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The Chinese Corporate Savings Puzzle

A Firm-Level Cross-Country Perspective

Tamim Bayoumi, Hui Tong, and Shang-Jin Wei

6.1 Introduction

China's national savings rate, at 50 percent of GDP in 2007, is among the world's highest for any economy of a significant size. This has been said to be an underlying cause of the US housing price bubble during 2002 to 2007 (Bernanke 2005; Greenspan 2009), and by extension, of the current global financial crisis. This illustrates the attention that has been paid to global implications of China's savings issue. It is therefore useful to understand China's high savings rate.

Several authors have noted that a significant part of China's high national savings rate come from its large corporate savings, which by 2007 accounted for roughly half of the national savings. According to Kuijs (2006), what makes China stand out is the high savings by its enterprises. Furthermore, low dividend payments by state-owned enterprises (SOEs), due to a large-scale agency problem, are the primary cause of the large corporate savings. Martin Wolf, an influential *Financial Times* commentator, asserts (*Financial*

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Times, October 3, 2006): “But we must then also ask why China is running such large surpluses. . . . The frugality of Chinese households is not the chief explanation for China’s surplus savings. . . . The principal explanation is China’s huge corporate savings.”

As far as we can see, the first claim—that the large corporate savings rate in China is what drives its high national savings relative to other countries—is based on the flow-of-funds data released by China’s National Bureau of Statistics (NBS), which cannot be checked independently by a third party. When it issued revisions to the flow of funds data, the magnitude of the revisions could be large. For example, the recent revision in 2009 changed the Chinese corporate savings in 2003 from 13 percent to 18 percent of GDP, or a revision on the order of US\$ 700 billion. The second claim—that a combination of windfall profits received by state-owned enterprises and their low dividend payout due to misgovernance—is based mostly on a hunch, as we have not seen any study that formally compares the profits and dividend practices across Chinese firms by ownership and sector.

In this chapter, we examine these claims by adopting a firm-level cross-country perspective: We compare the savings patterns between 1,557 Chinese publicly listed firms with 29,330 listed firms in fifty-one other countries during 2002 to 2007, and compare state-owned enterprises with majority privately-owned firms within China. Unlike the NBS flow-of-funds data, the financial statements of listed firms are at least subject to independent auditing. The listed firms, collectively, are also an important part of the economy. According to the China Security Regulatory Commission (CSRC, October 4, 2009), the profits of the listed firms’ revenues accounted for 37.7 percent of the GDP in 2008, and their profits accounted for 36.3 percent of all enterprise profits. As far as we know, this chapter is the first paper that adopts the firm-level comparative perspective.

Our results cast doubt on the reliability of both claims. First, we find that Chinese listed firms do not seem to have higher gross savings (as a share of total assets) than listed firms in other countries during our sample period. Moreover, the gross savings rate for a typical listed Chinese firm declined from 2002 to 2007, albeit insignificantly, even though China’s current account surplus rose significantly over the same period. This is inconsistent with the view that a rise in the corporate savings rate drives China’s rising current account surplus. Second, from a comparison of state-owned versus nonstate Chinese firms, we do not find significant differences between these two groups in terms of their savings and dividend patterns. If anything, privately-owned firms appear to have a higher savings rate on average.

The finding that the Chinese corporate savings rates are not much higher than those in other countries is not surprising from the viewpoint of the empirical corporate finance literature in recent years. For example, J. P. Morgan (2005) and the International Monetary Fund (IMF 2005) have noted that corporations in G7 economies have all exhibited a rise in undistributed profits. Bates, Kahle, Stulz (2009) note that a typical firm in the United

States had so much cash holdings by 2005 that it could pay off its entire corporate debt and still have some cash left over. The corporate finance literature does not presume that high corporate savings per se reflect inefficiency or corporate misgovernance. Indeed, Bates et al. hypothesize that it could be a rational (optimal) response to rising working capital needs faced by corporations. Moreover, Fama and French (2001) document a pattern of disappearing dividends in the United States from 1978 to 1999. The fraction of firms paying cash dividends falls from 66.5 percent in 1978 to 20.8 percent in 1999. Part of the reason is a rising population of small firms with strong growth opportunities. Hoberg and Prabhala (2007) argue that a rising risk and therefore an increased need for risk control are the main explanation. Interestingly, the studies that focus on Chinese corporate savings rates appear unaware of this literature and of the fact that the high corporate savings rates in China are part of the global phenomenon.

The firm-level comparative approach in this chapter has its limitations. In particular, it does not account for unlisted firms. It is theoretically possible that both existing claims are correct through the actions by nonlisted firms. We note, however, that most nonlisted firms are private firms. If the savings by nonlisted Chinese firms are much higher than nonlisted firms in other countries, it is unlikely to be driven primarily by the misgovernance issues associated with state-owned firms. A more likely candidate would be financial constraints faced by privately-owned firms. In any case, our results should be interpreted with the caveat that nonlisted firms are not part of the analysis.¹

Our findings have important implications for policy discussions. First, the existing claims advocate that state-owned firms need to pay more dividends. But if they save for whatever reasons that have led non-state-owned Chinese firms and firms in other countries to save, then forcing them to do less could lower economic efficiency. Second, the existing claims have led to the view that Chinese corporate savings are the primary driver for its large current account surplus, and a reduction in corporate savings would be key to reducing the current account surplus. However, if the Chinese corporate savings rates are actually not much higher than in other countries, then one needs to turn to households and government savings in understanding cross-country differences in national savings. As an analogy, even though the skin is the biggest part of an elephant's body, to understand why an elephant does not run as fast as a leopard, we would not want to focus on an elephant's skin. Similarly, even though Chinese corporate savings is the biggest part of its national savings, it need not be the driver for why the Chinese national savings rate is so much higher than other countries.

1. Also, our results examine the level of savings but not the quality of its allocation. Future research can further examine whether Chinese enterprises use their savings more or less efficiently than firms in other countries, along the line suggested in Wurgler (2000) and Durnev, Morck, and Yeung (2004).

The rest of the chapter is organized in the following way. In section 6.2, we analyze savings patterns with macro-level data based on flow of funds or national income accounts. In section 6.3, we turn to firm-level data when we have a much better way to control for various determinants of corporate savings, and can separate gross versus net corporate savings. In section 6.4, we conclude.

6.2 The Patterns from the Flow-of-Funds Data

We start by presenting patterns of corporate savings rates from the flow-of-funds data for China from the CEIC data set from 1992 to 2007 (the latest available data), the same data set used in Kuijs (2006) and virtually all other papers on the topic in the literature. Figure 6.1 presents China's national savings rate (total savings/GDP) during this period, and decomposes it into gross corporate savings, gross household savings, and gross government savings. Corporate savings as a share of GDP rose over time from 11.7 percent in 1992 onwards, peaked at 23.5 percent in 2004, and declined gradually thereafter to 18.8 percent in 2007. The household savings as a share

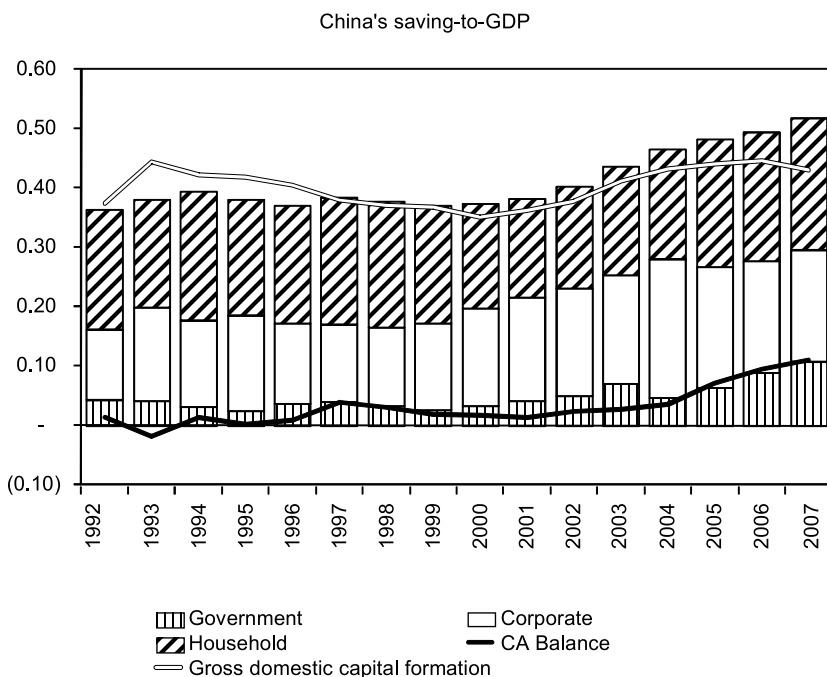


Fig. 6.1 Decomposing China's savings/GDP ratio using the flow-of-funds data

Note: The graph is based on the flow-of-funds data released by China National Bureau of Statistics in 2009.

