The Best Performing Economy with the Worst Performing Market:
Explaining the Poor Performance of the Chinese Stock Market*

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Abstract

The size of the Chinese stock market, including stocks listed and traded in Shanghai, Shenzhen and Hong Kong exchanges, is the second largest in the world. The poor performance of this market, especially since the recent global financial crisis, relative to developed (US) and large emerging economies (Brazil, Russia, India and South Africa) as well as unlisted firms in China, has been striking. This is despite the fact that the Chinese economy, also the second largest in the world, has been the fastest growing globally for the past three decades. With firm-level data from over 80 countries for the period 2000-2012, we find that the poor performance cannot be explained by risk or undervaluation of listed firms in China. Instead, factors such as the problematic IPO and delisting processes, corporate governance related to self-dealing are main contributors.

JEL Classifications: G12, G15, G3.

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I. INTRODUCTION

The Chinese economy has performed extraordinarily well in the past thirty years. In 2014, according to IMF (*World Economic Outlook*, April 2014) figures, China stands ready to overtake the U.S. and become the largest economy in the world in Purchasing Power Parity terms (PPP). This is quite remarkable given that in 1980 its GDP was less than 10% of that of the US. In PPP terms, it will have *double* the US GDP around 2035 as long as it maintains an average growth rate that is at least twice as high as that of the US.

The Chinese stock market started in 1990 with the establishment of two domestic stock exchanges: the Shanghai Stock Exchange (SHSE hereafter) and Shenzhen Stock Exchange (SZSE). The market has been growing fast since its inception with a large number of firms being added over the years. Each IPO firm at SHSE and SZSE (the "A share" market) must be approved by the Chinese Securities Regulation Commission (CSRC, equivalent to the SEC in the US). In addition, now over 80% of the total market capitalization of the Hong Kong Stock Exchange (HKSE), which follows rules and regulations similar to those in the UK and US and opens to global investors, belongs to companies from (mainland) China ("H share" market). Combining the firms listed and traded in all three exchanges the Chinese stock market is the second largest in the world, only trailing the US equity markets.

However, the performance of the Chines equity market has been disappointing, especially compared to the growth of GDP. We start from January 1, 1992 as on January 1, 1991 hardly any stocks were listed. Figure 1, Panel A shows that the real GDP performance of China eclipses that of a number of other large developed and emerging economies. By contrast, the Shanghai composite has been one of the worst performing indexes in the world. In fact, as shown in Figure 2, the real value of the index at the end of 2013 is the same as then; only the Nikkei in

Japan has performed nearly as badly.

How can the world's fastest growing economy, where GDP has grown by a factor of eight (from Figure 1, Panel A) since 1991, have such a poor-performing stock market? There is very little rigorous academic research that addresses this question, and is the main purpose of this paper. We compare the performance of the Chinese market and listed firms with those of the other large developing economies—Brazil, Russia, India and South Africa, and use the US as the benchmark of developed markets. We examine country-, industry and firm-level determinants with a large panel data set that includes over 75,000 firms across 138 exchanges in 89 countries.

The answers to our key question would help policy makers and regulators (e.g., the CSRC) to come up with viable solutions to improve the efficiency and performance of the Chinese stock market. The stock market has not played a role as prominent as the banking sector in financing firms and economic growth (e.g., Allen, Qian and Qian, 2005; AQQ hereafter) since its inception two decades ago. However, the importance of the equity market is growing, and without a stock market that is a viable investment alternative too many resources go into other saving vehicles such as real estate and this leads to many costly distortions in the economy. Further development of the stock market represents one of the main tasks for China's financial system. The methodologies and results from this paper can be applied to other emerging economies for similar purposes of developing equity markets.

We draw on three lines of work in developing our tests. First, there is an extensive strand of literature examine cross-country determinants of financial system development including the stock market. These include a country's macroeconomic conditions, strength of laws and institutions, disclosure and accounting standards, IPO and bankruptcy mechanisms. The variables identified in prior studies are included in our tests as country-level controls. Second, we

use the US as a benchmark and we draw on the well-established theories and results on measuring the risk and returns of stocks and governance and performance of listed firms. Third, we also utilize research on the Chinese economy and related institutional background to help us identify factors that may be unique to the Chinese equity market and corporate sectors.

The Shanghai Composite fell dramatically in real terms after the exchange's establishment in 1990. This is to a large extent due to the fact that inflation in China was very high in the early 1990s as shown in Figure 3. Moreover, many of the securities laws and regulations were introduced during the late 1990s, and the pace of adding new firms to the exchanges slowed down after 2000. For all of these reasons we focus on the period from January 1, 2000 in the rest of the paper. Figure 1, Panel B shows the GDP growth of the same set of countries as Panel A. The Chinese economy grew by a factor of 3.2 (in real terms) over this period, much faster than all the other countries.

Figure 4, Panel A presents the 'buy and hold' returns based on our calculations aggregated from firm-level returns, from 2000 until March 31, 2014, excluding dividends. Moreover, dividends and share repurchases have been negligible for Chinese firms; as shown in Figure 4, Panel B, returns including payouts show very similar patterns with the performance of the Chinese market the worst of the group. So, overall investors in the stock market have had no return in real terms in the long run. In fact, as shown in Figure 5, the cumulative return of the stock market is less than that of standard bank demand deposits (in real terms) with very low nominal interest rates over the same period, and much lower than that of 5-year deposits.

In evaluating the performance of the Chinese stock market, we first draw on the methodologies of asset pricing, including factors such as interest rates, risk as measured by standard deviation of returns and valuation in terms of P/E (prince-to-earnings) multiple and

M/B (market value to book value of assets) ratio. Using both P/E and M/B metrics, we find that listed firms in all the large countries (BRICS and US) all had substantial runup in valuation leading up to the 2007-2009 global financial crisis and valuation levels peaked in 2007. But Chinese listed firms had much higher valuation levels than firms from other countries, suggesting a bigger pricing 'bubble' in China before the crisis. Following the crisis, valuation in all countries fell sharply and then rebounded, but the valuation levels of Chinese firms are not low compared to those of other emerging economies and actually much higher than the US firms.

Our focus is to explore the determinants of the poor performance related to "firm fundamentals," including operating performance as measured by ROA (return on assets) and ROE (return on equity). Interestingly, despite China's phenomenal GDP growth rates, the average operating performance of Chinese listed firms is unimpressive relative to firms from other large emerging economies. AQQ (2005) stipulate that the 'gap' between the Chinese stock market and its overall economic performance is due to the fact that most of the listed firms are not the best performing firms in the economy.

The key to this hypothesis is the *listing and delisting processes*: as mentioned each IPO firm must be approved by the CSRC and in earlier years this took on the form of explicit quota in a given year allocated to a specific region. Firms must also show profits in consecutive years to satisfy explicit listing standards set by the CSRC. Moreover, one of the stated purposes of establishing the stock market in the first place was to assist the privatization of SOEs through fundraising—i.e., selling shares to the market. Hence, state-owned enterprises (SOEs) and firms with connections to the regulators and related government branches are more likely to be listed, whereas privately-owned firms without high current profitability but growth potentials face a

much higher hurdle. Once listed, firms are rarely delisted in China and the 'shell' of a listed firm is valuable given the difficult listing process.

We find strong evidence supporting the hypothesis that the problematic IPO and delisting regulations and procedures contribute to the poor performance of the market. It is well-documented that firms 'time' the IPO in the US, in that insiders choose year to sell their stock to the public for the first time in the year during which their operating performance is strong. Moreover, there is also evidence of manipulation of earnings for IPO firms. These prior studies indicate that the operating performance would drop following the IPO year. This phenomenon not only occurs in the US but also in emerging economies (Figure 8) as both ROA and ROE of IPO firms drop from the high levels in the IPO year or the year before the IPO (depending on the IPO process). But listed firms in China have by far the largest post-IPO drop: the average ROA dropped from a high of 12% pre-IPO to just above 6% post IPO, an astonishing fall of one half. By contrast, unlisted firms matched by industries show no drop in ROA or ROE during the same period surrounding listed firms' IPO. Among the listed firms, SOEs owned and controlled by the central government show a sharper fall in operating performance after IPO. When we sort listed firms by the year of listing, we also find that listed firms in the 2004-2006 cohorts show the worst drop in performance after IPO, which can partially explain the collapse of the market after the 2007-2009 global crisis.

These results suggest that IPO firms in China manipulate their earnings (given the IPO process it is difficult to say how much market timing ability they have); in fact, anecdotal evidence suggests outright frauds of making up revenue and profit figures in order to gain approval of CSRC. Further, the results are consistent with the hypothesis that the listing process

also distorts firms' operations in that some firms exhaust their resources and capital and sacrifice their future operations and growth in order to meet the listing standards.

Consistent with the fact the very few firms are delisted in China, we find that firms with similar levels of poor performance are more likely to disappear from the database (due to delisting) in the US and in other emerging economies. After five consecutive years of losses, listed firms in China are labeled as "ST" (special treatment) status. Compared to *delisted* firms from developed and developing countries, ST firms in China experience greater drop in performance (ROA and ROE) during the five-year period before ST than other firms prior to delisting. These results suggest that bad performing firms are not dropped from the exchanges, which also negatively affect the overall returns of the market. Finally, we also explore whether listed firms' assets are 'tunneled' by insiders (e.g., large shareholders) and have some preliminary evidence. Compared to listed firms in the US, listed firms in China invest at extremely high levels both before and after listing while their cash holdings drop quickly after listing.

The rest of the paper is organized as follows. Section 2 of the paper documents the poor performance of the Chinese stock markets. This is with regard to absolute real returns and relative to risk free rates. Given the growth in GDP, it is particularly poor. One would expect that firms would grow in real terms as the economy grows but this has not happened. Section 3 investigates the reasons for the poor performance of the Chinese stock market and why real returns have been negative in the long term. We examine three factors: listing process, delisting process and tunneling (of listed firms' assets). We also compare China with other BRIC countries. Relative to these high growth countries, listed firms in China underperform, and we show there is a gap relative to other countries. Concluding remarks are contained in Section 4.

We argue that the listing and delisting criteria need to be substantially reformed. The CSRC has made proposals in this direction and these need to be implemented as soon as possible.

II. THE PERFORMANCE OF THE CHINESE STOCK MARKETS FROM 2000 UNTIL 2013

Panel A of figure 2 shows the performance of the Shanghai Composite and the stock indices of other major countries. The SSE Index for China peaked in 2007. The stock price clipped off in 2008 and recovered in 2009 in a similar trend of other markets in the world. The SEE index buy-and-hold return is around 1, significantly lower than Brazil, US and India, but slightly better than Russia and Japan. Figure 3 shows that the inflation is high in 1990s in China. The CPI peaked at around 27% in the mid-1994. The high inflation drives down the real index return as we can see from figure 2. Anecdotal evidence suggests that many speculations are going on in China's stock market in 1990s. The number of listed firms increased from 13 in 1991 to 1176 in 2000. Thus we focus on the period after 2000.

Figure 4 shows that China has underperformed compared to the BRIC countries and even to relatively slow growing developed countries such as the U.S. and Japan in terms of buy-and-hold returns. Table 1 shows distribution of our sample firms by year. Table I presents the sample distribution by year. Panel A and B describe stock returns and firm characteristics of sample firms for all countries and China, respectively. As can been seen from Table I, the number of listed firms covered in our sample increased from 23,258 in 2000 to 44,014 in 2012. The number of listed firms in China grew steadily from 1,389 to 2,779. The variable of our primary interest is the value-weighted buy-and-hold return (BHR). The buy-and-hold returns are calculated as cumulative annual stock returns, which are averaged across firms by year with the market capitalization in the previous year as the weight. The BHR is adjusted for inflation to be in 2000

local currency. $1 dollar investment in a worldwide diversified, value-weighted stock portfolio in 2000 generates $1.19 by 2012. It generates $1.67 if cash dividends are included. However, $1 dollar investment in a value-weighted Chinese stock portfolio in 2000 shrinks to $0.61 dollar by 2012. It is merely 0.62 even dividends are included.

Figure 4 plots the value-weighted buy-and-hold returns of China and other major countries from 2000 to 2012. Panel A plots the BHR without dividends. China underperformed other countries in most of the years, except for year 2007 and 2009. Other emerging countries, including India, Brazil and Russia, see $1 dollar investment in 2000 increased to over $2 dollars by the end of 2012. Japan is the second-worst performing with a BHR of around 0.8 by the end of 2012.

Given the extraordinary growth of China' economy, the poor performance of its stock market is striking. One explanation is that the profits accumulated by the listed firms are distributed in the form of dividends. However, based on Bloomberg data, the average dividend yield for members of the Shanghai Composite index was 2.2 percent relative to the 2011 earnings. As a result, the securities regulator China Securities Regulatory Commission (CSRC), have been urging listed companies to pay out cash dividends to their shareholders.[1] Panel B of Figure 4 shows the buy-and-hold returns with cash dividends. The BHR by the end of 2012 for China increased from 0.61 to 0.62, but still underperformed other reference countries.

Table II shows the nominal returns compared to deposit rates in China. Since the banks are owned by the government China, the deposit rates are effectively risk free rates. The table shows that the stock market underperformed the five year risk free rate. Although the nominal five-year deposit rates increased from 2.88 in 2000 to 4.75 in 2012, the real deposit rates didn't increase. The similar patterns are found for the one-year deposit rates. The nominal demand deposit rates

[1] "Shanghai exchange urges dividend reform", *Financial Times*, January 8, 2013.

consistently declined, resulting in negative demand deposit rates in most of the years. We accumulate the real deposit rates and stock returns from 2000 and plot the cumulative returns in figure 5. Apart from year 2007 when the cumulative stock return exceeds the cumulative deposit rates, in the rest of the years the cumulative stock return underperformed the cumulative one-year and five-year deposit rates. It even underperformed the cumulative demand deposit rates by the end of year 2012.

To quantify the poor performance of Chinese stock market and compare with the rest of the world, we estimate a prediction model to identify factors that may affect average stock returns in a country. We include variables that are found to determine country-level stock market development as explanatory variables in the prediction model. The set of variables include: (1) investor protection measures (La Porta, Lopez-De-Silanes, Shleifer and Vishny, 2002, Djankov, Porta, Lopez-de-Silanes and Shleifer, 2008); (2) financial depth; (3) stock market characteristics, especially liquidity and risk; (4) country-level macro-economic conditions; (5) firm financial performance. In even columns we also include earnings management score (Leuz, Nanda and Wysocki, 2003, Doidge, Karolyi and Stulz, 2007).

Table III presents the ordinary least squares (OLS) estimates of the prediction model of buy-and-hold returns and Sharpe Ratio. We exclude China from the sample. All explanatory variables are winsorized at 1% level and lagged by one year. Larger firms, firms with higher earnings growth and sales growth, and firms with larger stock return volatilities see larger buy-and-hold returns. Country-level variables don't have significant impact on BHR and Sharpe Ratio in most of the times. In the Sharpe Ratio regressions, larger stock market turnover ratio is related to higher Sharpe Ratio. Earnings management has a negative impact on stock performance. Higher earnings management score represents stronger incentive of firm managements to conceal firm

earnings to get private benefit. The negative coefficient on the earnings management measure suggests countries experience poorer stock market performance when corporate governance of firms listed in the country is worse.

