Indeed, provincial governments with better fiscal positions appear to have chosen in recent times to lower the implicit guarantee for less efficient SOEs even if these governments were in a better financial position to do so.

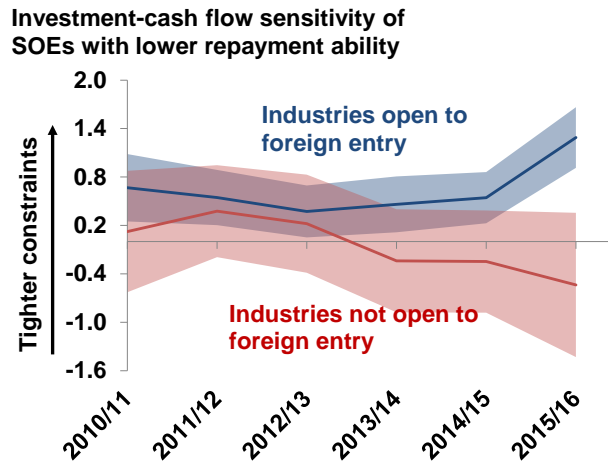
Despite reduced support by governments for weaker SOEs at the provincial level, government support seemed to remain strong for industries with restricted foreign entry. This can be shown by re-estimating Equation (2) by two sub-samples, SOEs from industries open to foreign entry and those from industries with restricted foreign entry.⁸ The corresponding estimation results are presented in Table 5A and 5B respectively.⁹ These results show that weaker SOEs generally appear to have faced tighter borrowing constraints in industries open to foreign entry than in restricted industries (Chart 4). In addition, such difference is found to have significantly widened in 2015/16, mainly due to a further hardening in the

⁸ Industry with restricted foreign entry is defined by the “Catalogue of Industries for Guiding Foreign Investment” released by the National Development and Reform Commission and the Ministry of Commerce in March 2015, including rare materials, public transportation, telecommunication, and media.

⁹ To check the robustness, we re-estimate equation (2) by adding a dummy variable capturing the openness of industries and its interaction terms to the specification. Our results remain robust.

borrowing constraint of weaker SOEs in industries open to foreign entry. In comparison, the borrowing constraint of weaker SOEs in restricted industries appears to have remained largely unchanged.

Chart 4. Estimated investment-cash flow sensitivity of weaker SOEs in industries open/not open to foreign entry



Note: Areas shaded denote the 95% confidence interval band

Sources: Author's estimates based on data from Bloomberg and CEIC.

Little improvement in soft budget constraints facing weaker SOEs in industries with restricted foreign entry may suggest that government support remained strong for these protected industries. Thus, weaker SOEs in these industries could continue to enjoy more favourable borrowing conditions. In view of this, further SOE reforms are still needed to improve credit allocation efficiency in Mainland China.

IV. CONCLUDING REMARKS

This study analyses whether credit allocation efficiency has improved recently amid the ongoing SOE reforms in Mainland China by exploring the dynamics of the borrowing constraint facing Mainland SOEs. Non-financial listed Mainland firm data suggests that while SOEs in general still enjoyed better access to credit compared with private firms in recent years, there are some signs of a hardening in the borrowing constraint of SOEs, especially those with weaker repayment ability.

The tightened borrowing constraints was found likely to be driven by reduced support from local governments, which suggests that Mainland China has made some progress in the reforms aimed at lowering implicit guarantees for inefficient SOEs. However, further reforms are still needed as the soft budget constraint has remained largely unchanged for weaker SOEs in protected industries with restricted foreign entry.

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Table 1. Investment-cash flow sensitivity of SOEs and private firms: Equation (1)

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Cash flow	0.763*** (0.105)	0.627*** (0.087)	0.667*** (0.077)	0.723*** (0.075)	0.979*** (0.074)	0.803*** (0.081)
Firm age	-0.088*** (0.011)	-0.046*** (0.010)	-0.027*** (0.009)	-0.019* (0.010)	-0.042*** (0.011)	-0.043*** (0.012)
Leverage	-0.048** (0.021)	0.056*** (0.017)	0.054*** (0.015)	0.054*** (0.016)	0.051*** (0.016)	0.047*** (0.017)
Sales	-0.029*** (0.010)	-0.036*** (0.008)	-0.040*** (0.008)	-0.026*** (0.008)	-0.046*** (0.008)	-0.044*** (0.010)
Sales growth	0.166*** (0.013)	0.097*** (0.011)	0.124*** (0.011)	0.107*** (0.011)	0.128*** (0.010)	0.110*** (0.010)
Interest coverage ratio	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000** (0.000)	0.000*** (0.000)	0.000* (0.000)
SOE	-0.019 (0.013)	-0.025** (0.011)	0.008 (0.009)	0.011 (0.010)	0.005 (0.009)	-0.033*** (0.010)
SOE x Cash flow	-0.320** (0.144)	-0.079 (0.120)	-0.306*** (0.113)	-0.368*** (0.121)	-0.612*** (0.118)	-0.164 (0.133)
Observations	1,541	1,723	1,891	2,010	2,127	2,429
Adjusted R-squared	0.2428	0.1341	0.1477	0.1276	0.2455	0.1929
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively. Figures in the parentheses are the standard errors.