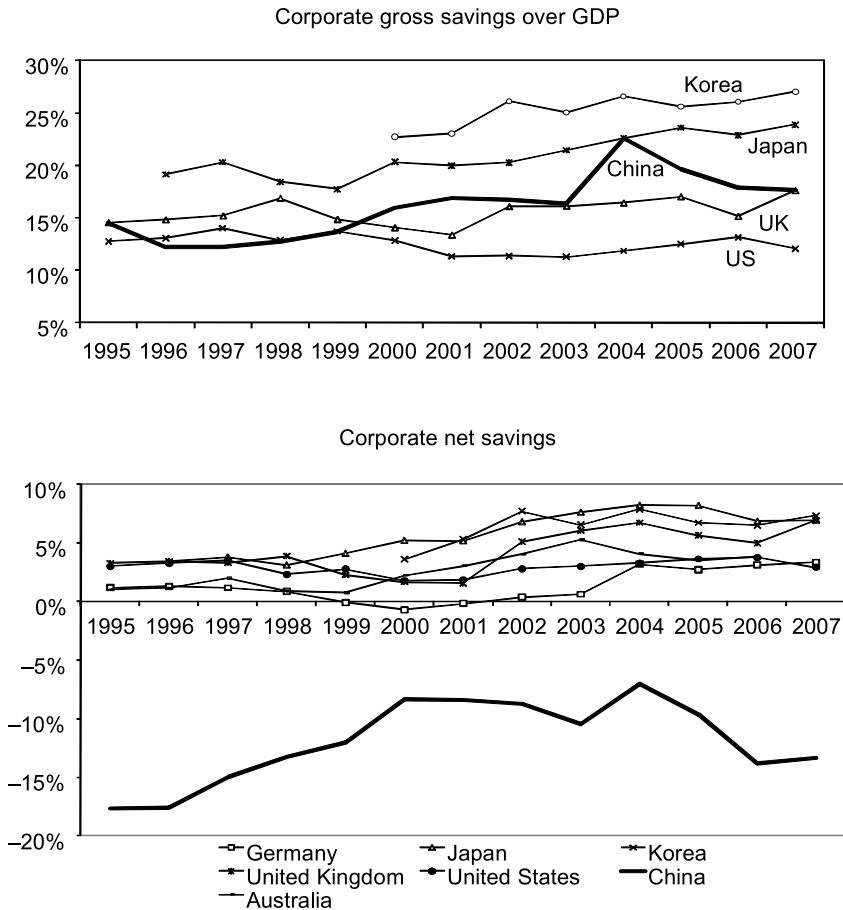


Fig. 6.2 Corporate savings/GDP: China versus selected other countries

of GDP experienced more ups and downs. It became less important than corporate savings in 2003 and 2004, but exceeded corporate savings again after 2005.

In spite of limitations about the flow-of-funds data, it may be useful to perform some simple cross-country comparisons based on the macro data. The top panel of figure 6.2 compares the aggregate corporate gross savings (as a share of assets) from 1995 to 2007 for China, Japan, Korea, Germany, Australia, United Kingdom, and the United States. The Chinese data show a faster increase in the savings rate up to 2004, which then started to decline in the next three years. Note that the corporate savings rates in Japan and Korea are higher than China's in every year during the sample period. In fact, in most years, the Chinese aggregate gross corporate savings rate tends

to be lower than the Japanese corporate savings rate by about 5 percent of GDP, and lower than the Korean corporate savings rate by about 10 percent of GDP.

The lower panel of figure 6.2 plots the net savings rates (gross savings/asset – investment/asset) for the same set of countries. The most striking feature is that China is the only economy in the group that has a significantly negative net savings rate in every single year. This reflects not only the high investment rates in China, but also the greater desire to hoard cash by firms in other economies (rather than to invest or to issue dividends). Overall, what stands out the most is not how much more Chinese firms save than their counterparts in other economies, but how much less they save, conditional on the investment need. (One may argue about whether Chinese investment is more or less efficient than investments elsewhere, but one cannot conclude that the corporate sector in China, on net, has contributed more to its current account than their counterparts in other countries.)

Besides corporate savings, the other two components of national savings are household savings and government savings. Figure 6.3 plots the time series of these two components for China and the other countries. For household savings as a share of GDP, it is clear that China is in a league of its own. It is often higher than the average of the rest of the group by 10 percent of GDP, and higher than the next highest country by 5 percent of GDP. For government savings, China is one of the three highest countries in recent years. For most years, however, Korea has been the clear leader in the government savings rate.

To summarize, even if one takes the flow-of-funds data at face value, it is not clear that China's corporate sector is the biggest contributor to the country's current account surplus, once one adopts a cross-country perspective, especially when one looks at the net corporate savings rate. Both household and government savings must have played a quantitatively important role in driving the current account balance.

6.3 A Close Look at Firm-Level Data

6.3.1 Data and Summary Statistics

We employ data on 1,557 publicly listed firms in China and compare them with 29,330 firms in fifty-one other countries from 2002 to 2007. The data source is the *Worldscope*. Table 6.1 presents the number of firms for each country in our sample, together with national savings/GDP, investment/GDP, current account/GDP, and government fiscal balance/GDP, averaged over 2005 to 2007.

A major advantage of examining firm-level data is that we can better control for determinants of corporate savings. An important drawback is that we exclude savings by nonlisted firms. However, if the principal reason

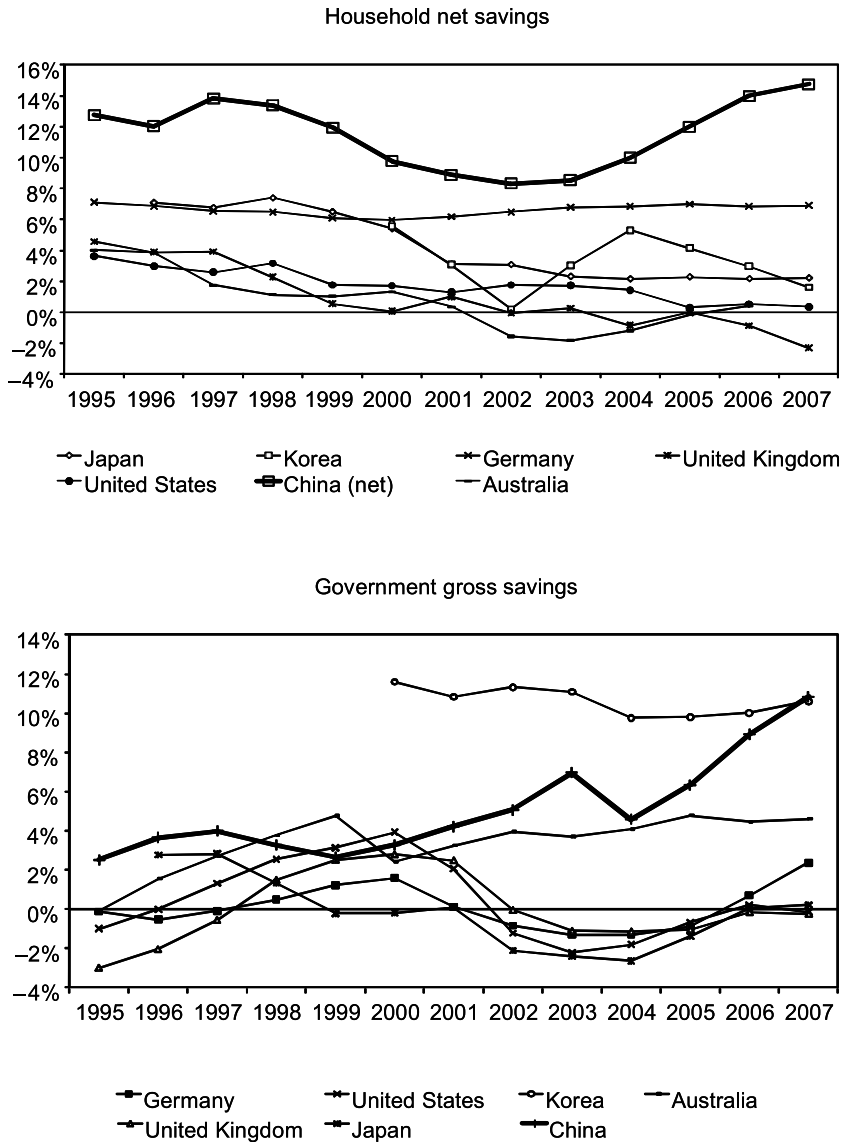


Fig. 6.3 Household and government savings: China and other selected countries

for high corporate savings in China is hypothesized to be the high savings rates of its majority state-owned firms, we have an opportunity to observe this even with publicly listed firms only, since most big state-owned firms are now listed.