We include Chinese listed firms in the regressions in Table IV. The regression results in Table IV show that firms listed in China see substantial under-performance in stock returns as indicated by the negative coefficients on the China dummy, controlling for the same explanatory variables as reported in Table III. On average, firms listed in China underperformed firms listed in other countries by 2.042 in BHR and by 0.36 estimated by prediction model 1.

The next question is which market, Shanghai, Shenzhen and Hong Kong, contributed most to the underperformance. Figure 6 plots the performance of the three stock exchanges. Panel A plots the value-weighted buy-and-hold returns of firms listed in Shanghai, Shenzhen and Hong Kong exchanges. Sample firms listed in Shanghai and Shenzhen exchanges are restricted to those on the main board. Hong Kong performed better than Shanghai and Shenzhen. Before 2007, Shanghai and Shenzhen indices track each other closely, while Shanghai started to drop after that $1 dollar investment in Shenzhen stock market returns $0.9 dollar by year 2012.

Panel B plots the major stock indices in China. We start the plot from 2005 because the CSI 300 Index was introduced then. CSI covers the largest 300 stocks by market capitalization from Shanghai and Shenzhen exchange. The SSE SME Composite covers A-shares listed in the small-and-medium sized enterprise (SME) board of Shenzhen exchange, excluding ST stocks. It can be seen clearly from the figure that Shanghai Composite performed worst. The SSE SME Composite performed best, indicating the better growth of SMEs in China.

Panel C plots the growth enterprise market index in China. It was introduced on June 1, 2010. To gather with Shenzhen Composite and the SSE SME Composite, the growth enterprise market

index describes the performance of stocks listed in the Shenzhen exchange. For comparison we put the CSI 300 index and the Shanghai Composite Index as well. The growth enterprise market index did not do well until 2013.

III. POSSIBLE REASONS FOR CHINA'S STOCK MARKETS TO PERFORM POORLY

Relative to other stocks and to other assets within China the stock market has performed poorly. Since there are little dividends or share repurchases we would expect that the value of the firms should grow as they accumulate funds. So even if their scale is not growing, as long as they are making positive returns their value should be growing. Offsetting this could be a number of factors.

A. The IPO Process in China

Given the poor performance of Chinese stock market, we investigate whether it is due to the flawed IPO process. Two possible explanations may explain the poor performance of the listed firms. First, the IPO selection process is not an effective one, in the sense that firms that performed relatively worse are selected to be listed while some really good firms are rejected. The alternative hypothesis is that listed firms' performance deteriorates after IPO. In this case, even if good firms are selected to be listed, the stock performance can become poor if their operating performance declines.

We examine the hypothesis by comparing the performance of listed firms and private firms around the IPO year. We select from the listed firms the one with non-missing financial information from three years before to three years after the IPO. We then pair each listed firm with one matching firm. The matching firm is selected from the same level-2 industry private firms with the nearest book assets in the year prior to IPO. The private firm financial information

is from the National Bureau Statistics (NBS) ASIF database. Among the 1,693 Chinese listed firms, 594 are matched with one private firm. We also require that the matching firms have non-missing financial data from three years before to three years after the IPO. 184 matching firms meet the criteria. Figure 7 shows the performance of listed firms and their matching firms around the IPO. The two groups of firms have similar operating performance in terms of ROA in year -3 before IPO. The listed firms see significant drop in their ROA in the IPO (from 0.12 to 0.07), while private firms don't see their ROA change much over the years.

The sudden drop in performance of listed firms could be because these firms conduct earnings management in the years before IPO, because firms have to meet some earnings requirement prior to the listing.[2] An even more severe concern is that these firms may have to distort their operation to generate short-term profits at the cost of sacrificing long-term growth. Under the pressure from the regulators, the firms may have exhausted their resources in order to meet the earnings requirement prior to IPO.

The plot of ROE shows a similar pattern. The listed firms have substantially higher ROE than private firms prior to the IPO, but the ROE decreased nearly half in the IPO year. It remains lower than private firms after IPO. These findings suggest that the current IPO mechanisms in China may not have selected good firms to be listed, but have distorted firms' incentive in the short-run, which could be detrimental to these firms in the longer horizon.

Regression results in Table V show consistent results. Listed firms see their ROA drop by 0.039 more than their matching firm in the listing year compared with one year before, controlling for the operating performance prior to listing. Table VI shows international

[2] According to the regulations on IPO issued by the CSRC on May 17, 2006, to be listed in the stock exchanges in China, the firms are required to have positive earnings in the three consecutive years prior to the IPO or have accumulated at least 30 million net income. In addition, the firms are required to have accumulated net cash flows over 50 billion or revenue over 300 million in the three years prior to IPO. http://www.gov.cn/flfg/2006-05/18/content_283660.htm; http://www.csrc.gov.cn/pub/zjhpublic/cyb/200911/t20091117_170416.htm

comparison of changes in operating performance in the listing year of the listed firms in China and in other countries. The drop in ROA, ROE and ROS in the listing year is larger for China than for other countries' average. The bigger drop is robust when we measure the change over [-2, +3] window around the listing year.

To detail the analysis, we separate the firms into different cohorts by their listing year. For instance, cohort 2004 represents firms that are listed in 2004. We particularly focus on cohort 2004, 2005 and 2006 because anecdotal evidence suggests some SOE got listed in the mid-2000, whose stock prices collapse after IPO. We examine the performance of each cohort of firms around IPO year relative to the whole sample. As figure 8 shows, cohort 2004 to 2006 performed worse than other cohorts after the IPO year. One conjecture is some firms that were not performing well got listed in the mid-2000 which dragged down the performance of the whole market. This finding is less significant when we measure the operating performance by ROE.

We also investigate which type of firms contributed most the poor performance after IPO. Based on the ultimate controller and ownership information provided by CSMAR, the listed firms can be classified into the following categories: (1) firms controlled by the central State-owned Assets Supervision and Administration Commission (SASAC); (2) firms controlled by the local SASAC; (3) firms controlled by the Ministry of Finance; (4) firms controlled by other government agent; (5) non-state-owned firms. We find that the first group, firms controlled by the central SASAC, performed worse than other listed firms after IPO in terms ROA. The ROE is similar for firms controlled by central SASAC and for other listed firms.

The results of regressions of BHR presented in Table VII suggest that state-owned enterprises (SOE) underperformed non-SOE on average. The underperformance in BHR is most severe for

firms ultimately controlled by the Ministry of Finance. Both firms controlled by the central SASAC and local SASAC underperformed non-SOEs.

B. The Delisting Process in China

Another possible explanation for the poor performance of Chinese stock market is that firms whose performance is deteriorating are not timely delisted from the market. To see this we compare the operating performance of firms before delisting. There are very few delisting cases in China, therefore, we compare delisted stocks in other countries with those that received special treatment ("ST") in China. We define the year when the firm is delisted, or received "ST" for the first time as year 0. Some firms received ST only once, while others received ST for multiple times. To make a sensible comparison, we compare only those which become ST and never emerged from it (the permanent ST) with the delisted stocks in other countries. We require the firms have financial information available from five years before the delisting (ST) until the delisting (ST) year. Figure 10 shows that ST stocks in China dropped significantly from two years before the ST year, while the delisted stocks in other countries do not see their ROA become significantly worse before delisting. Compared with other major emerging countries (including India, Brazil, Russia and South Africa), the decline in ROA for Chinese ST stocks is even striking because the delisted stocks in these reference countries don't have negative ROA even when they are delisted. The contrast is similar when we use ROE to measure firms' performance in Panel B of Figure 10.

These findings suggest that some of the Chinese listed firms perform even worse than the delisted firms in other countries. Some firms that are performing really badly have existed in Chinese stock market and are rarely delisted. Indeed, only around 20 stocks are delisted from stock market in China every year, and fewer than 10 of them are delisted due to negative

earnings. The inefficient delisting mechanism may have contributed to the poor performance of the Chinese stock market.

In addition, we examine the long-run stock performance of firms after IPO and present the results in Table VIII. Listed firms in China have significantly lower long-run returns measured by the 1-year, 5-year and the average annual returns compared with other countries, as indicated by the significantly negative coefficients of the China dummy. The underperformance is robust when firms' growth opportunities are accounted for.

C. Alternative Explanation

C.1. Tunneling and Investment

Although Chinese stocks perform worse that other countries, the listed firms in China are still making positive earnings as shown by Table I. A natural question is why the positive earnings are not accumulated to generate higher valuations for firms. A line of literature including Li, Lu, Qian and Zhu (2014) documents that controlling shareholders of listed firms divert assets by providing loan guarantees to subsidiaries or related parties, or by paying for the debt and expenses. While the tunneling by large shareholders may have been reduced after the CSRC announced new rules curbing the tunneling activities. If tunneling is one explanation for the poor performance of Chinese stock market, then we should expect a decline in cash holdings after IPO.

Figure 11 shows it is indeed the case. The average cash holding, measured by the total cash to the contemporaneous book assets ratio, is 0.27 for Chinese listed firms in the listing year, significantly higher than that of US listed firms at listing. The ratio consistently declined to 0.14 by the end of the fifth year after IPO, while the cash holding of US listed firms reduced only 0.05

in the same period after listing. This may suggest that firms may either divert the money to private parties or make more investment.

We therefore compare the investment by listed firms in China and in the US around the listing year. We measure investment by capital expenditure, scaled by the book assets in the previous year. As demonstrated by figure 13, Chinese firms invest much more than US firms, both before and after IPO. The average investment by Chinese listed firms is 0.68, while the measure is merely 0.07 by US listed firms. The contrast is sharp in the -3 to +3 year window around listing.

Panel B plots the performance of listed firm around IPO. The figure clearly shows an opposite patterns of profits made by Chinese listed firms and US listed firms after IPO. Listed firms in China see stable ROA and ROE before listing, while their profits drop substantially in the year of IPO and remain low afterwards. In contrast, listed firms in the US start with negative ROA before the listing and keep improving until IPO. ROA dropped slightly after one year but remain higher than the pre-IPO level. ROE shows a similar trend.

Panel C presents a more interesting finding of listed firms' performance around significant investment. We define significant investment as the ratio of capital expenditure scaled by lagged assets exceeding 10%. We rank the investment by its magnitude and keep the largest one for each firm. If we zoom in and observe the performance change within a short window around the investment date, we would find similar change in performance for both Chinese and US listed firms. Profits drop in the two years after investment. It is common that making investment increases the asset base while earnings change with a lag. However, if we examine the patterns of profitability over a longer horizon, we find that there is a run-up of profits for US firms before they make the investment, but the profits for Chinese listed firms keep declining before the

investment. It suggests listed firms in China and US are different in choosing the timing for their investment.

These findings imply that the investment made by the Chinese listed firms may not be efficient. Chinese listed firms may attempt to improve the performance by making more investment, so they tend to choose to make investment when they see deteriorating profits. In contrast, US listed firms are more likely to investment when they see their profits are improving. Although there is an immediate drop in profits after the investment but the it recovers soon and surpasses the previous level.

C.2. Alternative Explanations

C.2.1 Risk

An alternative explanation for the poor performance of the Chinese stock market is that the risk is declining. We control for the cumulative stock return volatilities in the BHR regressions, and find that the underperformance of the listed stocks in China still remains. To further account for risk, we construct annual Sharpe Ratio of stocks using the monthly stock returns extracted from Bloomberg. Figure 14 shows the plots of the average of annual Sharpe Ratio of stocks listed in China and the reference countries. The Sharpe Ratio for China is lower than other countries before 2006. It is the highest in the 2007 bubble period and the 2008-09 crisis period. When controlling for firm and countries characteristics in Table III, the Sharpe Ratio for Chinese listed stocks is still lower. Panel B of figure 14 shows there is no big change in stock return volatilities over the years, indicating that risks do not explain the poor performance of Chinese stock market.

C.2.2 Interest Rates and Valuation

If interest rates rise, then market values will drop for given assets and cash flows. So one explanation of the failure of market values to remain constant despite the inflow of cash is that interest rates have risen. However, the figures in Table II show that this is not the case. In fact if anything interest rates have fallen. The real demand deposit rates decline from -0.51% in 2000 to -2.15% 2012. The 1-year deposit rate in 2012 is 0.5%, slightly lower than that in 2000. The 5-year deposit rates also didn't increase significantly over the years. Therefore, we don't find any evidence that the lower stock returns are due to increasing interest rates.

Figure 15 plots the valuations of listed firms over the sample period. We construct the price-to-earnings ratio and the market-to-book ratio at country-level. We aggregate the market capitalization across stocks within a country and divide it by the aggregated net income of their issuing firms. Since the market capitalization is at security-level, we multiplied the net income by the ratio of market capitalization of a security to the market capitalization of its issuing firm to obtain the security-level net income. In this way we ensure the consistency of the measurement of the denominator and the numeration. Market-to-book ratio is calculated in the same way. As can be seen from figure 15, the P/E ratio is high in early 2000, but it declines over the years, except for year 2007 and 2009. The spike in 2007 is perceived to be a bubble of Chinese stock market, because the split-share reform is almost completed then and the anticipation of stock investors is high, which may explain the higher valuation in 2007. To survive in the crisis, firms may fire sell their assets to obtain liquidity, leading to high valuation in 2009. The decreasing valuation of firms may suggest that Chinese listed firms are lack of growth opportunities in the past decade.

IV. CONCLUSION

The size of the Chinese stock market, including stocks listed and traded in Shanghai, Shenzhen and Hong Kong exchanges, is the second largest in the world. The underperformance of this market, especially since the recent global financial crisis, relative to both developed (US) and large emerging economies (Brazil, Russia, India and South Africa) has been striking. This is despite the fact that the Chinese economy, also the second largest in the world, has been the fastest growing globally for the past three decades. With firm-level data from over 80 countries for the period 2000-2012, we examine the determinants of the underperformance of the overall Chinese market as well as stocks in each major industry. The poor performance is not due to undervaluation of Chinese companies; instead, factors such as the IPO and delisting processes, corporate governance related to self-dealing and information disclosure are main contributors.

The answers to our key question would help policy makers and regulators (e.g., the CSRC) to come up with viable solutions to improve the efficiency and performance of the Chinese stock market. The stock market has not played a role as prominent as the banking sector in financing firms and economic growth (e.g., Allen, Qian and Qian, 2005; AQQ hereafter) for most of the past two decades. However, the importance of the equity market is growing, and its further development represents one of the main tasks for China's financial system (Allen et al., 2012). The methodologies and results from this paper can be applied to other emerging economies for similar purposes.