Table 2. Investment-cash flow sensitivity of firms with stronger and weaker repayment ability: Equation (2)

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Cash flow	0.291** (0.141)	0.326*** (0.114)	0.469*** (0.105)	0.521*** (0.106)	0.684*** (0.106)	0.473*** (0.112)
Firm age	-0.084*** (0.011)	-0.043*** (0.010)	-0.026*** (0.009)	-0.017* (0.010)	-0.039*** (0.011)	-0.040*** (0.012)
Leverage	0.013 (0.022)	0.111*** (0.018)	0.095*** (0.017)	0.087*** (0.017)	0.085*** (0.017)	0.079*** (0.018)
Sales	-0.030*** (0.009)	-0.038*** (0.008)	-0.042*** (0.008)	-0.030*** (0.008)	-0.049*** (0.008)	-0.048*** (0.010)
Sales growth	0.157*** (0.013)	0.093*** (0.011)	0.121*** (0.011)	0.103*** (0.011)	0.126*** (0.010)	0.108*** (0.010)
SOE	-0.082*** (0.023)	-0.044** (0.019)	0.021 (0.018)	0.016 (0.019)	-0.012 (0.019)	-0.027 (0.019)
SOE x Cash flow	0.075 (0.203)	0.041 (0.176)	-0.322* (0.173)	-0.306 (0.191)	-0.384* (0.201)	-0.371* (0.207)
WEAK	-0.111*** (0.197)	-0.074*** (0.015)	-0.038*** (0.013)	-0.040*** (0.014)	-0.052*** (0.013)	-0.060*** (0.014)
WEAK x Cash flow	0.617*** (0.225)	0.423** (0.182)	0.374** (0.161)	0.424** (0.164)	0.542*** (0.164)	0.480*** (0.180)
WEAK x SOE	0.087*** (0.028)	0.029 (0.023)	-0.010 (0.021)	0.001 (0.022)	0.027 (0.022)	-0.010 (0.023)
WEAK x SOE x Cash flow	-0.435 (0.323)	-0.277 (0.268)	-0.250 (0.251)	-0.441** (0.268)	-0.584** (0.268)	0.402 (0.299)
Observations	1,541	1,723	1,891	2,010	2,127	2,429
Adjusted R-squared	0.2603	0.1498	0.1518	0.1337	0.2481	0.2020
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively. Figures in the parentheses are the standard errors.

Table 3. Weaker SOEs distribution and regional fiscal strength: Coastal vs inland area

	2013/14	2014/15	2015/16
<u>Coastal provinces and cities</u>			
<i>Share of weaker SOEs in coastal area (%)</i>	54.9	54.8	56.9
<i>Per capita GDP (RMB '000)</i>	70.5	74.8	79.6
<i>Debt-to-GDP ratio* (%)</i>	29.2	/	/
<i>Fiscal deficit to GDP (%)</i>	-5.4	-6.0	-7.0
<u>Inland provinces and cities</u>			
<i>Share of weaker SOEs in inland area (%)</i>	45.1	45.2	43.1
<i>Per capita GDP (RMB '000)</i>	39.0	41.2	43.4
<i>Debt-to-GDP ratio* (%)</i>	70.4	/	/
<i>Fiscal deficit to GDP (%)</i>	-21.9	-23.0	-24.3

Sources: CEIC and authors' estimates.

* Calculation based on the survey on local government debts by National Audit Office in 2013.