Table 6.2 lists the summary statistics for variables on corporate savings.

Table 6.1 **Country coverage and basic information**

Country	No. of listed firms	Current account/GDP	Savings/GDP	Public savings/GDP	Investment/ GDP
Argentina	62	0.02	0.25	0.05	0.23
Australia	1,697	-0.06	0.22	0.06	0.27
Austria	84	0.03	0.25	0.02	0.23
Belgium	128	0.02	0.24	-0.01	0.22
Brazil	276	0.01	0.18	0.03	0.17
Canada	1,656	0.01	0.24	0.05	0.23
Chile	133	0.03	0.24	0.09	0.21
China	1,557	0.09	0.54	0.05	0.45
Colombia	25	-0.02	0.21	0.05	0.23
Czech Republic	18	-0.02	0.24	0.04	0.26
Denmark	132	0.03	0.24	0.07	0.22
Egypt	42	0.02	0.21	-0.03	0.19
Finland	131	0.04	0.26	0.06	0.21
France	820	-0.01	0.21	0.05	0.21
Germany	764	0.06	0.24	0.01	0.18
Greece	294	-0.11	0.11	-0.02	0.22
Hong Kong	834	0.12	0.33	0.05	0.21
Hungary	32	-0.07	0.17		0.24
India	1,792	-0.01	0.36	0.03	0.37
Indonesia	275	0.02	0.27	0.05	0.25
Ireland	79	-0.04	0.23	0.04	0.27
Israel	159	0.04	0.23	0.01	0.19
Italy	248	-0.02	0.19	0.01	0.21
Japan	3,982	0.04	0.28	0.06	0.24
Korea (South)	1,024	0.01	0.31	0.10	0.30
Luxembourg	26	0.10	0.31	0.28	0.21
Malaysia	940	0.15	0.36	0.15	0.21
Mexico	111	-0.01	0.25	0.03	0.25
Morocco	15	0.01	0.32	0.03	0.30
Netherlands	181	0.08	0.28	0.03	0.20
New Zealand	120	-0.08	0.16	0.02	0.24
Norway	217	0.16	0.39	0.20	0.22
Pakistan	113	-0.03	0.18	0.01	0.21
Peru	60	0.02	0.22	0.05	0.20
Philippines	136	0.04	0.19	0.02	0.15
Poland	226	-0.03	0.19	0.00	0.22
Portugal	60	-0.10	0.13	-0.02	0.22
Russian Federation	84	0.09	0.31	0.12	0.22
Singapore	605	0.24	0.44	0.06	0.20
Slovakia	8	-0.07	0.21	-0.01	0.28
Slovenia	12	-0.03	0.26	0.03	0.29
South Africa	357	-0.06	0.14	0.04	0.21
Spain	129	-0.09	0.22	0.05	0.30
Sri Lanka	18	-0.04	0.24	-0.01	0.28
Sweden	362	0.08	0.26	0.03	0.18
Switzerland	210	0.13	0.34	0.04	0.22
Thailand	436	0.01	0.30	0.07	0.29
Turkey	193	-0.05	0.16	0.07	0.21
United Kingdom	2,081	-0.03	0.15	0.00	0.18
United States	7,899	-0.06	0.15	0.00	0.20
Venezuela	16	0.14	0.39	0.13	0.25
Zimbabwe	28	-0.13			

Table 6.2 Summary statistics on corporate savings and related variables

	Variable	Median	Mean	Std.	No. of obs.
China	Gross savings/Asset	0.04	0.03	0.18	3,893
Majority state-owned firms	Profit/Asset	0.05	0.05	0.18	3,924
	Dividend/Asset	0.01	0.01	0.02	3,909
	Investment/Asset	0.05	0.07	0.07	3,939
	Net savings/Asset	-0.01	-0.03	0.18	3,891
China	Gross savings/Asset	0.04	0.00	0.34	2,509
Non_State_owned	Profit/Asset	0.05	0.01	0.34	2,525
	Dividend/Asset	0.00	0.01	0.02	2,527
	Investment/Asset	0.04	0.06	0.07	2,540
	Net savings/Asset	-0.01	-0.06	0.33	2,507
Asia	Gross savings/Asset	0.06	0.02	0.36	26,245
(except China and Japan)	Profit/Asset	0.07	0.04	0.36	26,960
	Dividend/Asset	0.00	0.02	0.03	26,329
	Investment/Asset	0.03	0.06	0.07	26,542
	Net savings/Asset	0.01	-0.04	0.38	26,206
All countries	Gross savings/Asset	0.05	-0.18	1.06	125,693
(except China)	Profit/Asset	0.06	-0.17	1.05	128,234
	Dividend/Asset	0.00	0.01	0.02	126,807
	Investment/Asset	0.03	0.06	0.08	127,374
	Net savings/Asset	0.00	-0.24	1.07	124,939
All countries	Gross savings/Asset	0.05	-0.17	1.03	132,812
	Profit/Asset	0.06	-0.16	1.03	135,551
	Dividend/Asset	0.00	0.01	0.02	133,963
	Investment/Asset	0.03	0.06	0.07	134,722
	Net savings/Asset	0.00	-0.23	1.04	132,051

Notes: Due to concerns for outliers, we winsorize all variables at the top/bottom 1 percent (in the sample for all countries) before computing the summary statistics for each group. The min/max values for gross savings are -8.37 and 0.35, respectively. The min/max values for profit/asset, dividend/asset, investment/asset, and net savings/asset are -8.26/0.39, 0/0.15, 0/0.44, and -8.48/0.30, respectively.

We define firm gross savings as profits minus dividends.² Profit is defined as Net Income (WS 01551) plus Depreciation (WS 01151). Dividends are the sum of cash preferred dividends (WS 05401) and cash common dividends (WS 05376). The net savings is gross savings minus capital expenditure (WS 04601). For Chinese listed companies, cash dividends are the product of dividends per share (WS 05101) and the number of common shares (WS 05301, which includes both tradable and nontradable shares). To con-

2. We adopt this definition of firm-level corporate savings to match more closely with that of aggregate corporate savings in the flow-of-funds data. The definition of corporate savings could be different in other settings. For example, if the question is related to a corporation's access to liquidity, then it would be appropriate to include minority stock investment and intercorporate loans in addition to deposit and internal cash as savings. To the extent that these financial assets are liquid and significant, corporate savings may be higher than currently reported under our definition. Also, due to data limitation, we cannot address issues like the contributions to enterprise savings of cross-holdings, subsidiary-to-parent SOE dividends, repos, M&A, plausible tunneling scenarios, foreign direct investment (FDI), and so forth.

duct comparisons across firm ownership, we classify a firm as majority state-owned if the state is the largest shareholder (when nontradable shares are also considered).

We define gross or net savings rate as savings relative to gross asset, rather than savings relative to profit, because firm-level profits can be zero or negative. Table 6.2 reports the summary statistics on the gross savings rate (gross savings/assets), its components (profit rate and dividend rate), investment/asset, and net savings/asset for nonfinancial firms in China and other regions of the world. A few features are noteworthy. First, while the corporate savings rates in Asia are somewhat higher on average than those outside Asia, the savings rates by Chinese firms are not different from those in other Asian economies.³ Second, within China, there is no significant difference between majority state-owned Chinese firms and majority privately-owned Chinese firms in their median gross or net savings rates.

We can also compare dividend payout practices in table 6.2. An important feature for our purpose is that an average or median Chinese firm issues dividends no less than its counterparts in other countries. The median/mean of dividends over assets is 0.005/0.016 for Chinese firms, compared to 0/0.011 for firms in other countries. The percentage of Chinese firms issuing dividends was 52 percent in 2007, while the comparable number for the rest of the world was 49 percent. In other words, while it is true that many Chinese firms do not pay dividends, it is part of the common corporate practice around the world.⁴ In addition, considering that the Chinese economy is growing at a faster rate than most economies in the world, indicative of better investment opportunities in China, the optimal dividend payout in China can be expected to be lower than elsewhere. A second interesting feature comes from comparing the dividends of state-owned Chinese companies with those of non-state-owned Chinese companies. State-owned companies issue slightly larger dividends than non-state-owned companies. In 2007, 56 percent of state-owned companies issued cash dividends, while 45 percent of non-state-owned companies did the same. Hence the mainstream view that state-owned firms are particularly reluctant to issue dividends due to misgovernance is not consistent with the summary statistics.