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Appendix: Variable Definitions

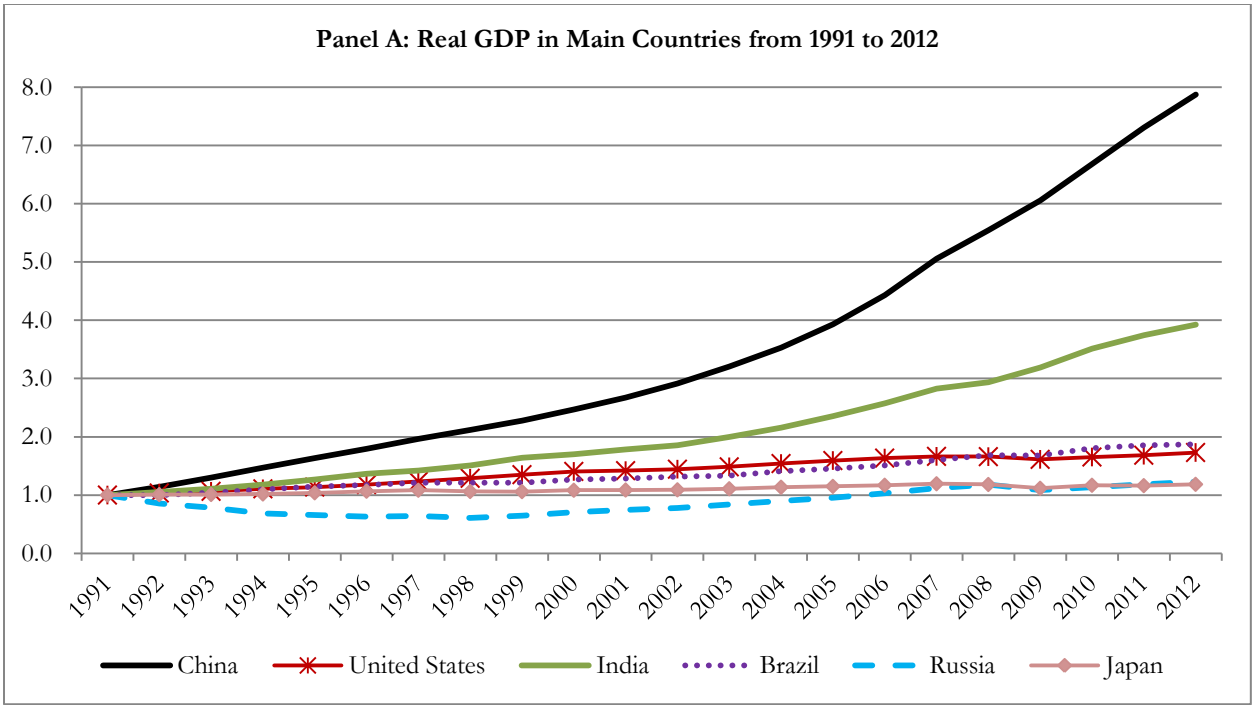
Variable	Definition
Datastream	
Security-level Variables	
P/E	The market capitalization of security j over the net income of the issuing firm. For firms listed in more than one exchange, the firm-level net income is split by the weight of market capitalization of stocks issued by the firm in all exchanges. We multiply the firm-level net income by the weight to obtain the security-level net income, and use the security-level net income as the denominator in the P/E ratio
M/B	The market capitalization of security j over the book equity of the issuing firm. For firms listed in more than one exchange, the book equity is split by the weight of market capitalization of the stocks issued by the same firm in all exchanges. We multiply the firm-level book equity by the weight to obtain the security-level book equity, and use the security-level book equity as the denominator in the M/B ratio
Firm-level Variables	
Cash Holdings	Total cash in year t/Total assets in year t
Leverage	Total debt in year t/Total assets in year t
Earnings Growth	(EBIT in year t - EBIT in year t-1)/EBIT in year t-1
Sales Growth	(Gross sales in year t - gross sales in year t-1)/Gross sales in year t-1
ROA	EBIT in year t/Total assets in year t
ROE	Net Income in year t/Total book equity in year t
ROS	EBIT in year t/Total sales in year t
Country-level Variables	
P/E	The aggregated market capitalization of all stocks listed in a country over the aggregated net income of the same firms. For firms listed in more than one exchange, the firm-level net income is split by the weight of market capitalization of stocks issued by the firm in all exchanges.
M/B	The aggregated market capitalization of all stocks listed in a country over the aggregated book equity of the same firms. For firms listed in more than one exchange, the book assets are split by the relative weight of market capitalization of stocks issued by the same firm in all exchanges.
ROA	The aggregated EBIT in year t for country i/The aggregated total assets in year t for country i
ROE	The aggregated net income in year t for country i/The aggregated book equity in year t for country i
ROS	The aggregated EBIT in year t for country i/The aggregated sales in year t for country i
Value-Weighted Buy-and-Hold Return	The cumulative annual stock returns since 2000. The annual stock returns are calculated as the value-weighted stock returns across all firms listed in this country, with the market capitalization of the firm as the weight. For firms issuing stocks listed in more than one exchange, the weight is market capitalization of the stock in each exchange.
Number of IPO/Total Number of Firms	The number of IPOs in one country over the total number of listed firms in this country counted in the same year.
Number of IPO/Total Number of Firms	The number of firms whose stock trading become inactive in one country over the total number of listed firms in this country counted in the same year.
Bloomberg	
Sharpe Ratio	Annual excess return over annual standard deviation of returns. We use zero as the risk-free rate. Annual excess return is calculated as the monthly stock return multiplied by 12. Annual stock return volatility is calculated as the monthly stock return volatility multiplied by 12.

Appendix – Cont'd

Compustat	
Investment (for US firms)	Capital expenditure/Lagged Total Assets
WIND	
Investment (for Chinese firms)	Capital expenditure/Lagged Total Assets. In WIND, capital expenditure is reported as "cash flow on fixed assets"
National Bureau Statistics (NBS) ASIF	
	NBS database is used to construct ROA, ROE, ROS, leverage, sales growth, earnings growth and other variables for private firms in China. The variable definitions are the same as those for listed firms
CSMAR	
Ultimate Controller	The entity that ultimately controls the firm. The ultimate controlled can be the central SASAC, local SASAC, Ministry of Finance, other government agent, other non-enterprise organizations, universities, group companies, natural person, among others.
Ownership of Ultimate Controller	The percentage of shares held by the ultimate controller
World Bank	
GDP Growth	The real GDP growth rate adjusted for inflation in local currency, extracted from World Bank database
Domestic Credit from Financial Sector to GDP Ratio	Domestic credit provided by the financial sector includes all credits to various sectors on a gross basis, with the exception of credit to the central government, which is net. The financial sector includes monetary authorities and deposit money banks, as well as other financial corporations where data are available (including corporations that do not accept transferable deposits but do incur such liabilities as time and savings deposits). Examples of other financial corporations are finance and leasing companies, money lenders, insurance corporations, pension funds, and foreign exchange companies
World Federation of Exchanges	
Turnover Ratio	The ratio between the Electronic Order Book (EOB) turnover of domestic shares and their market capitalization. The value is annualized by multiplying the monthly average by 12
Djankov et al. (2008)	
Anti-self-dealing index	Average of ex-ante and ex-post private control of self-dealing, ranging from zero to one
Ln GDP/POP	Logarithmic of per capita Gross Domestic Product (in US dollars) in 2003. Source: World Development Indicators at http://devdata.worldbank.org/dataonline/
Time to collect on a bounced check	Logarithm of the length (in calendar days) of the judicial procedure to collect on a bounced check. Source: Djankov et al. (2003a)
Tax evasion	Assessment of the prevalence of tax evasion. Higher scores indicate higher tax evasion. The data is for 2002. Ranges from 0.94 to 8.54. Source: World Economic Forum (2003)
Newspaper circulation	Logarithmic of newspapers and periodicals circulation per thousand inhabitants in 2000 (or closest available). Source: United Nations Statistical Database (http://unstats.un.org)
English	A dummy variable taking the value of one if the country has an English legal origin; and zero it the country has other legal origin (French, German or Scandinavian)
Leuz et al. (2003)	
Earnings Management	This measure for countries other than China is extracted from Table II of Leuz et al. (2003). We follow Table II of Leuz et al. (2003) to construct this measure for China. By construction, a larger number represents more earnings management going on in the firms listed in this country.

Figure 1. Real GDP in Main Countries from 1991 to 2012

This figure plots the real GDP of China and other major countries. Real GDP data are extracted from World Bank. Panel A plots the real GDP of China and other major countries from 1991 to 2012 and GDP are normalized to 1 in year 1991. Panel B plots the real GDP of China and other major countries from 2000 to 2012 and GDP are normalized to 1 in year 2000. Real GDP is in constant local currency. Data is collected from WDI under the item "GDP (constant LCU)".



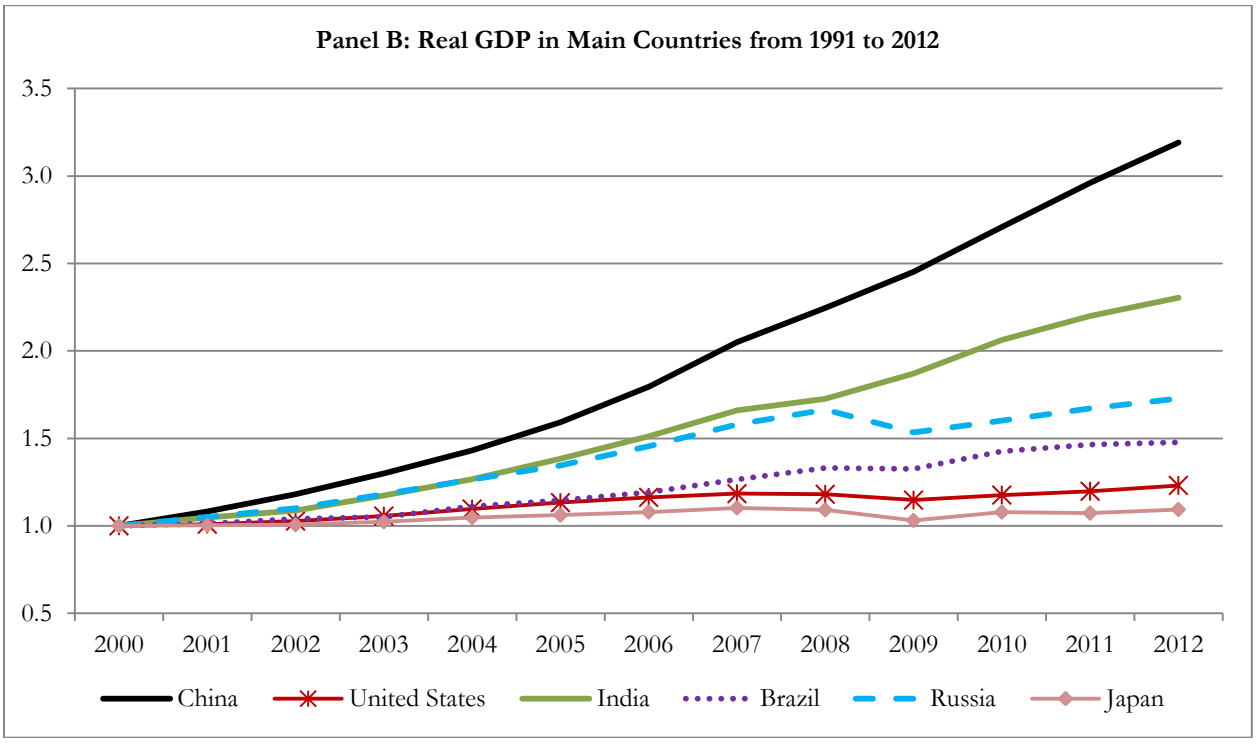


Figure 2. Cumulative Returns on Major Indices from 1993 to 2014

The figure plots the real value of $1 investment in certain indices from 1993.01.01 to 2014.03.31. The relevant indices are: SSE Composite Index (China), S&P 500 (US), BSE Sensex (India), IBOV (Brazil), RTS (Russia), FTSE/JSE TOP40 (South Africa), FT100 (UK), Nikkei 225 (Japan). Annual data (also the data for the 1st quarter of 2014) is collected from Bloomberg. We adjust the nominal returns for inflation to obtain the real returns. We use the CPI rate of the listing country in the same year to measure inflation.

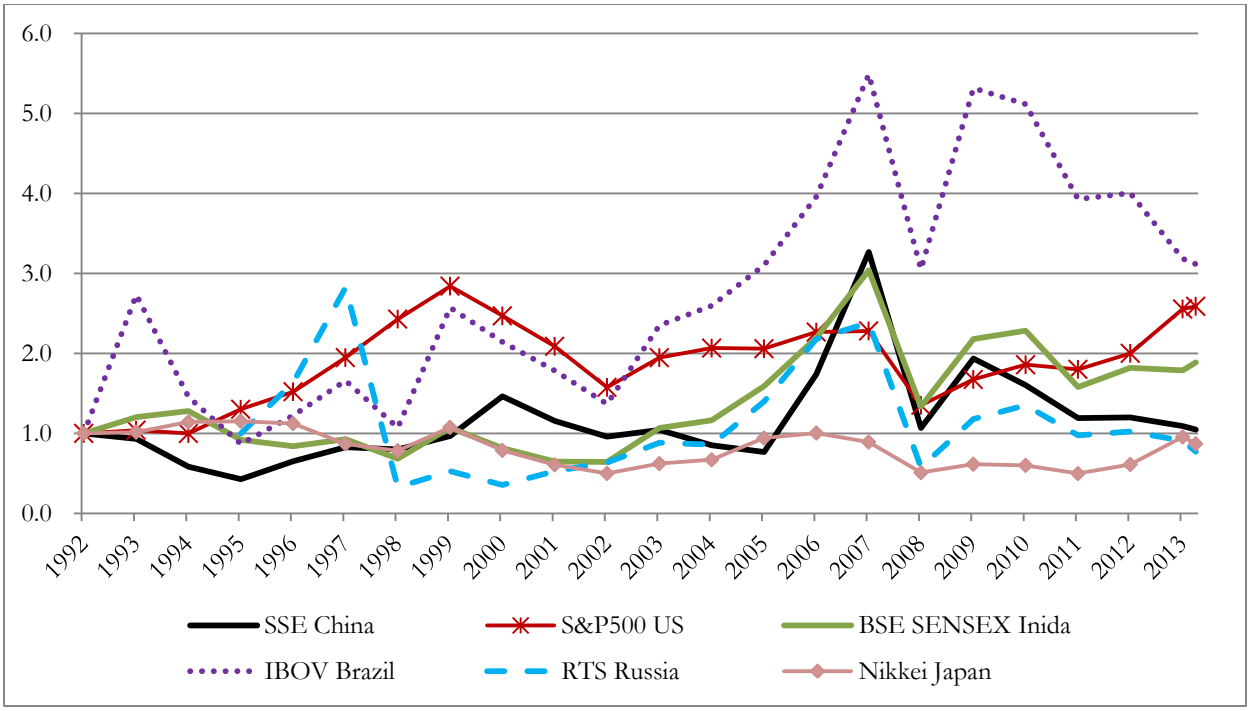


Figure 3. Inflation of China

This figure plots the monthly CPI of China from Jan 1992 to March 2014. Monthly CPI data collected from National Bureau of Statistics of China.