Table 4A. Investment-cash flow sensitivity of firms with stronger and weaker repayment ability based on Equation (2): Sub-sample of SOEs located in provinces with better fiscal position

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Cash flow	0.267* (0.154)	0.315** (0.124)	0.390*** (0.110)	0.505*** (0.113)	0.659*** (0.118)	0.379*** (0.122)
Firm age	-0.090*** (0.013)	-0.050*** (0.011)	-0.035*** (0.010)	-0.022* (0.011)	-0.039*** (0.012)	-0.049*** (0.013)
Leverage	-0.018 (0.026)	0.109*** (0.022)	0.137*** (0.019)	0.123*** (0.020)	0.101*** (0.020)	0.091*** (0.021)
Sales	-0.021* (0.011)	-0.037*** (0.009)	-0.045*** (0.009)	-0.035*** (0.009)	-0.044*** (0.009)	-0.048*** (0.011)
Sales growth	0.165*** (0.016)	0.100*** (0.014)	0.135*** (0.013)	0.101*** (0.013)	0.123*** (0.012)	0.119*** (0.012)
SOE	-0.071*** (0.026)	-0.037* (0.022)	0.012 (0.020)	0.005 (0.022)	-0.019 (0.023)	-0.027 (0.022)
SOE x Cash flow	-0.021 (0.235)	-0.020 (0.198)	-0.200 (0.191)	-0.198 (0.220)	-0.392* (0.234)	-0.438* (0.231)
WEAK	-0.087*** (0.023)	-0.072*** (0.017)	-0.058*** (0.014)	-0.061*** (0.015)	-0.072*** (0.015)	-0.060*** (0.016)
WEAK x Cash flow	0.357 (0.264)	0.333 (0.205)	0.408** (0.177)	0.512*** (0.180)	0.655*** (0.188)	0.432** (0.204)
WEAK x SOE	0.070** (0.034)	0.038 (0.027)	0.006 (0.024)	0.036 (0.026)	0.046* (0.026)	-0.013 (0.026)
WEAK x SOE x Cash flow	-0.202 (0.398)	-0.438 (0.318)	-0.510* (0.289)	-0.769** (0.312)	-0.611* (0.320)	0.561 (0.351)
Observations	1,113	1,263	1,402	1,494	1,587	1,849
Adjusted R-squared	0.2612	0.1556	0.1929	0.1584	0.2596	0.1976
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively. Figures in the parentheses are the standard errors.

Table 4B. Investment-cash flow sensitivity of firms with stronger and weaker repayment ability based on Equation (2): Sub-sample of SOEs located in provinces with worse fiscal position

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Cash flow	0.228 (0.357)	0.322 (0.294)	0.942*** (0.286)	0.631** (0.266)	0.821*** (0.244)	0.795*** (0.279)
Firm age	-0.072*** (0.025)	-0.025 (0.022)	0.010 (0.022)	-0.002 (0.023)	-0.045** (0.022)	-0.009 (0.025)
Leverage	0.097** (0.044)	0.103*** (0.035)	-0.029 (0.034)	-0.007 (0.035)	0.037 (0.033)	0.058 (0.036)
Sales	-0.057*** (0.019)	-0.040** (0.016)	-0.040** (0.016)	-0.019 (0.018)	-0.064*** (0.017)	-0.057*** (0.021)
Sales growth	0.148*** (0.026)	0.078*** (0.021)	0.078*** (0.022)	0.103*** (0.023)	0.135*** (0.020)	0.087*** (0.020)
SOE	-0.108** (0.047)	-0.062 (0.041)	0.063 (0.041)	0.052 (0.042)	0.017 (0.038)	-0.010 (0.043)
SOE x Cash flow	0.358 (0.441)	0.225 (0.394)	-0.781* (0.398)	-0.669* (0.401)	-0.499 (0.395)	-0.323 (0.465)
WEAK	-0.165*** (0.042)	-0.077** (0.033)	0.047 (0.032)	0.021 (0.032)	0.011 (0.029)	-0.053 (0.033)
WEAK x Cash flow	1.247** (0.484)	0.788* (0.407)	0.151 (0.378)	0.331 (0.391)	0.409 (0.346)	0.406 (0.405)
WEAK x SOE	0.136** (0.054)	0.032 (0.047)	-0.065 (0.045)	-0.079* (0.046)	-0.030 (0.042)	-0.005 (0.048)
WEAK x SOE x Cash flow	-1.152* (0.616)	-0.402 (0.541)	0.296 (0.527)	0.158 (0.554)	-0.519 (0.510)	0.112 (0.615)
Observations	428	460	489	516	540	580
Adjusted R-squared	0.2342	0.1319	0.0903	0.0979	0.2210	0.1885
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively. Figures in the parentheses are the standard errors.