Corporate savings rates are affected by firm size and other factors. For example, firms in resource sectors may have extra savings due to commodity price booms in the past few years. Also, firms in sectors with an intrinsically higher demand for external finance may also save more. To control for these possibilities, we now use econometric analyses to examine whether Chinese listed firms have more savings.

3. The difference in the corporate savings rates between Asia and the rest of the world lies in the mean but not in the median, suggesting that the difference in mean is driven by a few outliers.

4. An article in the *Economist* magazine (Oct 3, 2009) mocked the dividend practices of Chinese firms by noting that “almost 45% of listed companies did not pay a dividend last year,” without apparently realizing that the pattern was consistent with corporate practices around the world.

6.3.2 Econometric Specification

We start with a model for gross savings rate:

$$(1) \quad \text{Savings / Assets}_{ijkt} = \beta_1 \text{Size}_{ijkt} + \text{China}_k + \text{Sector}_j + \text{Year}_t + \varepsilon_{ijkt},$$

for firm i in sector j of country k at time t . Company size is the total value of book assets measured in current US dollars. Sector dummies are at the three-digit level based on US Standard Industrial Classification (SIC 1987). There are 373 three-digit (nonfinancial) sectors in the sample. Year dummies control for the global trend. Based on this model, we will also check whether gross savings between Chinese state-owned and non-state-owned companies are systematically different.

We perform cross-country comparisons of the components of gross savings: profits and dividends, using the same specification as earlier. Finally, we perform comparisons of investment rate and net corporate savings. To summarize, we conduct a sequence of conditional comparisons, using specification (1), but each component of the following expression as the dependent variable:

$$(2) \quad \begin{aligned} \text{GrossSavings} &= \text{Profits} - \text{Dividends} \\ &= \text{Net Savings} + \text{Investments}. \end{aligned}$$

6.3.3 Corporate Gross Savings

In table 6.3, we report the results from a regression analysis where we control for determinants of corporate savings. We cluster the standard errors at the country level. In column (1), we compare China with the rest of the world. Chinese firms have a higher coefficient of gross savings (as a share of gross assets) than other countries, but are not statistically significant.

We then compare China with each country by adding fifty-one country dummies, except for the United States, which serves as our baseline case. For twenty-one countries with the largest numbers of observations, we plot their coefficients in figure 6.4. We find that, conditional on sector and year fixed effects and firm size, the average Chinese corporate savings rate (0.44) is close to the median of the spectrum. Corporations in India (0.74), Australia (0.63), and the United Kingdom (0.46) all have higher gross savings rates. Meanwhile, these three countries all experienced a current account deficit during the sample period. From 2004 to 2007, the average current account deficit over GDP was -1 percent, -6 percent, and -3 percent for India, Australia, and the United Kingdom, respectively. This illustrates the idea that even with a high corporate savings rate, there need not be a current account surplus.

Figure 6.4 helps to address the power of the test for the China dummy in column (1). In column (1), the coefficient of the China dummy is insignificant, so we cannot reject the hypothesis that Chinese firms behave in the same way as firms in other countries. But a problem of Type I versus

Table 6.3 Corporate gross savings over assets

	Case 1	Case 2	Case 3	Case 4
China dummy	0.0713 [0.0533]	0.105** [0.0491]		
China*time trend		-0.00916 [0.00624]		
State-owned dummy			0.00263 [0.0101]	0.0270* [0.0159]
State-owned dummy*trend				-0.00665* [0.00400]
Firm size	0.223*** [0.0754]	0.223*** [0.0754]	0.0582*** [0.0181]	0.0585*** [0.0182]
Year = 2003	0.0214*** [0.00497]	0.0218*** [0.00502]	0.00869 [0.0101]	0.013 [0.0114]
Year = 2004	0.0248 [0.0152]	0.0256 [0.0155]	-0.0149 [0.0158]	-0.00634 [0.0176]
Year = 2005	0.0171 [0.0177]	0.0184 [0.0182]	-0.0210* [0.0114]	-0.00842 [0.0153]
Year = 2006	0.00958 [0.0369]	0.0114 [0.0381]	-0.0176 [0.0173]	-0.00108 [0.0199]
Year = 2007	-0.0137 [0.0434]	-0.0113 [0.0450]	0.0109 [0.0125]	0.0311 [0.0188]
Sector fixed effects	Y	Y	Y	Y
Observations	132,801	132,801	6,402	6,402
R ²	0.265	0.265	0.086	0.087

Notes: Standard errors in brackets. Corporate gross savings over assets is winsorized at the 1 percent level. Sector fixed effects are at the three-digit level. Standard errors are clustered at the country level.

****p*-value is less than 1 percent.

***p*-value is less than 5 percent.

**p*-value is less than 10 percent.

Type II errors means we cannot necessarily conclude that the coefficient definitively equals zero either, and the data might be too noisy to allow any conclusion. Figure 6.4 alleviates this concern by estimating the coefficient for each country. We find that China's corporate savings rate is not different from the global average after comparing the magnitude of the China dummy with those of other countries.

So far we look at the average effect over the sample period. In column (2), we examine the trend in Chinese firms' gross savings by interacting the time trend with the China dummy. This interaction is negative (but insignificant), suggesting that the gross savings of Chinese firms did not rise from 2002 to 2007. This pattern of a relatively flat time profile of corporate savings contrasts with the profile of China's current account surplus, which rose gradually from 2002 to 2004 and more dramatically after 2005. This is an additional feature of the data, suggesting that China's corporate savings

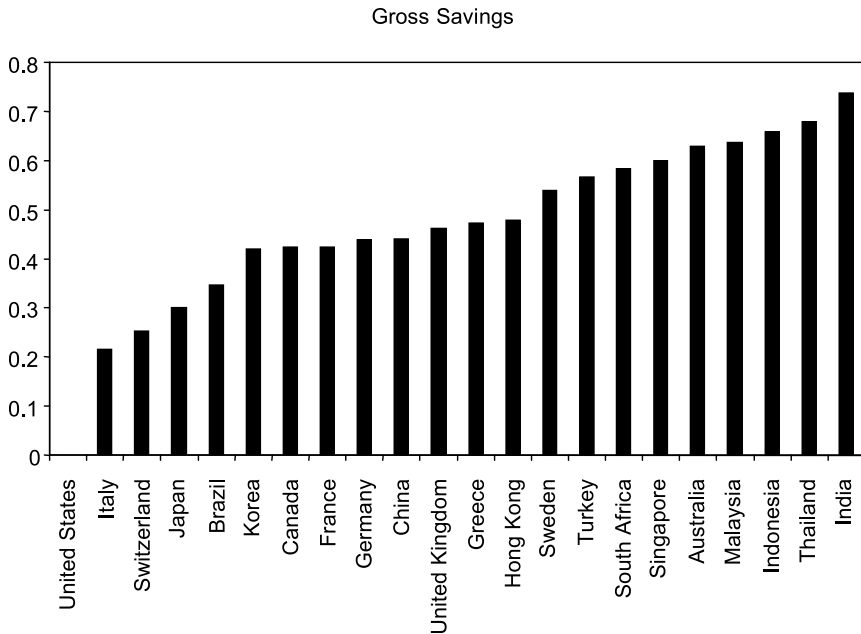


Fig. 6.4 Relative gross savings rates across countries conditional on common sector and year fixed effects and firm size

rates (relative to corporate savings rates in other countries) did not go up in tandem with its rising current account surplus.

We now compare state-owned versus non-state-owned firms in column (3). Conditional on sector and time fixed effects and firm size, there is no significant difference between the two groups, which is consistent with the unconditional pattern in table 6.2. In column (4), we look at the time pattern by adding the interaction of time trend and state-owned dummy. This interaction has a negative coefficient and is significantly different from zero at the 10 percent level. Meanwhile, the state-ownership dummy has a weakly positive coefficient. Taken together, this suggests that state-owned companies have slightly higher gross savings rates than private firms at the beginning of the sample period, but the gap declines gradually to become negligible.