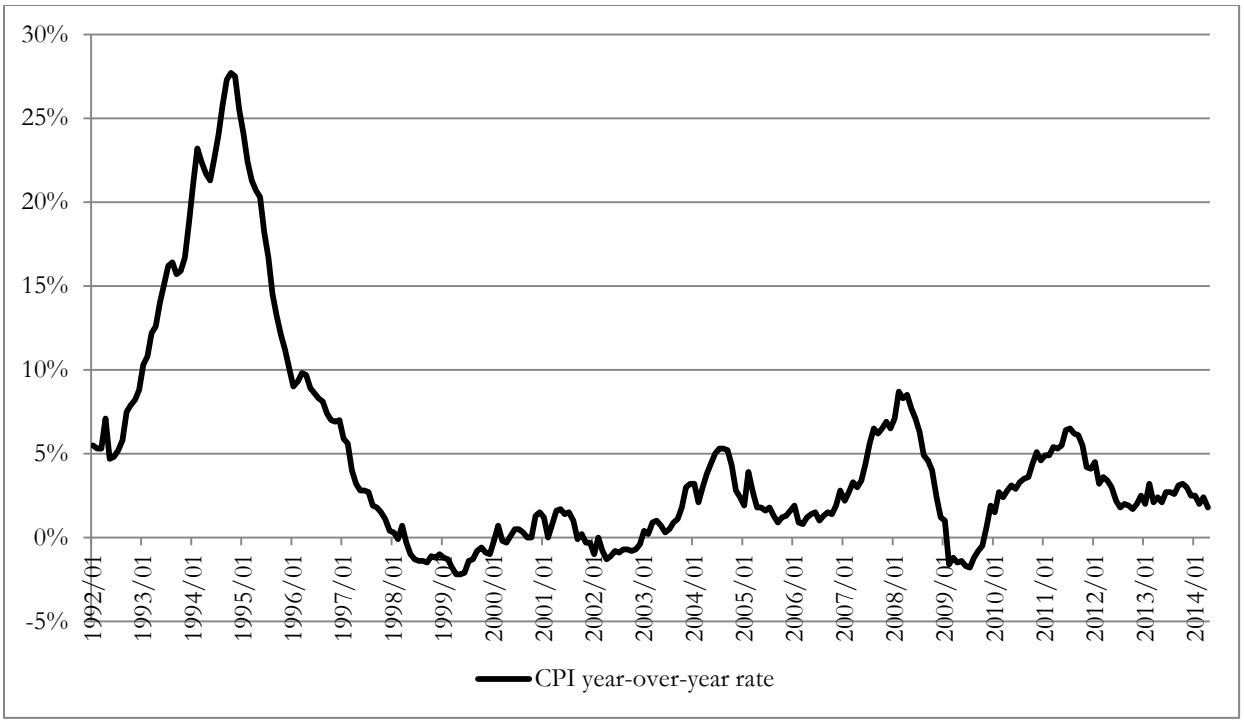
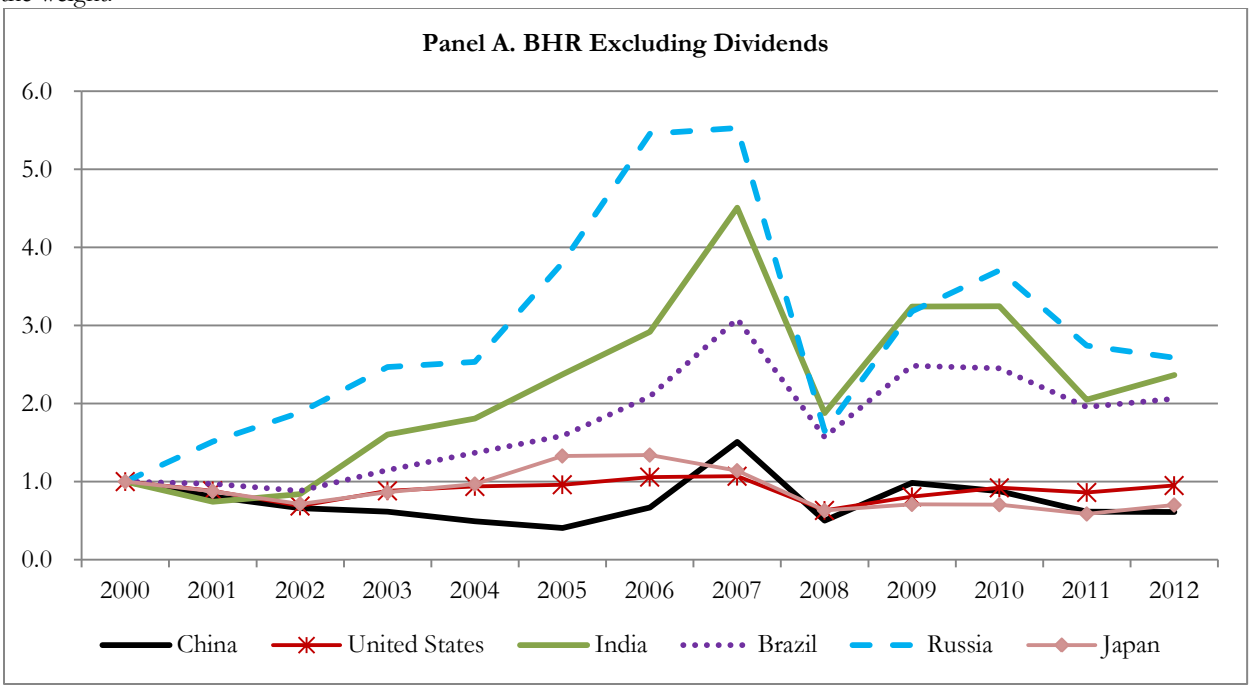


Figure 4. Buy-and-Hold Returns of Firms Listed in Main Countries

This figure plots the value-weight buy-and-hold returns (BHR) of the stocks listed in China and other major countries. Panel A plots the BHR excluding cash dividends. Panel B plots the BHR including the cash dividends. For each country, the BHR are calculated by accumulating value-weighted annual real returns of all stocks listed in the country from year 2000. We adjust the nominal returns for inflation to obtain the real returns. The inflation is the CPI rate of the listing country in the same year. We set the BHR to be 1 in year 2000. We use the lagged market capitalization of the stock as the weight.



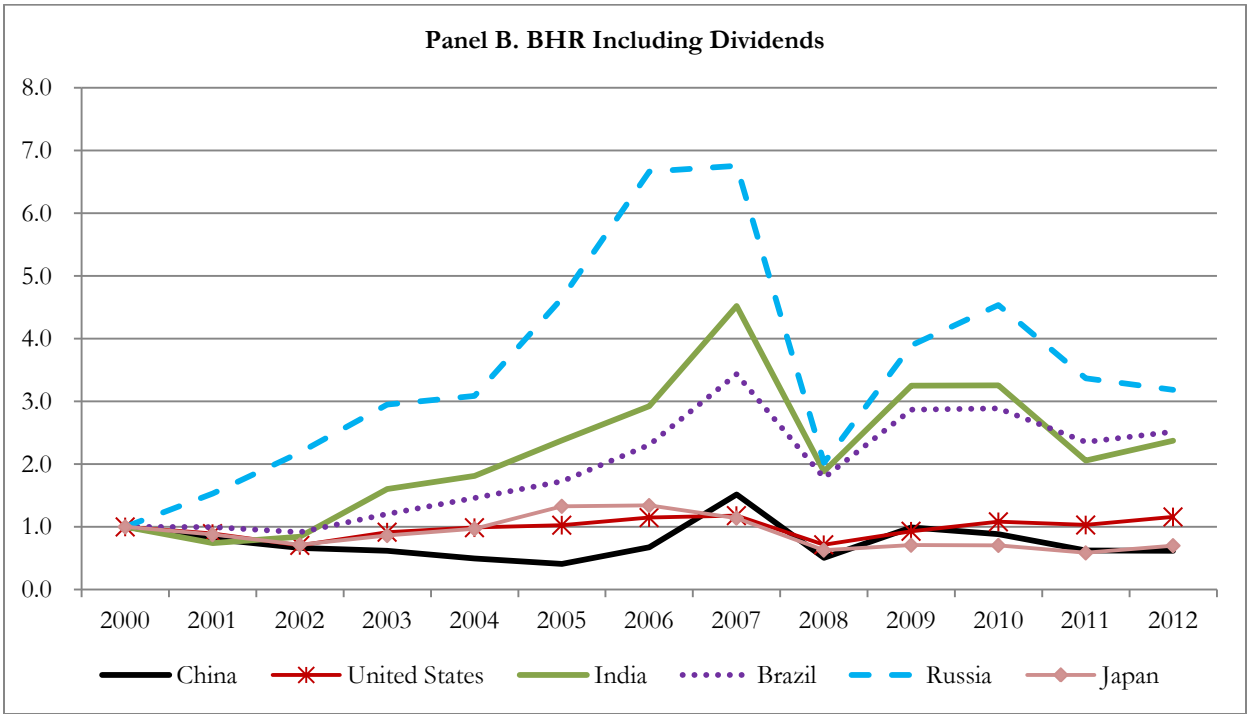


Figure 5. Cumulative Real Returns on Deposits and Stocks

This figure plots the buy-and-hold returns on deposits and stocks from 2000. The line represents the buy-and-hold returns of Chinese stocks. The bars represent cumulative returns on deposits in China. We plot the cumulative real returns on the demand deposits, 1-year and 5-year deposits. The BHR of stocks are calculated by cumulating value-weighted annual stock returns with the lagged market capitalization as the weight. All returns are adjusted for CPI rate at the end of the year to be real returns.

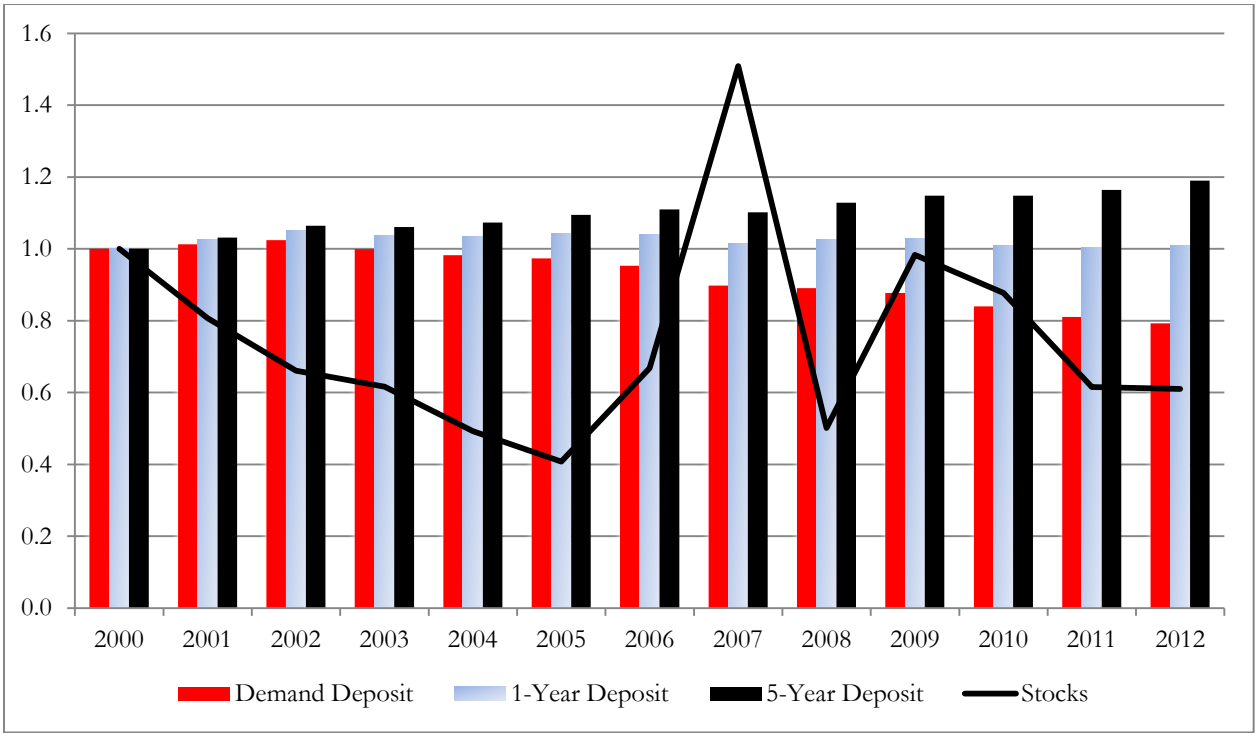
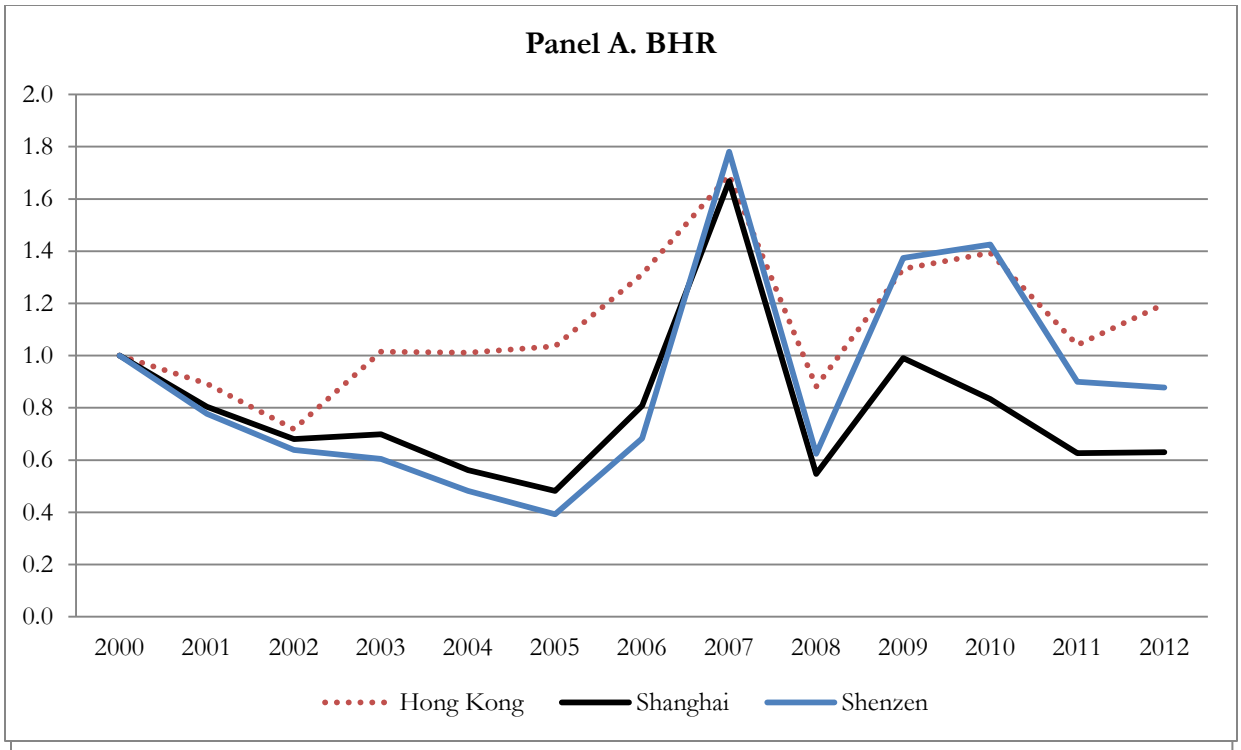
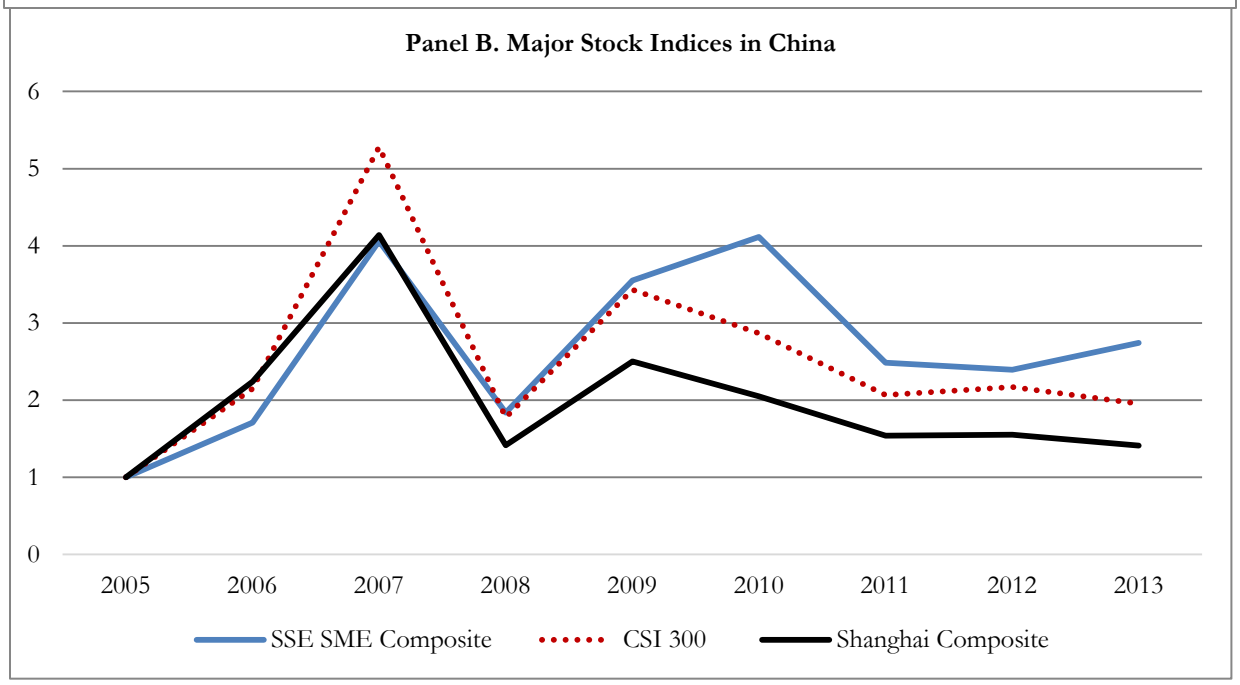