Table 5A. Investment-cash flow sensitivity of firms with stronger and weaker repayment ability based on Equation (2): Sub-sample of SOEs in industries with restricted foreign entry

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Cash flow	0.340 (0.600)	-0.453 (0.589)	0.428 (0.643)	0.606 (0.504)	0.702 (0.482)	0.337 (0.520)
Firm age	-0.041 (0.030)	0.014 (0.026)	0.015 (0.032)	0.021 (0.034)	0.002 (0.034)	-0.083** (0.037)
Leverage	-0.025 (0.061)	0.025 (0.049)	0.020 (0.054)	0.005 (0.056)	-0.018 (0.058)	0.066 (0.065)
Sales	-0.037 (0.031)	-0.056** (0.026)	-0.058* (0.031)	-0.016 (0.034)	0.018 (0.034)	-0.077* (0.045)
Sales growth	0.151*** (0.034)	0.125*** (0.030)	0.150*** (0.038)	0.074** (0.030)	0.114*** (0.035)	0.071** (0.034)
SOE	-0.098 (0.072)	-0.166*** (0.062)	0.037 (0.078)	0.052 (0.074)	-0.021 (0.072)	-0.061 (0.073)
SOE x Cash flow	0.356 (0.665)	1.161* (0.660)	-0.156 (0.735)	-0.597 (0.662)	-0.787 (0.695)	-0.707 (0.697)
WEAK	-0.070 (0.080)	-0.119* (0.064)	-0.018 (0.079)	-0.015 (0.071)	-0.025 (0.071)	-0.128 (0.080)
WEAK x Cash flow	-0.190 (0.881)	0.101 (0.841)	0.279 (0.812)	0.230 (0.779)	-0.092 (0.870)	1.314 (1.002)
WEAK x SOE	0.130 (0.088)	0.161** (0.075)	-0.011 (0.088)	-0.007 (0.088)	0.010 (0.087)	0.121 (0.093)
WEAK x SOE x Cash flow	-0.412 (0.977)	-0.433 (0.914)	-0.330 (0.926)	-0.478 (0.915)	-0.070 (1.035)	-1.481 (1.175)
Observations	197	206	212	234	244	254
Adjusted R-squared	0.1621	0.1542	0.0842	0.0159	0.1344	0.1563
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively. Figures in the parentheses are the standard errors.

Table 5B. Investment-cash flow sensitivity of firms with stronger and weaker repayment ability based on Equation (2): Sub-sample of SOEs in industries open to foreign entry

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Cash flow	0.297** (0.147)	0.341*** (0.117)	0.481*** (0.105)	0.540*** (0.108)	0.694*** (0.108)	0.472*** (0.114)
Firm age	-0.089*** (0.012)	-0.050*** (0.011)	-0.030*** (0.010)	-0.020* (0.011)	-0.045*** (0.011)	-0.033*** (0.012)
Leverage	0.016 (0.024)	0.121*** (0.020)	0.106*** (0.018)	0.102*** (0.018)	0.101*** (0.018)	0.079*** (0.019)
Sales	-0.032*** (0.010)	-0.038*** (0.009)	-0.042*** (0.008)	-0.037*** (0.009)	-0.061*** (0.008)	-0.048*** (0.010)
Sales growth	0.160*** (0.015)	0.091*** (0.012)	0.116*** (0.012)	0.108*** (0.012)	0.124*** (0.011)	0.112*** (0.011)
SOE	-0.064** (0.025)	-0.028 (0.021)	0.016 (0.019)	0.010 (0.020)	-0.016 (0.020)	-0.029 (0.020)
SOE x Cash flow	-0.117 (0.231)	-0.083 (0.196)	-0.293 (0.188)	-0.197 (0.206)	-0.274 (0.212)	-0.256 (0.220)
WEAK	-0.112*** (0.020)	-0.074*** (0.016)	-0.040*** (0.013)	-0.040*** (0.014)	-0.054*** (0.013)	-0.057*** (0.014)
WEAK x Cash flow	0.680*** (0.234)	0.460** (0.187)	0.385** (0.164)	0.404** (0.166)	0.556*** (0.164)	0.435** (0.181)
WEAK x SOE	0.062** (0.031)	0.011 (0.025)	-0.010 (0.022)	-0.004 (0.024)	0.026 (0.023)	-0.018 (0.023)
WEAK x SOE x Cash flow	-0.194 (0.360)	-0.173 (0.299)	-0.200 (0.278)	-0.286 (0.299)	-0.432 (0.293)	0.638** (0.323)
Observations	1,344	1,517	1,679	1,776	1,883	2,175
Adjusted R-squared	0.2655	0.1493	0.1605	0.1548	0.2736	0.2174
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% level respectively. Figures in the parentheses are the standard errors.