As corporate savings is the difference between profits and dividend payout, we now look at the two components separately.

6.3.4 Decomposing Gross Savings: Profits and Dividends

The patterns of coefficients for profits in table 6.4 are similar to those for gross savings rates. China's firms have somewhat higher profit but not significantly so (column [1] of table 6.4). To find the country-level conditional average dividend rate, we perform a version of the regression in column (1)

Table 6.4 Profits over assets

	Case 1	Case 2	Case 3	Case 4
China dummy	0.0699 [0.0538]	0.108** [0.0499]		
China*time trend		-0.01 [0.00601]		
State-owned dummy			0.00486 [0.0100]	0.0311* [0.0161]
State-owned dummy*trend				-0.00714* [0.00404]
Firm size	0.222*** [0.0744]	0.222*** [0.0744]	0.0586*** [0.0177]	0.0589*** [0.0177]
Year = 2003	0.0226*** [0.00501]	0.0230*** [0.00503]	0.00803 [0.0101]	0.0126 [0.0113]
Year = 2004	0.0257* [0.0149]	0.0265* [0.0151]	-0.0135 [0.0159]	-0.00438 [0.0176]
Year = 2005	0.0214 [0.0172]	0.0228 [0.0177]	-0.0228** [0.0115]	-0.0093 [0.0153]
Year = 2006	0.0167 [0.0360]	0.0187 [0.0372]	-0.0197 [0.0173]	-0.0019 [0.0199]
Year = 2007	-0.00411 [0.0405]	-0.00144 [0.0421]	0.0097 [0.0124]	0.0314* [0.0188]
Sector fixed effects	Y	Y	Y	Y
Observations	135,540	135,540	6,449	6,449
R ²	0.267	0.267	0.092	0.092

Notes: Standard errors in brackets. Profit is winsorized at the 1 percent level. Sector fixed effects are at the three-digit SIC level. Standard errors are clustered at the country level.

****p*-value is less than 1 percent.

***p*-value is less than 5 percent.

**p*-value is less than 10 percent.

by adding individual country dummies (regression results not reported to save space). We plot the estimated individual country fixed effects in the top panel of figure 6.5. China, while below the median, is not far from it. India, Australia, and the United Kingdom still have higher profit over asset ratios than China.

In column (2) of table 6.4, we compare the trend in China's corporate profits rates during 2002 to 2007 to the global time fixed effects. The coefficient on the interaction between the China dummy and the time trend is statistically insignificant, suggesting that the time profile of Chinese firms' profit rates is not that different from the global trend.

In column (3) of table 6.4, we compare majority state-owned versus non-state-owned firms within China. We find that majority state-owned firms have a similar profit ratio as non-state-owned companies over the sample period. To see the time trend, we add an interaction term between the state-ownership dummy and the time trend. It appears that the majority state-

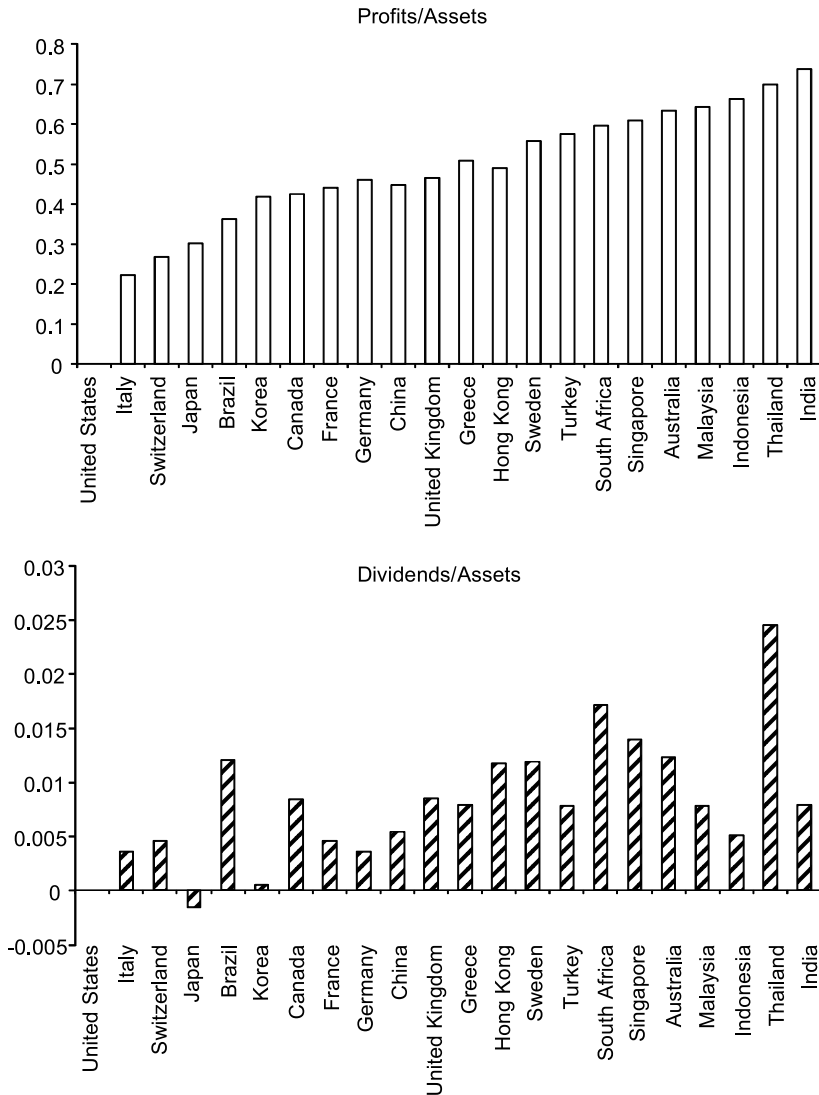


Fig. 6.5 Relative profit and dividend rates across countries conditional on common sector and year fixed effects and firm size

owned firms used to have a higher profit rate than majority private-owned firms, but the pattern reversed in the later part of the sample period.

Now we look at the dividend practices conditional on sector and year fixed effects and firm size (table 6.5). The coefficient for the China dummy is positive but insignificant, suggesting that Chinese firms issue dividends at an amount at least as large as the global average. To find the country-level

Table 6.5 Dividends over assets

	Case 1	Case 2	Case 3	Case 4
China dummy	0.000209 [0.00169]	0.00383** [0.00173]		
China*time trend		-0.000971*** [0.000106]		
State-owned dummy			0.00188* [0.00107]	0.00314** [0.00155]
State-owned dummy*trend				-0.000344 [0.000355]
Firm size	0.00119*** [0.000287]	0.00119*** [0.000286]	0.00168*** [0.000589]	0.00170*** [0.000596]
Year = 2003	0.000766*** [0.000248]	0.000805*** [0.000245]	-0.00102* [0.000612]	-0.000799 [0.000719]
Year = 2004	0.00181*** [0.000360]	0.00190*** [0.000368]	0.000322 [0.000667]	0.000762 [0.000708]
Year = 2005	0.00278*** [0.000515]	0.00291*** [0.000496]	-0.00219*** [0.000836]	-0.00154* [0.000902]
Year = 2006	0.00309*** [0.000543]	0.00328*** [0.000515]	-0.00245*** [0.000734]	-0.0016 [0.000966]
Year = 2007	0.00334*** [0.000586]	0.00359*** [0.000544]	-0.00243*** [0.000834]	-0.00139 [0.00114]
Sector fixed effects	Y	Y	Y	Y
Observations	133,952	133,952	6,436	6,436
R ²	0.061	0.061	0.106	0.107

Notes: Sector fixed effects are at the three-digit SIC level. Standard errors are clustered at the country level.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

conditional average dividend rate, we perform a version of the regression in column (1) by adding individual country dummies (regression results not reported). The estimates of the individual country effects are plotted in the bottom panel of figure 6.5. There, Chinese firms' conditional dividend payoff rates, on average, lie in the middle: for example, they are larger than those in France, Germany, Korea, Japan, and the United States, but smaller than Thailand, South Africa, Brazil, and Sweden.