Figure 6. Performance of Chinese Stocks: Shanghai, Shenzhen and Hong Kong

This figure plots the stock performance of firms listed in China. Panel A plots the value-weighted buy-and-hold returns of firms listed in Shanghai, Shenzhen and Hong Kong Exchange. Sample firms listed in Shanghai and Shenzhen exchanges are restricted to those on the main board. The buy-and-hold returns are calculated as cumulative annual stock returns, which are averaged across firms by year with the market capitalization in the same year as the weight, excluding dividends. Panel B and C reports the major stock index in China. All values are adjusted to be in 2000 local currency. CSI 300 index was introduced in 2005. Growth enterprise index was introduced in 2010. The index data are extracted from Bloomberg.





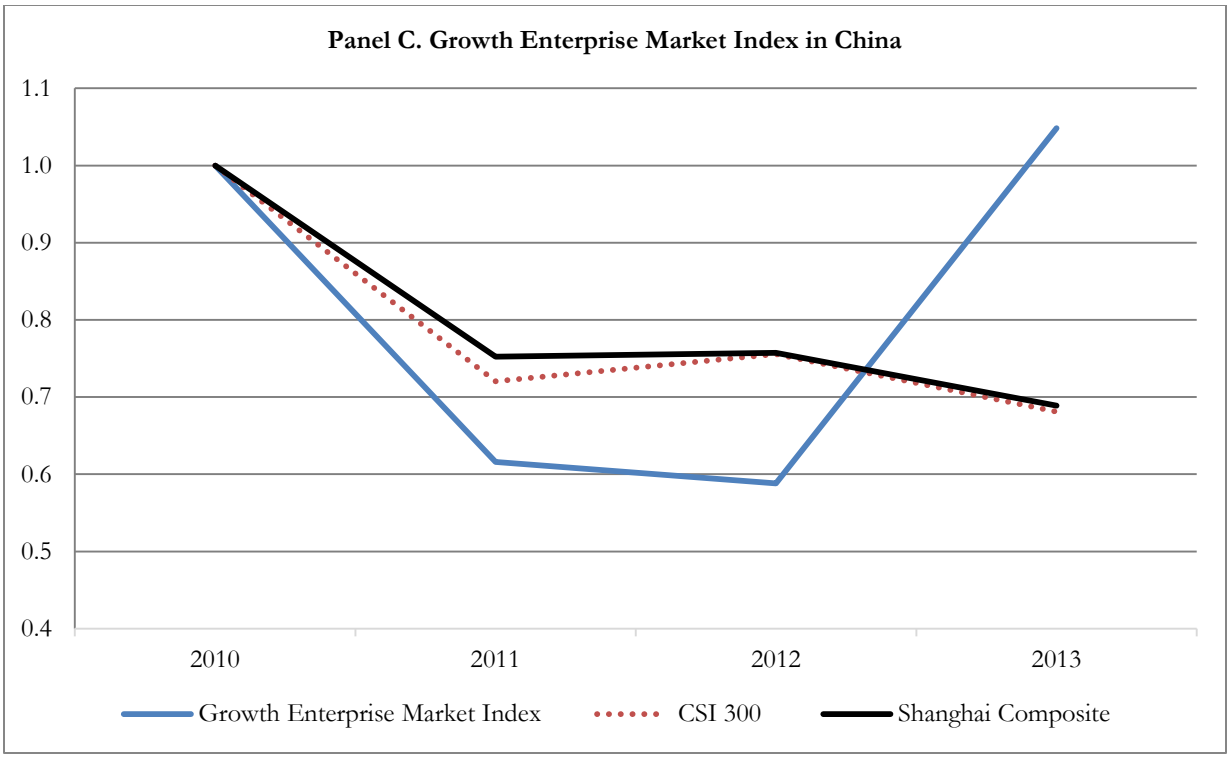
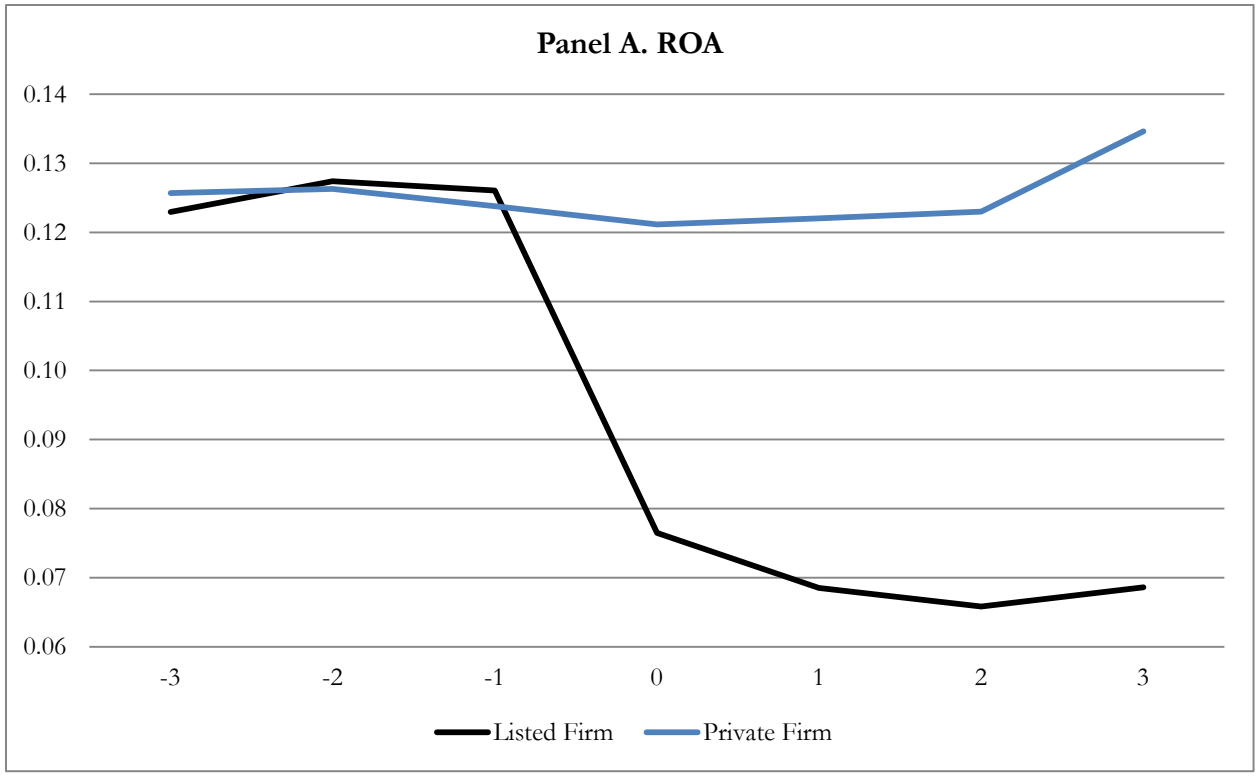

Panel C. Growth Enterprise Market Index in China
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
2010
2011
2012
2013
Growth Enterprise Market Index
CSI 300
Shanghai Composite

Figure 7. Performance around IPO: Listed Firms vs. Private Firms

This figure plots the performance of listed firms in China and their matching firms around their IPO. The ASIF data for private firms in China covers industry 6-46, corresponding to 7 industries in datasteam based on level-2 industry classification. Firms from 3 industries (Financial, Consumer Services, Utilities) are not matched so missing from the plots. Sample: Firms listed from 1999-2007. We require all listed firms (treatment) and their one-to-one matching firm that never get listed have non-missing ROA, ROE and ROS data in window [-1, +3]. We require the candidate matching firms have at least 5 years consecutive accounting data. ROA, ROE and ROS are simple average across firm by year window. Among the 1,693 China listed firms (with accounting data available at year -1 before IPO), 156 are from the 3 missing-industries. 594 are finally matched with one private firm from the same level-two industry in datastream with closest book assets in year -1. 585 firms have non-missing data [-1, +3]. 406 enter the plot because we also require the matching firm have non-missing data in [-1, +3]. 324 unique matching firms have non-missing data in year -1; 184 of them are non-missing data in year +3. 184 unique matching firms enter the plot. Winsorized 1%, 99% level. Listed and private firms are separately winsorized.



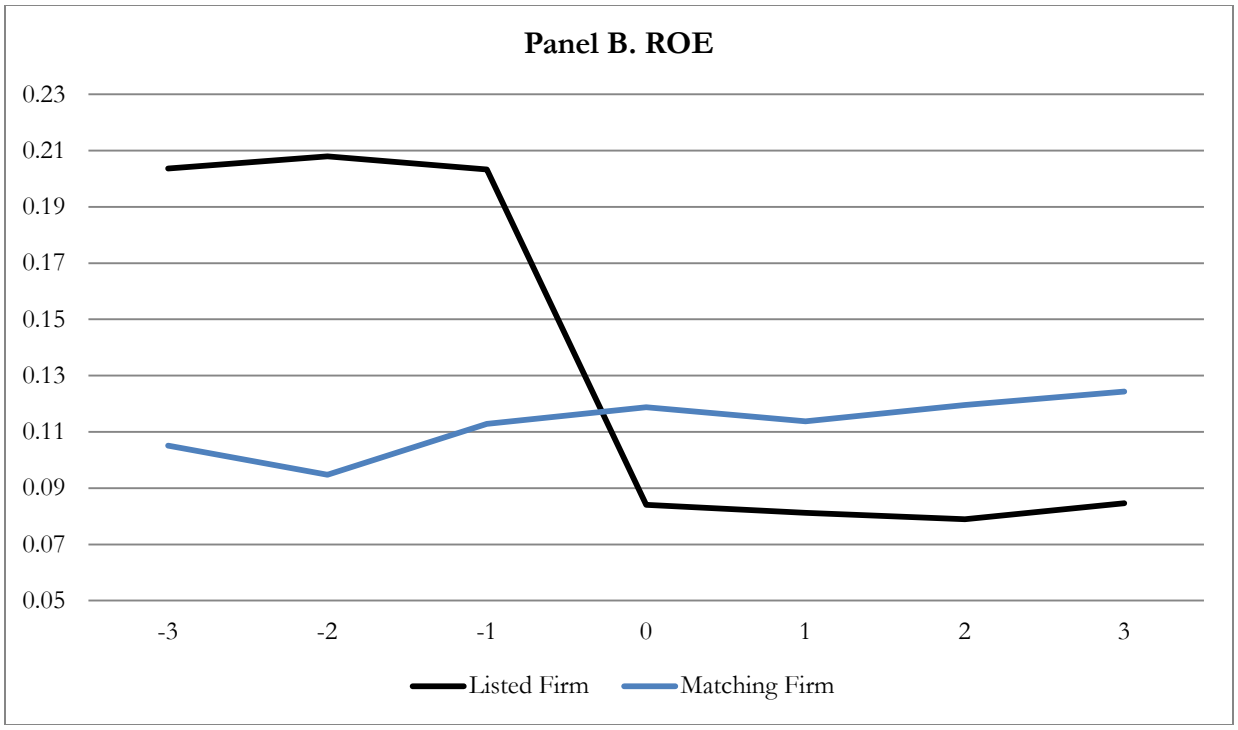
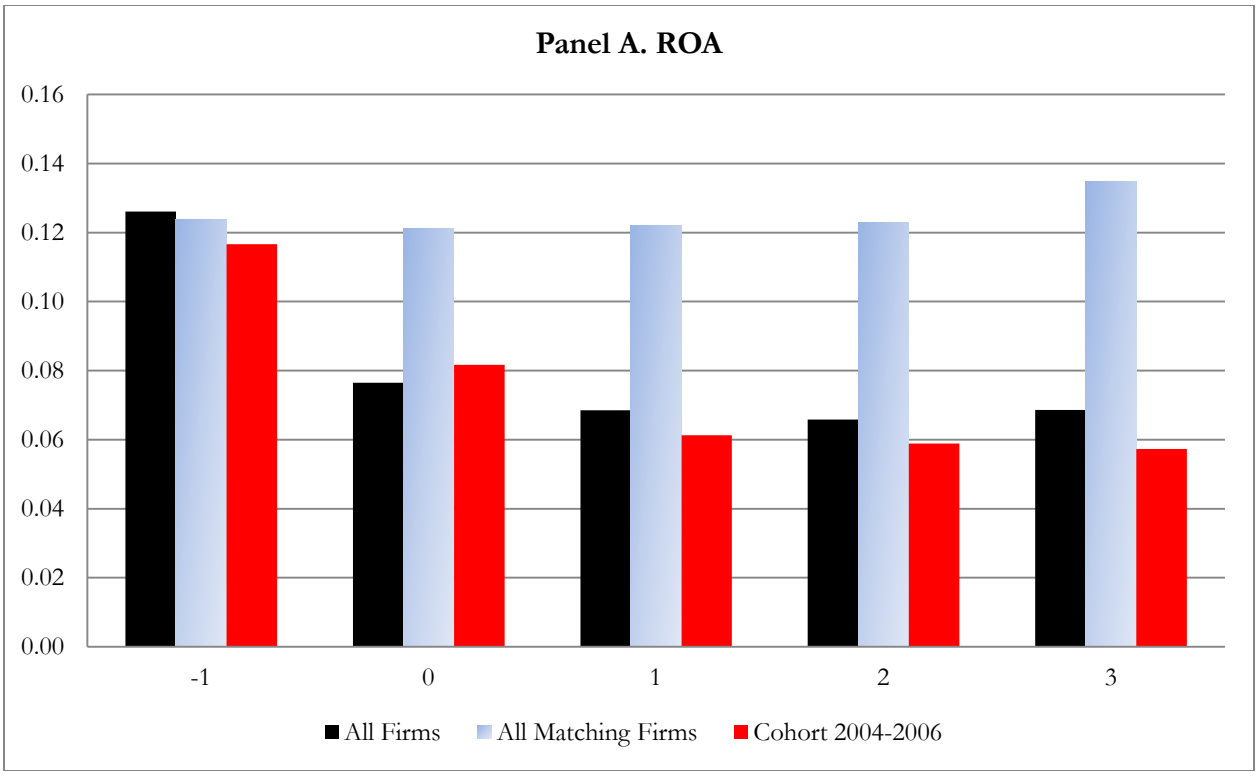

Panel B. ROE
0.23
0.21
0.19
0.17
0.15
0.13
0.11
0.09
0.07
0.05
-3
-2
-1
0
1
2
3
Listed Firm
Matching Firm

Figure 8. Performance around IPO: Cohort Analysis

We plot the performance of listed firms in China by grouping firms into different cohorts in this figure. The black bars represents all listed firms that have non-missing financial information from year -1 to year +3 around the IPO year. The light grey bars represent the matching firms selected from the private firms in the NBS database. Private firms are selected from the same level-2 industry as the listed firm and have the nearest book assets to the listed firm in the year prior to IPO. The dark grey bars represent the average of cohort 2004, cohort 2005 and cohort 2006. Cohort 2004 refers to firms that are listed in 2004. Cohort 2005 and 2006 are defined in the similar way. ROA, ROE and ROS are averaged across firms within each group.



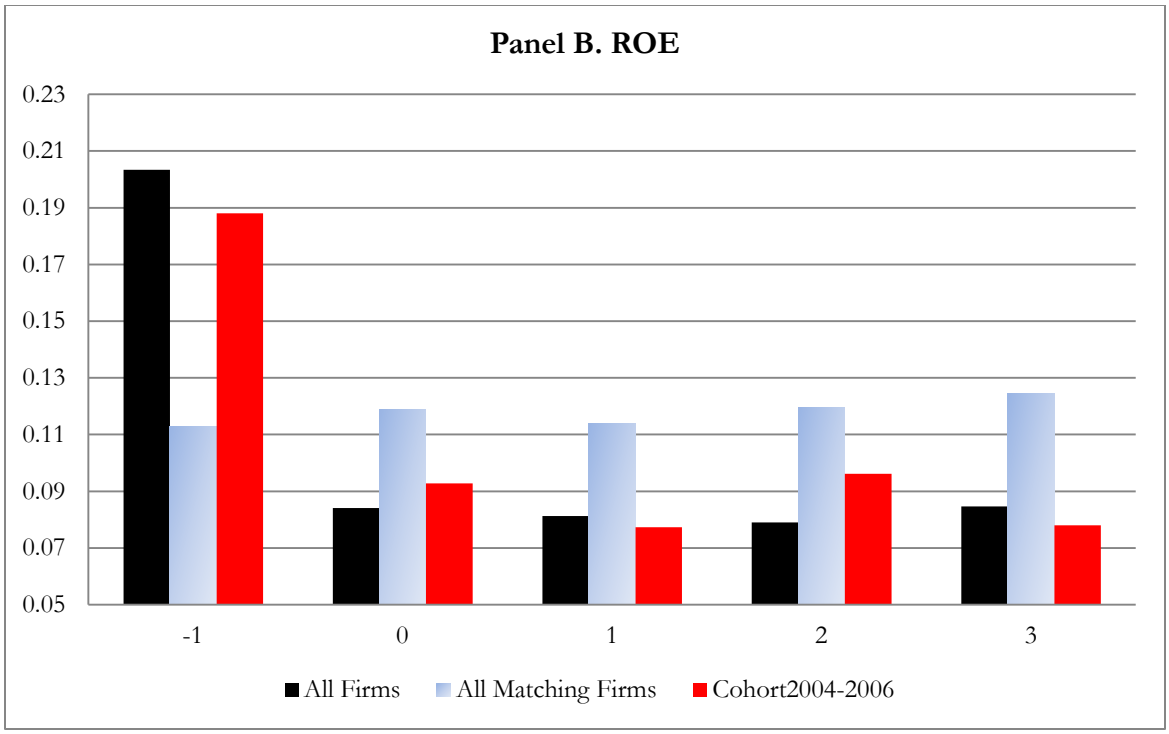
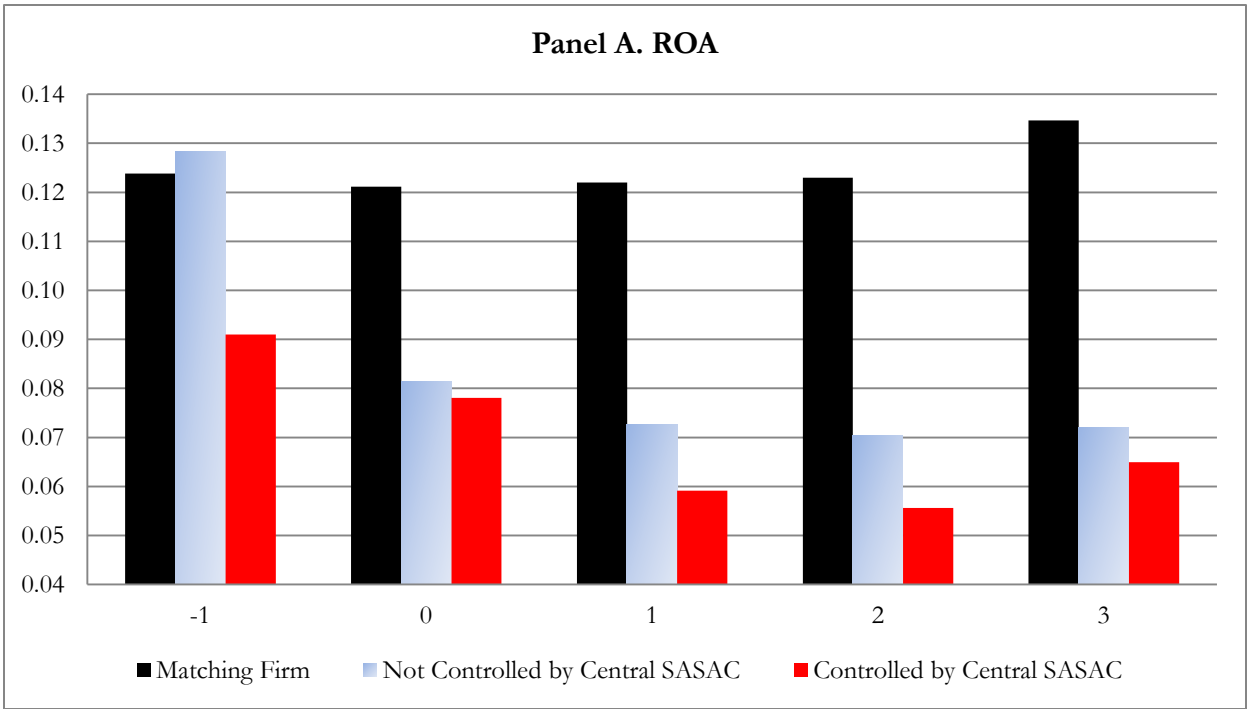

Panel B. ROE
0.23
0.21
0.19
0.17
0.15
0.13
0.11
0.09
0.07
0.05
-1
0
1
2
3
All Firms
All Matching Firms
Cohort2004-2006

Figure 9. Performance around IPO: Distinguish State-Owned Enterprises (SOE)

We plot the performance of listed firms in China before and after their IPO, and the performance of their matching firms which are selected from private firms. Private firm data are extracted from the National Bureau Statistics (NBS) database for industrial firms. Private firms are selected from the all private firms that are from the same industry as the listed firm and have nearest book assets to the listed firm in the year prior to IPO. We use the level-2 industry classification provided by Datastream. (So we manually match the industries in NBS to the industry classification in Datastream. 3 industries are not included in the NBS database: financial, consumer services and utilities). 70 SOE listed firms controlled by the central SASAC and 336 listed firms not controlled by the central SASAC meet the criteria. ROA, ROE and ROS are averaged across firms.



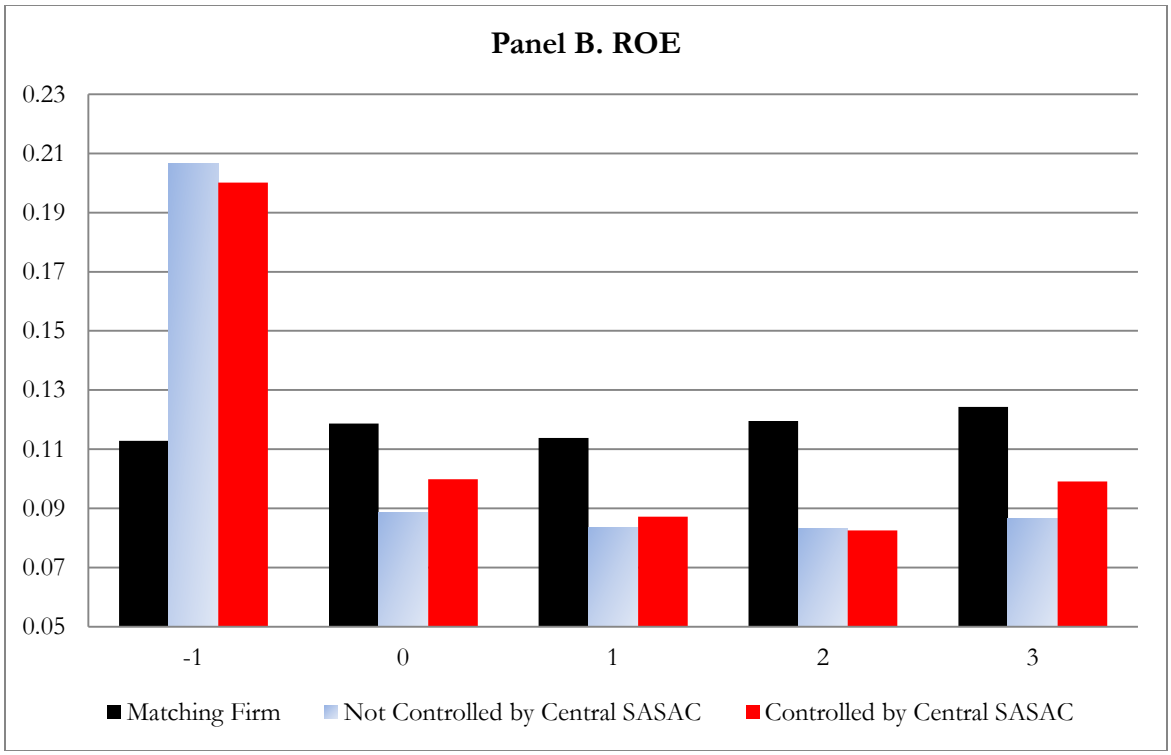
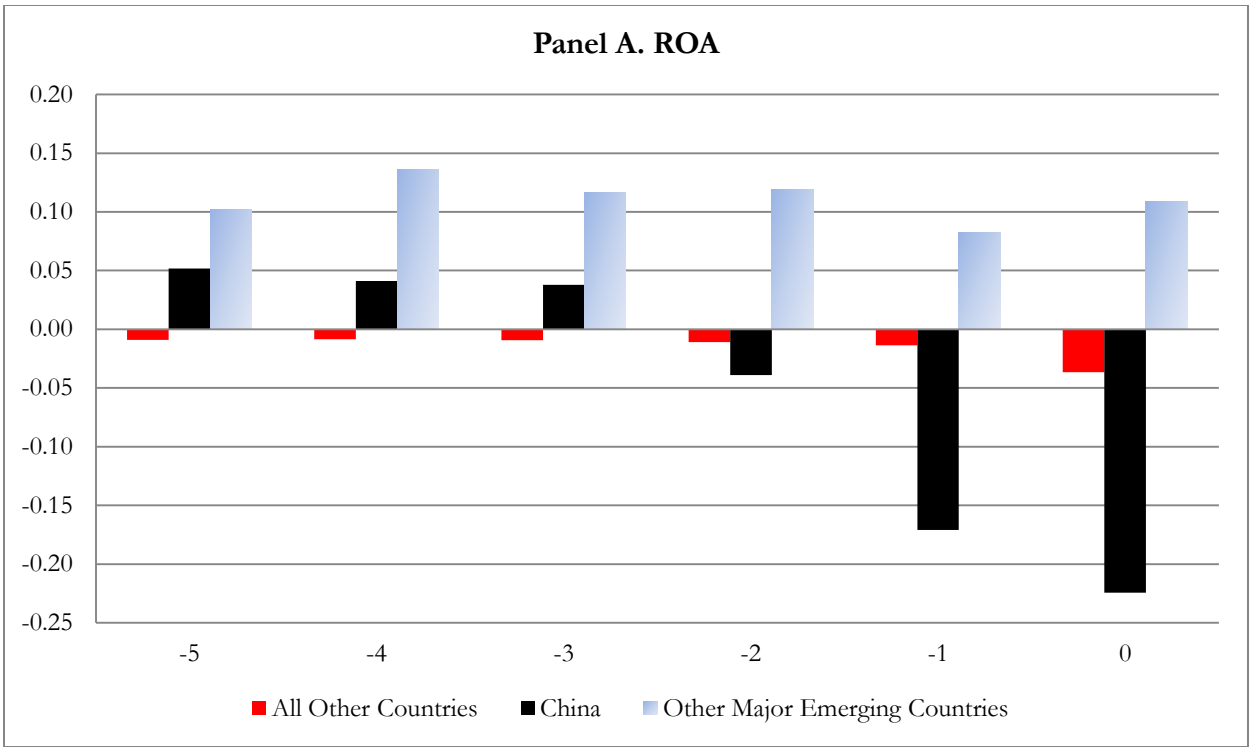

Panel B. ROE
0.23
0.21
0.19
0.17
0.15
0.13
0.11
0.09
0.07
0.05
-1
0
1
2
3
Matching Firm
Not Controlled by Central SASAC
Controlled by Central SASAC

Figure 10. Firm Performance before Delisting

This figure plots the earnings and stock returns of firms in the [-5, 0] year windows before their delisting or "ST". China ST stocks refer to stocks that are tagged as "special treatment" and never re-emerged from the special treatment later during the sample period. For all other countries, we define window 0 as the year which includes last price date or the inactive date, depending on which date is later. For ST stocks in China, we define year 0 as year when the firm became "ST" for the first time. ROA is EBIT/total assets. ROE is net income/total assets. Stock return is calculated as stock price in year t over stock price in year t-1. ROA, ROE and stock returns are value-weighted average across firms by window, with the lagged-one-year market capitalization as the weight.