In column (2) of table 6.5, we add the interaction term of a time trend and the China dummy. This interaction term is negative and significant but very small (-0.00097), suggesting a moderate decline over the sample period.⁵ To gain further insight, we compute the fraction of listed Chinese

5. In October 2008, the China Securities Regulatory Commission (CSRC) required listed firms that applied for refinancing to pay cash dividends annually in an amount no less than 30 percent of its distributed profits over the past three years. As it is outside our sample period, we are not able to test the effect of the policy.

companies that issued dividends in a year. The fraction is 55 percent, 49 percent, 55 percent, 47 percent, 50 percent, and 52 percent, respectively, from 2002 to 2007. In other words, there was a mild reduction in the fraction of dividend-paying firms, but the change is overwhelmed by year-to-year fluctuations. We also compute the average cash dividend per share (DPS) for Chinese firms. The average DPS increased over the years, from 4.74 in 2002 and 4.96 in 2003 to 6.34 in 2006 and 7.47 cents in 2007 (the numbers of shares per company are held constant as stock splits and reverse splits and new shares are adjusted). Note from column (2) in table 6.4, there is a modest (but insignificant) decline in the profit rate of Chinese firms during the same period. In any case, recall from column (2) of table 6.3, there is no significant change in the gross savings rate over time for Chinese firms.

In column (3) of table 6.5, we compare the dividend payout rates between majority state-owned firms and other companies, conditional on the sector and year fixed effects and firm size. Contrary to the mainstream view, we see that state-owned companies issue more dividends. The coefficient on the state ownership dummy is 0.002, significantly different from zero at the 10 percent level. In column (4) of table 6.5, we examine whether and how the difference between state-owned and other firms changes over time. The negative but insignificant coefficient on the interaction term suggests that there might be a narrowing of the gap over time, but the evidence is not statistically significant.

6.3.5 Investment and Net Savings

To understand the corporate sector's contribution to a country's current account, one ultimately needs to look at net corporate savings—the difference between gross savings and capital investments. We now examine China's corporate investments over assets by using the same set of right-hand-side variables for gross savings. In column (1) of table 6.6, the China dummy is positive and significant at the 1 percent level, suggesting that Chinese firms invest more than the global average. To find the country-level conditional average investment rate, we perform a version of the regression in column (1) by adding individual country dummies (regression results not reported). Again, the estimates of the individual country effects are plotted in figure 6.6 (top panel). It is clear that Chinese firms invest more than firms in all other countries save two (India and Canada). From column (2) of table 6.6, Chinese firms appear to decrease their investment relative to assets over time when compared with a global year fixed effects (of generally rising investment).

In column (3) of table 6.6, we compare the conditional investment rate by majority state-owned firms with non-state-owned firms in China. Interestingly, an average state-owned firm invests less than an average nonstate firm. The gap in the investment ratio between state and nonstate firms does not shrink over the sample period (column [4] of table 6.6).

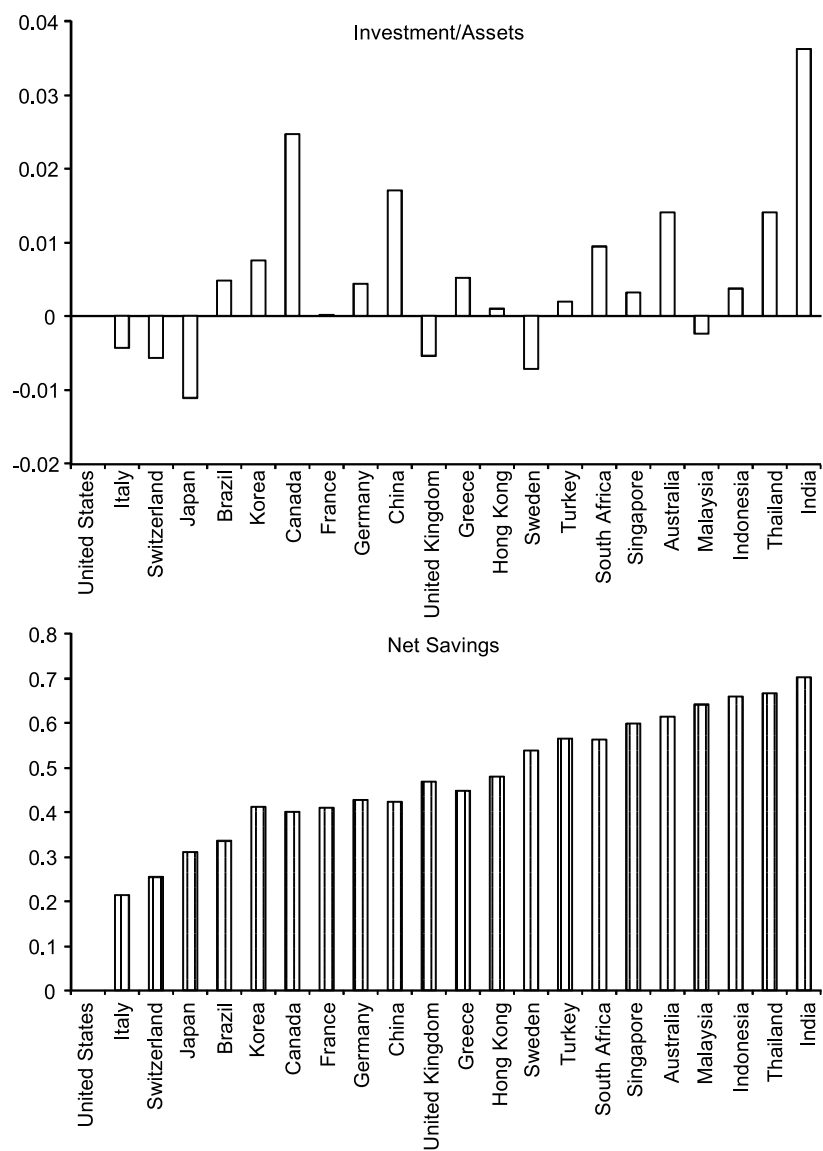


Fig. 6.6 Relative investment rates and net savings rates across countries conditional on common sector and year fixed effects and firm size

We now examine the net savings rate in table 6.7. There is little evidence that Chinese firms have higher net savings as a share of total assets than firms in other countries. The estimated coefficient is positive but insignificant (column [1] of table 6.7). To find the country-level conditional average net savings rate, we perform a version of the regression in column (1) by

Table 6.6 Investment over assets

	Case 1	Case 2	Case 3	Case 4
China dummy	0.0140*** [0.00307]	0.0290*** [0.00209]		
China*time trend		-0.00400*** [0.000803]		
State-owned dummy			-0.00430** [0.00211]	-0.00476 [0.00439]
State-owned dummy*trend				0.000125 [0.000989]
Firm size	-0.000208 [0.000258]	-0.000208 [0.000257]	0.00947*** [0.00163]	0.00947*** [0.00162]
Year = 2003	-0.00207* [0.00104]	-0.00191* [0.00112]	0.000921 [0.00242]	0.00084 [0.00258]
Year = 2004	0.00243 [0.00175]	0.00278 [0.00185]	-3.45E-05 [0.00295]	-0.0002 [0.00332]
Year = 2005	0.00504** [0.00213]	0.00561** [0.00223]	-0.00805*** [0.00288]	-0.00829** [0.00345]
Year = 2006	0.00750** [0.00311]	0.00829** [0.00318]	-0.0142*** [0.00260]	-0.0145*** [0.00367]
Year = 2007	0.00856** [0.00361]	0.00965** [0.00381]	-0.0120*** [0.00269]	-0.0124*** [0.00444]
Sector fixed effects	Y	Y	Y	Y
Observations	134,711	134,711	6,479	6,479
R ²	0.163	0.164	0.178	0.178

Notes: Sector fixed effects are at the three-digit SIC level. Standard errors are clustered at the country level.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

adding individual country dummies (regression results not reported). The estimates of the individual country effects are plotted in the bottom panel of figure 6.6. We see that China's net savings are smaller than more than half of the countries in the sample, including India, Australia, and the United Kingdom. From column (2) of table 6.6, the insignificant interaction term suggests that the gap between net corporate savings in China and the global average has not narrowed over time.