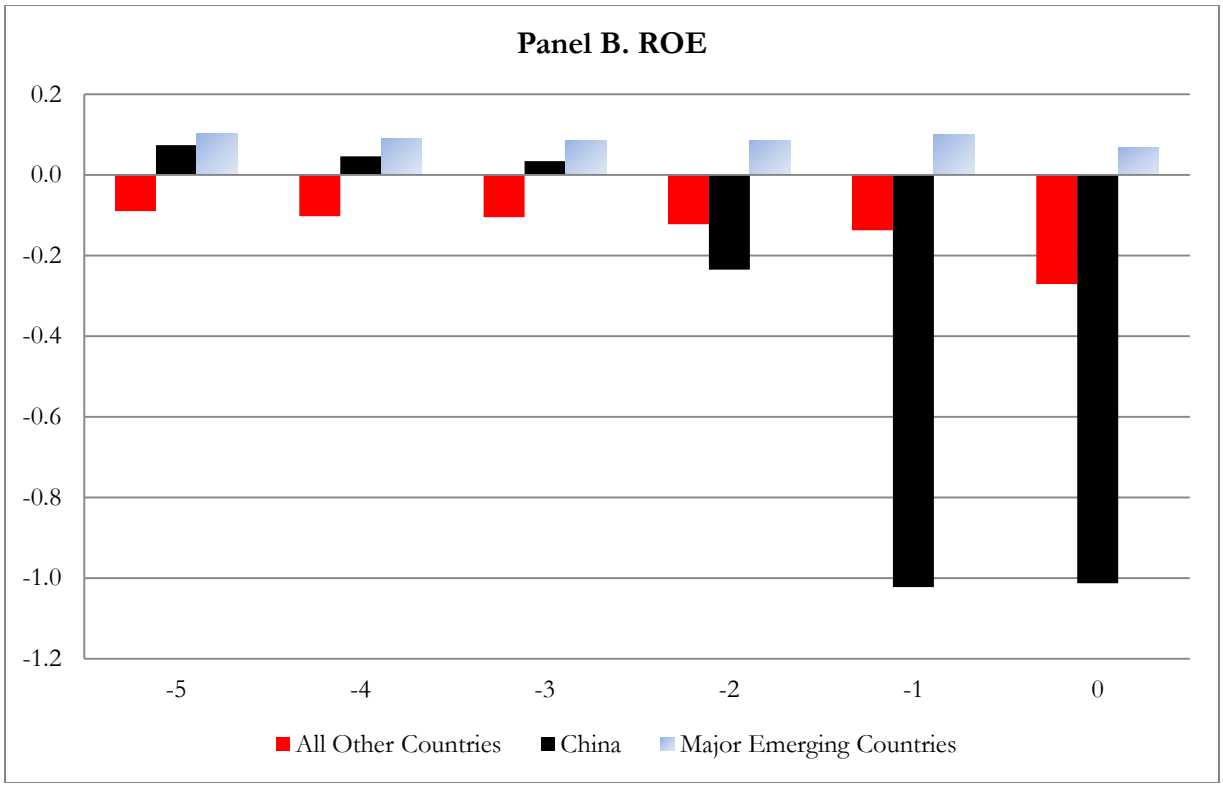

Panel B. ROE
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
-1.2
-5
-4
-3
-2
-1
0
All Other Countries
China
Major Emerging Countries

Figure 11. Tests of the Tunneling hypothesis: Cash holding after IPO

This figure plots the cash holdings after IPO for listed firms in China and US. The cash holding is calculated as the ratio of cash divided by the contemporaneous book assets. We require firms have non-missing cash holding information from the IPO year until five years after the IPO. The cash data for listed firms in China are from WIND. The cash data for listed firms in US are from Compustat.

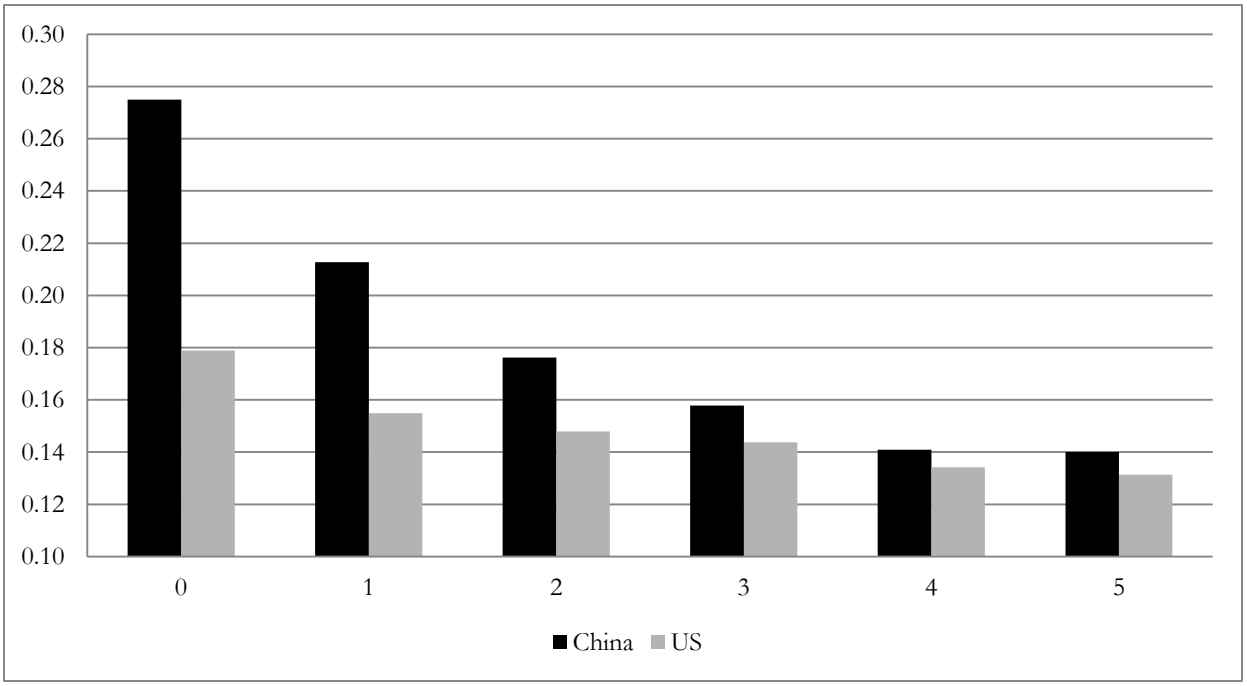
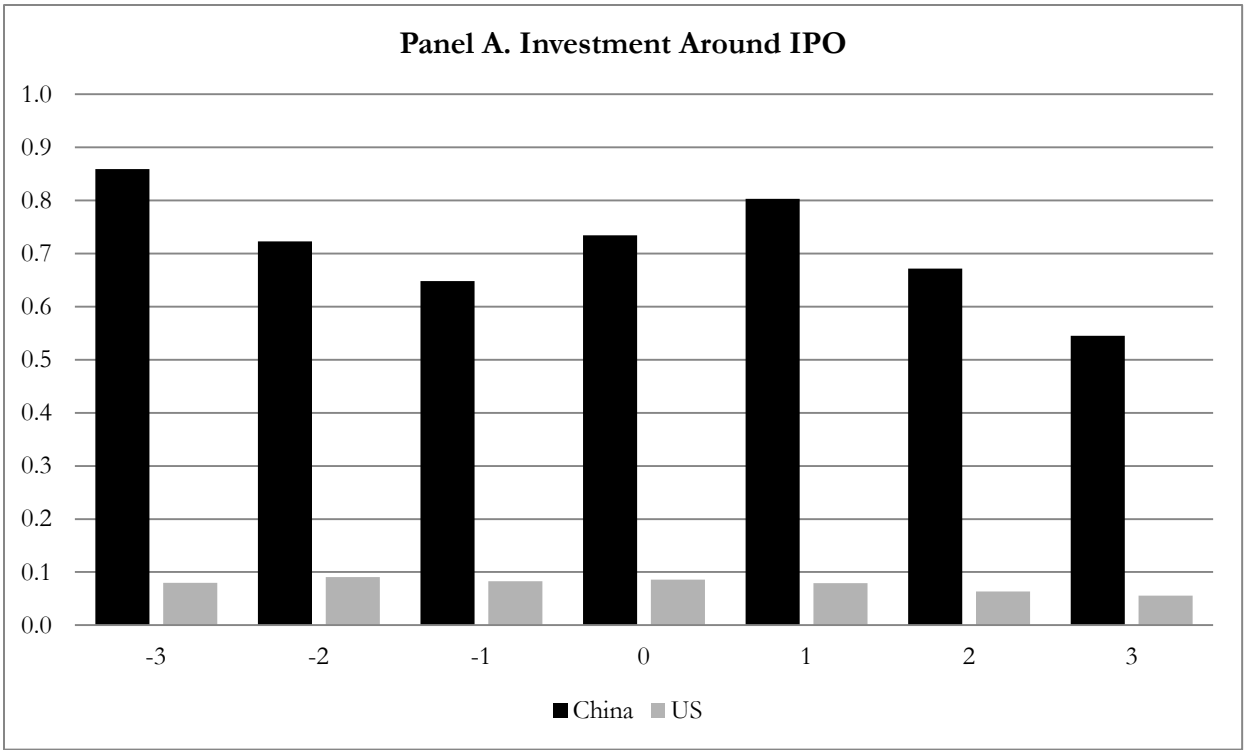
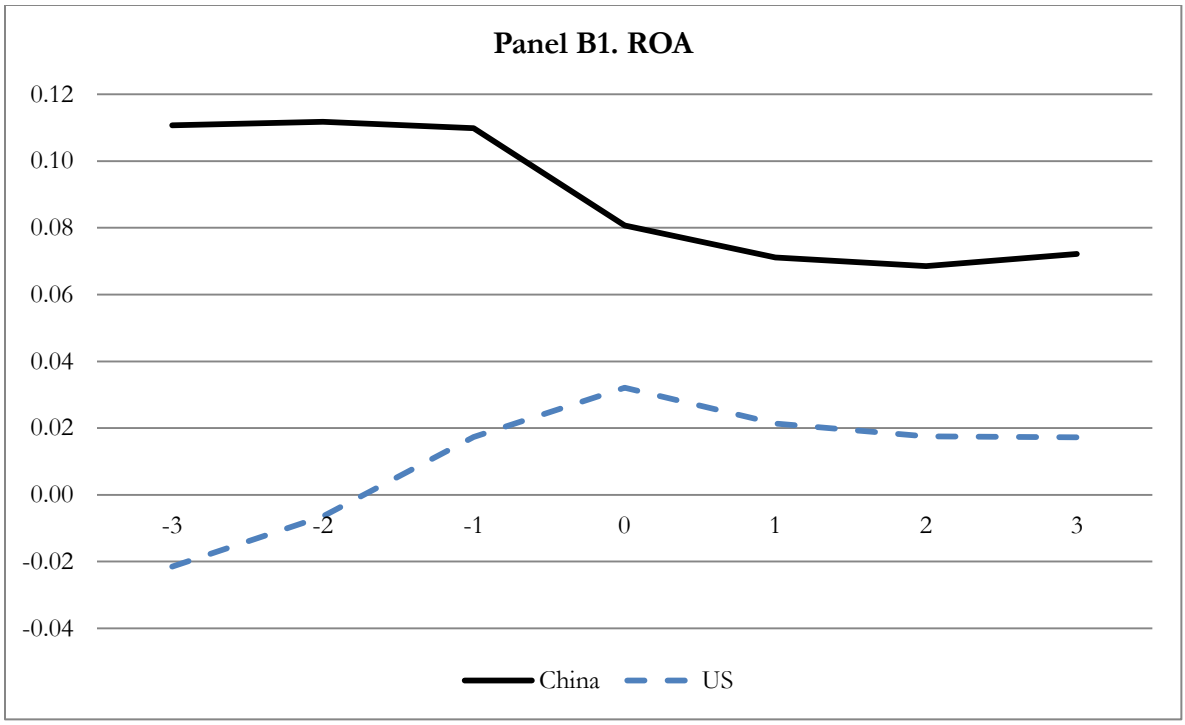
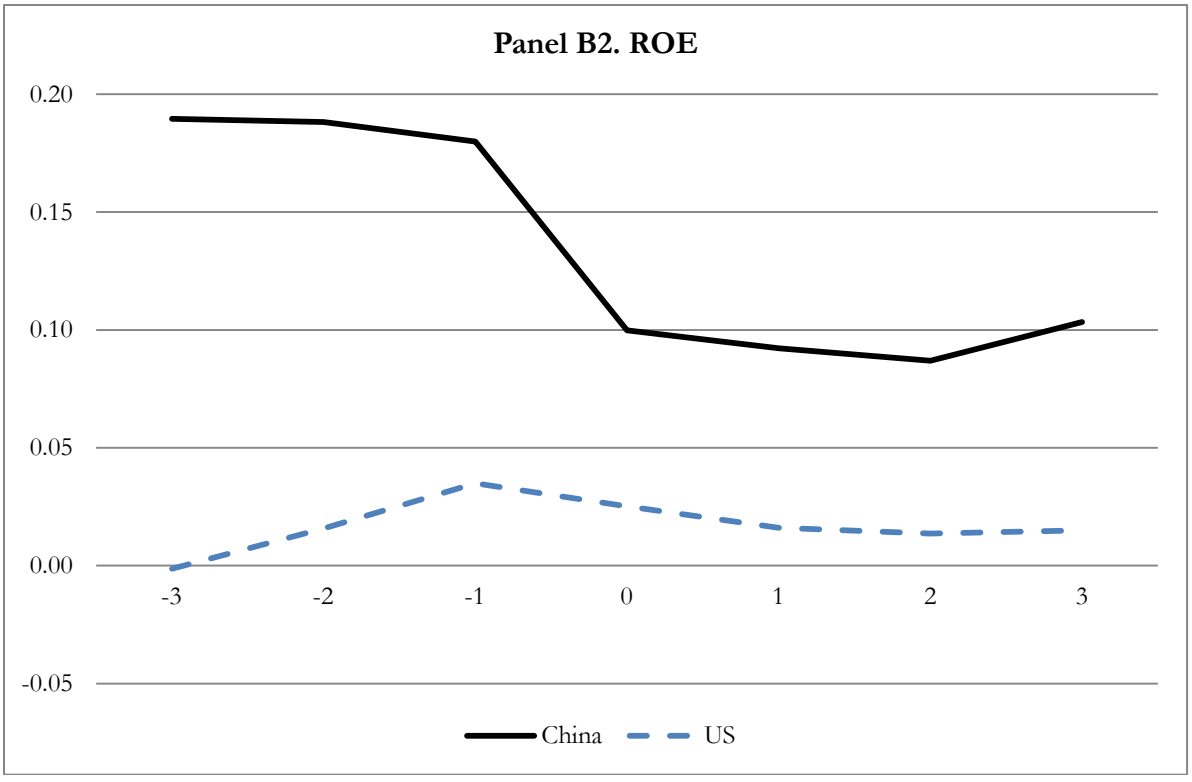