In column (3) of table 6.7, we compare state-owned companies with non-state-owned ones in China. There is no significant difference between the two groups on corporate net savings. Column (4) of table 6.7 suggests that the net savings rate might be higher for state-owned firms at the beginning of the sample. The trend is negative but insignificant. Since there is no difference between state and nonstate firms averaged over the entire sample, we surmise that state-owned firms may have a lower net savings rate than nonstate firms in the latter part of the sample. The insignificant trend term

Table 6.7 Net savings over assets

	Case 1	Case 2	Case 3	Case 4
China dummy	0.0596 [0.0517]	0.0789 [0.0482]		
China*time trend		-0.00519 [0.00578]		
State-owned dummy			0.00694 [0.00982]	0.0310** [0.0155]
State-owned dummy*trend				-0.00656 [0.00405]
Firm size	0.225*** [0.0756]	0.225*** [0.0756]	0.0491*** [0.0182]	0.0494*** [0.0183]
Year = 2003	0.0229*** [0.00494]	0.0231*** [0.00499]	0.00766 [0.0104]	0.0119 [0.0116]
Year = 2004	0.0217 [0.0155]	0.0221 [0.0158]	-0.0146 [0.0158]	-0.00621 [0.0175]
Year = 2005	0.0117 [0.0182]	0.0124 [0.0187]	-0.013 [0.0118]	-0.000604 [0.0158]
Year = 2006	0.00131 [0.0364]	0.00234 [0.0375]	-0.00318 [0.0176]	0.0131 [0.0202]
Year = 2007	-0.0235 [0.0427]	-0.0222 [0.0440]	0.0228* [0.0129]	0.0427** [0.0189]
Sector fixed effects	Y	Y	Y	Y
Observations	132,040	132,040	6,398	6,398
R ²	0.264	0.264	0.068	0.068

Notes: Sector fixed effects are at the three-digit level. Standard errors are clustered at the country level.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

reflects that year-to-year fluctuations are large (producing a relatively large standard error).

6.3.6 Do Financial Constraints Raise the Savings by Nonstate Firms?

Recall that a key conclusion so far is that within China, private firms do not save less than state-owned firms. One reason that private firms need to save is concern for future financing constraints when good investment opportunities come along.

We now test these arguments. The first question is how to measure external finance needs in a cross-country setting. Following the literature on empirical corporate finance, we use an index for intrinsic dependence on external finance for investment (DEF_INV). Specifically, we construct a sector-level approximation of a firm's intrinsic demand on external finance for capital investment following a methodology developed in Rajan and Zingales (1998):

Dependence on external finance for investment

$$= \frac{\text{capital expenditures} - \text{cash flow}}{\text{capital expenditures}}$$

where cash flow = cash flow from operations + decreases in inventories + decreases in receivables + increases in payables. All the numbers are based on US firms, which are judged to be least likely to suffer from financing constraints (during a normal time) relative to firms in other countries. While the original Rajan and Zingales (1998) paper covers only 40 (mainly SIC two-digit) sectors, we expand the coverage to around 250/373 SIC three-digit sectors (following Tong and Wei 2011).

To calculate the demand for external financing of US firms, we take the following steps. First, every firm in the COMPUSTA USA is sorted into one of the SIC three-digit sectors. Second, we calculate the ratio of dependence on external finance for each firm from 1990 to 2006. Third, we calculate the sector-level median from firm ratios for each SIC three-digit sector that contains at least five firms, and the median value is then chosen, to be the index of demand for external financing in that sector. Conceptually, the Rajan-Zingales (DEP_INV) index aims to identify sector-level features; that is, which sectors are naturally more dependent on external financing for their business operation. It ignores the question of which firms within a sector are more liquidity constrained. What the DEP_INV index measures could be regarded as a “technical feature” of a sector, almost like a part of the production function. To capture the economic concept of the percentage of capital expenditure that has to be financed by external funding, we winsorize the DEP_INV index to range between 0 and 1.

We then interact this DEP_INV index with the China dummy and later with the state-ownership dummy. The results are presented in tables 6.8 and 6.9. Within those sectors with a higher external financial dependence (i.e., higher DEP_INV), Chinese firms have higher gross savings than other countries (column [1]). This is because in these sectors, Chinese firms are making relatively higher profits than their global counterparts (column [2]). A reason might be that Chinese listed firms have relatively lower financing costs. Moreover, within these sectors, Chinese firms issue relatively higher dividends than global counterparts (column [3]), consistent with the argument that Chinese firms may have more access to external finance.

Another possible interpretation on the positive coefficient on the China*DEP_INV interaction term in the profit function is that the contemporaneous profit rate may be a predictor of future investment opportunities. This regression suggests that unexplored investment opportunities are particularly good for Chinese firms in sectors with a higher intrinsic dependence on external finance (column [2]). As a result, these firms also save more (column [1]). To check the validity of this hypothesis, we look at column (3) and find that the investment in these sectors is not particularly

Table 6.8 Dependence for external finance and corporate savings behavior

	Gross savings	Profits	Dividends	Investment	Net savings
China dummy	0.043** [0.018]	0.039** [0.018]	−0.002* [0.001]	0.016** [0.003]	0.029 [0.019]
China dummy*DEP_INV	0.121** [0.053]	0.129** [0.053]	0.005** [0.002]	−0.007 [0.005]	0.129** [0.050]
Firm Size	0.227*** [0.023]	0.225** [0.023]	0.001** [0.0001]	−0.0002 [0.0004]	0.229** [0.023]
Year = 2003	0.024** [0.011]	0.025** [0.010]	0.0008*** [0.0001]	−0.0023** [0.0008]	0.026** [0.011]
Year = 2004	0.027* [0.015]	0.028* [0.015]	0.0018** [0.0002]	0.0021 [0.0013]	0.024 [0.016]
Year = 2005	0.019 [0.018]	0.023 [0.018]	0.0028*** [0.0003]	0.0046** [0.0017]	0.0144 [0.0191]
Year = 2006	0.012 [0.021]	0.019 [0.021]	0.0031** [0.0003]	0.0069** [0.0017]	0.0043 [0.0221]
Year = 2007	−0.013 [0.017]	−0.004 [0.018]	0.0034** [0.0004]	0.0075** [0.0016]	−0.022 [0.0182]
Sector fixed effects	Y	Y	Y	Y	Y
Observations	119,598	121,988	120,589	121,302	118,952
R ²	0.267	0.268	0.059	0.169	0.266

Notes: Sector fixed effects are at the three-digit level. DEP_INV is the dependence on external finance for investment.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

higher in China. As a result, all the gross savings show up as net savings as well.

Now we focus on the sample of Chinese firms and include an interaction term of state dummy and external finance dependence. There we find that state companies and nonstate companies have similar gross savings, profits, and dividends payouts, which are not affected by whether they are in a sector with high dependence on external finance or not.

At least for publicly listed firms, there is no evidence that those Chinese firms in sectors that are intrinsically more dependent on external finance issue smaller dividends in order to save more than counterparts in other countries. If corporate savings reflects concerns for credit constraints, the evidence suggests that Chinese firms are not more concerned about credit constraints than their peers in other countries. Publicly traded private firms do not appear to face more credit constraints than their majority state-owned counterparts. Of course, small nonlisted private firms may very well be credit constrained and therefore need to save more. However, this is true everywhere in the world. In any case, the evidence is not consistent with the contention that misgovernance in state firms and favorable price shocks are the primary cause of a high and rising corporate savings rate.

Table 6.9 Financial constraints for state and nonstate firms in China

	Gross savings	Profits	Dividends	Investment	Net savings
State dummy	-0.0124 [0.0137]	-0.0105 [0.0138]	0.00191 [0.00171]	-0.00065 [0.00308]	-0.0118 [0.0131]
State dummy*DEP_INV	0.0426 [0.0304]	0.0421 [0.0300]	-0.00121 [0.00279]	-0.0110** [0.00470]	0.0539* [0.0311]
Firm size	0.0594*** [0.0193]	0.0595*** [0.0188]	0.00161*** [0.000605]	0.00915*** [0.00171]	0.0506*** [0.0194]
Year = 2003	0.0121 [0.0111]	0.0111 [0.0111]	-0.00117* [0.000613]	0.00137 [0.00258]	0.0104 [0.0114]
Year = 2004	-0.0154 [0.0176]	-0.014 [0.0176]	0.000306 [0.000698]	-0.00057 [0.00314]	-0.0148 [0.0176]
Year = 2005	-0.0179 [0.0125]	-0.0202 [0.0125]	-0.00257*** [0.000833]	-0.00828*** [0.00306]	-0.00974 [0.0129]
Year = 2006	-0.0178 [0.0193]	-0.0202 [0.0192]	-0.00275*** [0.000778]	-0.0149*** [0.00267]	-0.00296 [0.0196]
Year = 2007	0.0118 [0.0138]	0.0108 [0.0137]	-0.00219** [0.000891]	-0.0119*** [0.00285]	0.0233 [0.0142]
Sector fixed effects	Y	Y	Y	Y	Y
Observations	5,738	5,783	5,769	5,811	5,735
R ²	0.085	0.089	0.094	0.163	0.067

Notes: Sector fixed effects are at the three-digit level. DEP_INV is the dependence on external finance for investment.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

6.3.7 Do Politically Connected Firms Save Less?

The savings rates may be uneven across privately-owned firms. One reason may be different degrees of political connection by firm owners, which may result in uneven access to financing. In other words, while private firms may have a more challenging task in accessing finance when they need to than state-owned firms, those private firms with better political connections may need to save less.⁶

We examine this possibility by utilizing a measure of political connection constructed by Fan, Wong, and Zhang (2007). The political connection is a dummy for companies whose chairman is a former government official.

The results are presented in table 6.10. From column (1), it is clear that politically better connected private firms do save significantly less. As columns (2) and (3) reveal, however, the lower level savings does not come from less dividend payout, but instead from a lower profit rate. In other words, firms with better political connection simply perform worse. With a smaller

6. Other corporate governance factors may affect corporate savings too. For example, Morck, Yeung, and Zhao (2008) suggest that enterprise insiders may hide cash from their superiors or successors by tunneling it to tax havens. This could induce the insiders from the beginning to increase corporate savings by reducing dividend payoffs.

Table 6.10 Do politically better connected private firms save less?

	Gross savings/ assets	Dividend/ assets	Investment/ assets	Net savings/ assets
Political connection dummy	-0.485** [0.180]	-0.0004 [0.0028]	-0.0386* [0.0197]	-0.492** [0.196]
Firm size	0.414** [0.123]	0.007** [0.002]	0.00324 [0.0129]	0.436** [0.141]
Year = 2003	-0.048 [0.0320]	-0.009** [0.002]	-0.0474** [0.0194]	-0.004 [0.034]
Year = 2004	-0.402* [0.225]	-0.008** [0.002]	-0.0711** [0.0194]	-0.371 [0.262]
Year = 2005	-0.556** [0.233]	-0.015** [0.003]	-0.100** [0.0162]	-0.499* [0.270]
Year = 2006	-0.510** [0.142]	-0.014** [0.003]	-0.0988** [0.0215]	-0.422** [0.154]
Year = 2007	-0.454 [0.343]	-0.013** [0.003]	-0.101** [0.0242]	-0.403 [0.358]
Two-digit SIC sector fixed effects	Yes	Yes	Yes	Yes
Observations	1,269	1,276	1,278	1,269
R ²	0.08	0.14	0.09	0.08

Source: Fan, Wong, and Zhang (2007).

Notes: Political connection of a firm is measured by whether the chairman of the company has political connections.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

profit, they do not pay smaller dividends or do less investment than firms without a strong political connection. As a result, these firms have a lower gross savings rate and a lower net savings rate.

6.4 Conclusion

Chinese companies maintain a high gross savings rate in absolute terms, and often account for as big a share of GDP as household savings. This has led to the mainstream view that (a) corporate savings in China is a key driver of its current account surplus, and (b) high corporate savings is mainly a result of high savings rates by state-owned firms due to misgovernance.

This chapter casts doubt on both parts of the mainstream view. Using the aggregate flow-of-funds data, we show that corporate gross savings rates are high and have been rising in a number of countries. At least Korea and Japan tend to have substantially higher savings rates by their corporate sectors than China's. Moreover, relative to the investment rate (investment/GDP), China has, in fact, the lowest net savings rate (gross savings rate – investment rate) among the group of major economies. It is the only country that had a negative net corporate savings rate every year during 1995 to 2007.

Micro firm-level evidence could provide better controls for sector and year effects on corporate savings patterns. Once we do that, we see that Chinese corporate savings rates, both gross and net, are not that different from those in other economies.

Overall, the notion that Chinese corporate savings drives its current account surplus is not supported by a careful look at the data. If the corporate savings is not the key driver for China's overall savings, one needs to pay more attention to savings by households and government.⁷

References

- Bates, Thomas W., Kathleen M. Kahle, and Rene M. Stulz. 2009. "Why Do US Firms Hold So Much More Cash Than They Used To?" *Journal of Finance* 64 (5): 1985–2021.
- Bernanke, Ben. 2005. "The Global Savings Glut and the U.S. Current Account Deficit." The Homer Jones Lecture, St. Louis, Missouri, April 14.
- Durnev, Art, Randall Morck, and Bernard Yeung. 2004. "Value Enhancing Capital Budgeting and Firm-Specific Stock Return Variation." *Journal of Finance* 59: 65–105.
- Du, Qingyuan, and Shang-Jin Wei. 2010. "A Sexually Unbalanced Model of Current Account Imbalances." NBER working paper 16000. Cambridge, MA.
- Du, Qingyuan, and Shang-Jin Wei. 2011. "A Darwinian Perspective on 'Exchange Rate Undervaluation.'" NBER working paper 16788. Cambridge, MA.
- Fama, Eugene, and Kenneth French. 2001. "Disappearing Dividends: Changing Firm Characteristics or Lower Propensity to Pay?" *Journal of Financial Economics* 60:3–43.
- Fan, Joseph, T. J. Wong, and Tianyu Zhang. 2007. "Politically Connected CEOs, Corporate Governance and Post-IPO Performance of China's Newly Partially Privatized Firms." *Journal of Financial Economics* 84 (2): 330–57.
- Greenspan, Alan. 2009. "The Fed Didn't Cause the Housing Bubble." *Wall Street Journal*, March 11.
- Hoberg, Gerard, and Nagpurnanand R. Prabhala. 2007. "Disappearing Dividends, Catering, and Risk." American Finance Association (AFA) 2007 Chicago Meetings Paper. October.
- International Monetary Fund. 2005. "Awash with Cash: Why Are Corporate Savings So High?" In *World Economic Outlook*, chapter IV, 135–59.
- Kuijs, Louis. 2006. "How Will China's Saving-Investment Balance Evolve?" World Bank Policy Research Working Paper no. 3958.
- J. P. Morgan Chase & Co. 2005. "The Corporate Savings Glut." June 24.
- Morck, Randall, Bernard Yeung, and Minyuan Zhao. 2008. "Perspectives on China's Outward Foreign Direct Investment." *Journal of International Business Studies* 39 (3): 337–50.

7. On the high household savings rate, Wei and Zhang (2011) and Du and Wei (2010 and 2011) argue that an inadequate social safety net (via a precautionary saving motive) perhaps plays a smaller role than commonly assumed, and a competitive saving motive triggered by a rising sex ratio imbalance may play a surprisingly important role. In addition, Wei (2011) argues that a portion of the corporate savings rate—those by private firms—may also be triggered by a higher sex ratio, in combination with the financing constraints typically faced by new private firms.

- Rajan, Raghuram, and Luigi Zingales. 1998. "Financial Dependence and Growth." *American Economic Review* 88:559–86.
- Tong, Hui, and Shang-Jin Wei. 2011. "The Composition Matters: Capital Inflows and Liquidity Constraints during a Global Economic Crisis." *Review of Financial Studies* 24 (6): 2023–52.
- Wei, Shang-Jin. 2011. "Is There a Risk of Overvaluing the Risk of the Exchange Rate in Global Current Account Imbalances?" Unpublished Working Paper. Columbia University.
- Wei, Shang-Jin, and Xiaobo Zhang. 2011. "The Competitive Saving Motive: Evidence from Rising Sex Ratios and Savings Rates in China." *Journal of Political Economy* 119 (3): 511–64.
- Wurgler, Jeffrey. 2000. "Financial Markets and the Allocation of Capital." *Journal of Financial Economics* 58:187–214.

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The chapter documents the corporate savings rate at Chinese companies, compares such savings rate with companies from all over the world, and concludes that there is not much difference amid corporate savings between Chinese and international companies.

This is a very important and timely question. From an academic research perspective, understanding whether China's "high" savings rate is driving the legend of Chinese economic development helps understand whether the "East Asian Development Model" works in a broader context and bigger economy. To international economists, more precise understanding of the imbalance in savings rate across countries holds the key to understanding international capital flow and asset allocation.

It is important to point out that the question is also becoming an important one in policy debate and research. During the recent global financial crisis, US Treasury Secretary Hank Paulson made the following comments: "In the years leading up to the crisis, super-abundant savings from fast-growing emerging nations such as China and oil exporters . . . put downward pressure on yields and risk spread everywhere." (see <http://www.rothstein.economics.com/Paulson.pdf>) As a result, it is critical that scholars and policy researchers reach an agreement on whether the Chinese (corporate) savings rate is outstandingly high compared to other countries at similar development stage and if so, what is driving such a high savings rate.

Within China itself, how to stimulate domestic consumption has become

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