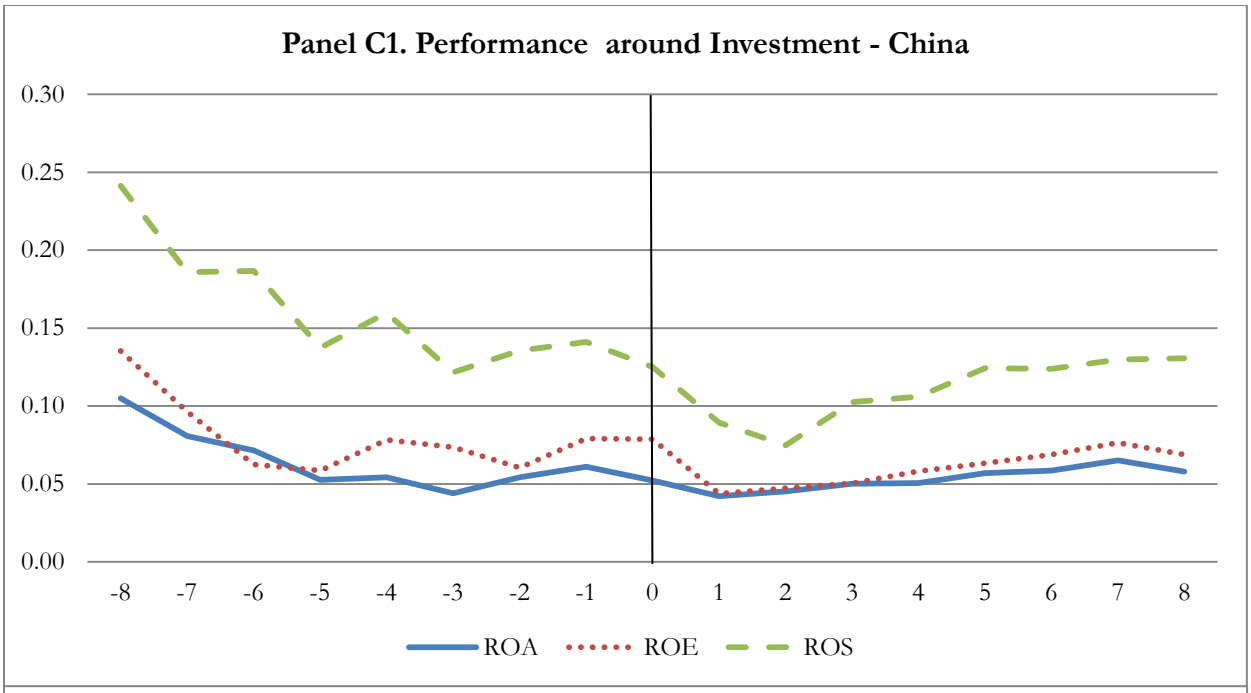
Figure 12. Investment Efficiency of Firms Listed in China and US

This figure plots magnitude and efficiency of investment by firms listed in China and US. Panel A plots the magnitude of investment around IPO. We require the firms have non-missing financial data from one year before to five years after IPO. Panel B plots the operating performance of firms listed in China and US around the year when they make significant investment. We use the capital expenditure in the year t scaled by the book assets in year t-1 to measure investment. The year of significant investment is defined as the year when the ratio of capital expenditure/lagged-one-year book assets is over 10%. We only keep the biggest investment made by each firm. We require firms that have non-missing financial information in year -8 to +8 around investment. 86 firms listed in China and 353 firms listed in the US meet the criteria and enter the plots. ROA, ROE and ROS are averaged across firms by year.




Panel B1. ROA
0.12
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-3
-2
-1
0
1
2
3
China
US


Panel B2. ROE
0.20
0.15
0.10
0.05
0.00
-0.05
-3
-2
-1
0
1
2
3
China
US


Panel C1. Performance around Investment - China
0.30
0.25
0.20
0.15
0.10
0.05
0.00
-8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8
ROA
ROE
ROS

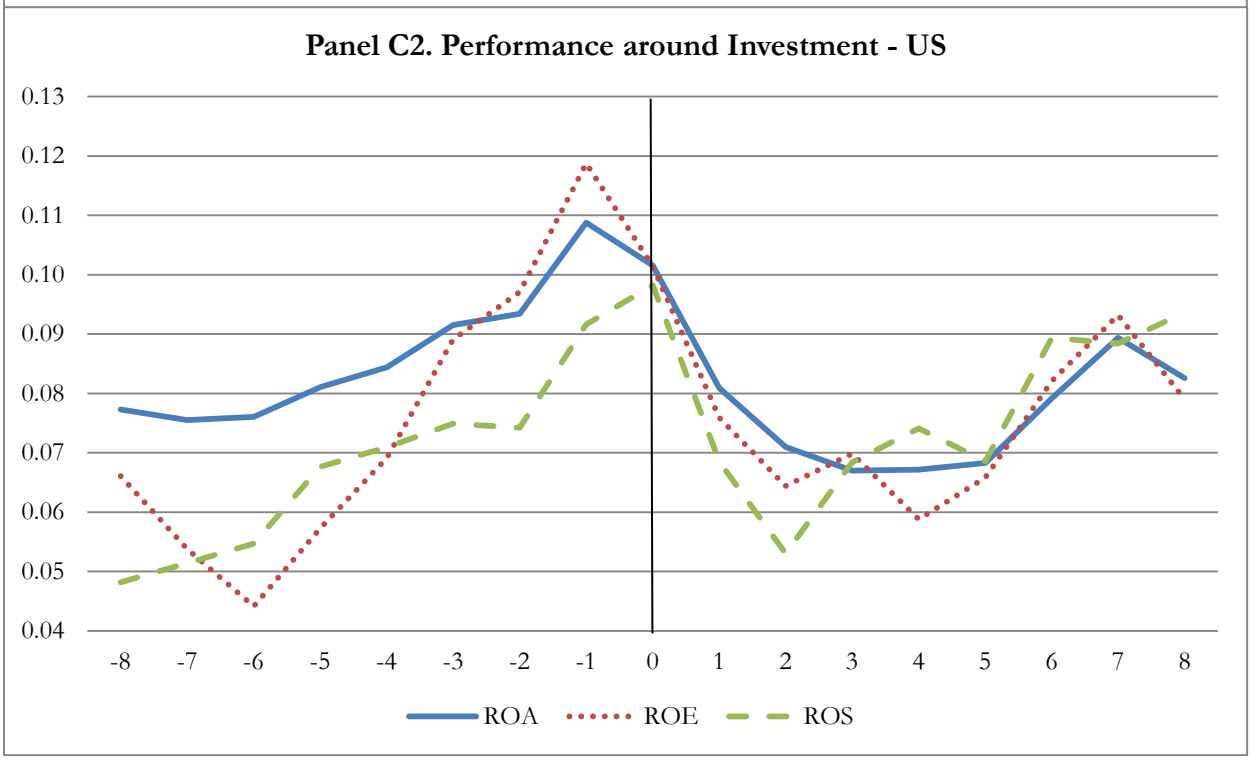
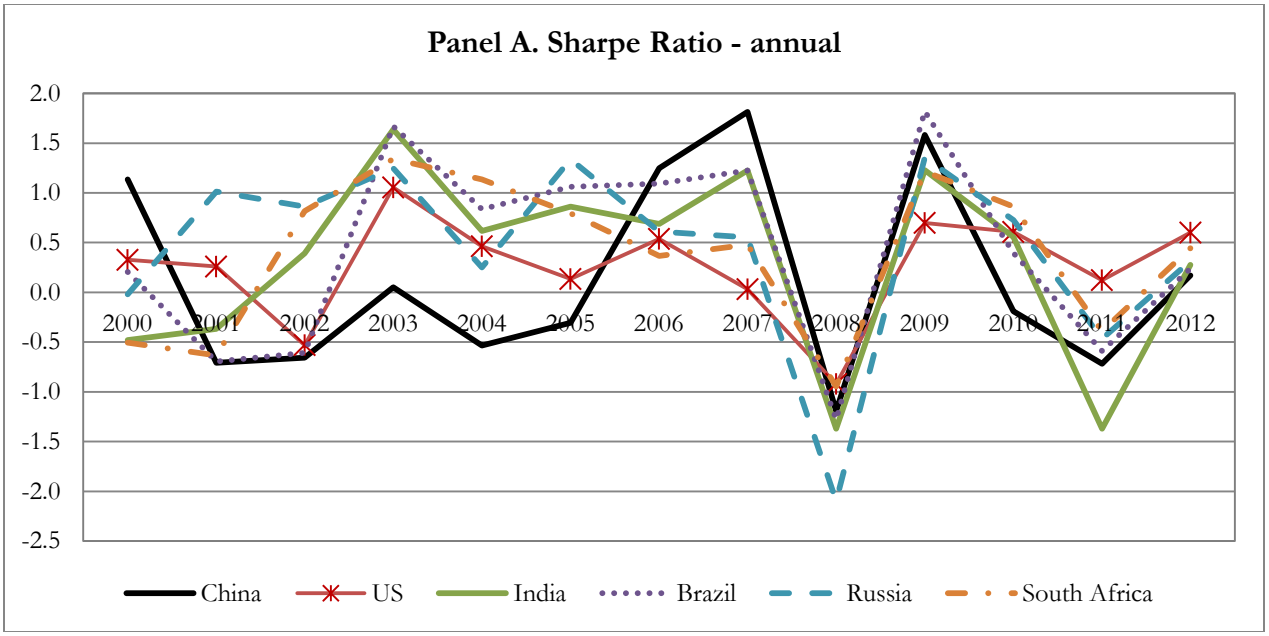

Panel C2. Performance around Investment - US
0.13
0.12
0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
-8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8
ROA
ROE
ROS

Figure 13. Sharpe Ratio and Risk: Cross-Country Comparison

This figure plots the average Sharpe Ratio and the standard deviation of stock returns of firms listed in China, US and other "BRICS" countries (India, Brazil, Russia and South Africa). The Sharpe Ratio is calculated as the ratio of annualized excess return over the annualized stock return volatility with monthly stock return data from Bloomberg. The annual stock returns are calculated as the monthly returns multiplied by 12. We use zero as the risk-free rate to calculate the excess return. The annual stock return volatilities are calculated as the monthly standard deviations of stock returns multiplied by 12.



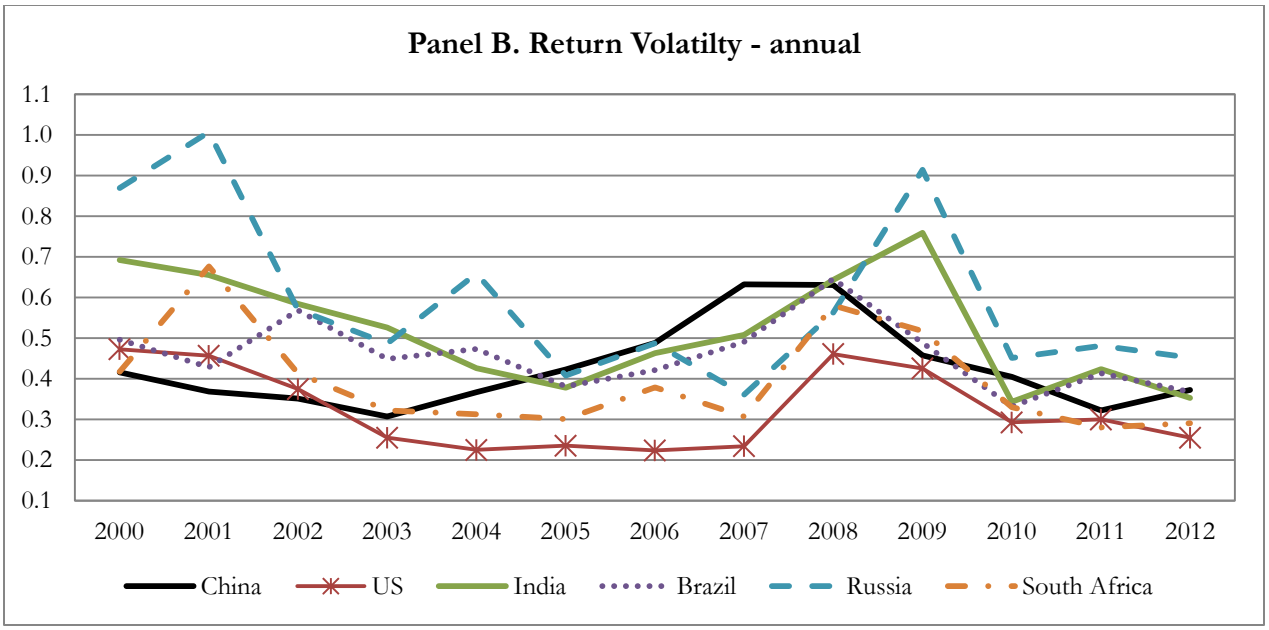
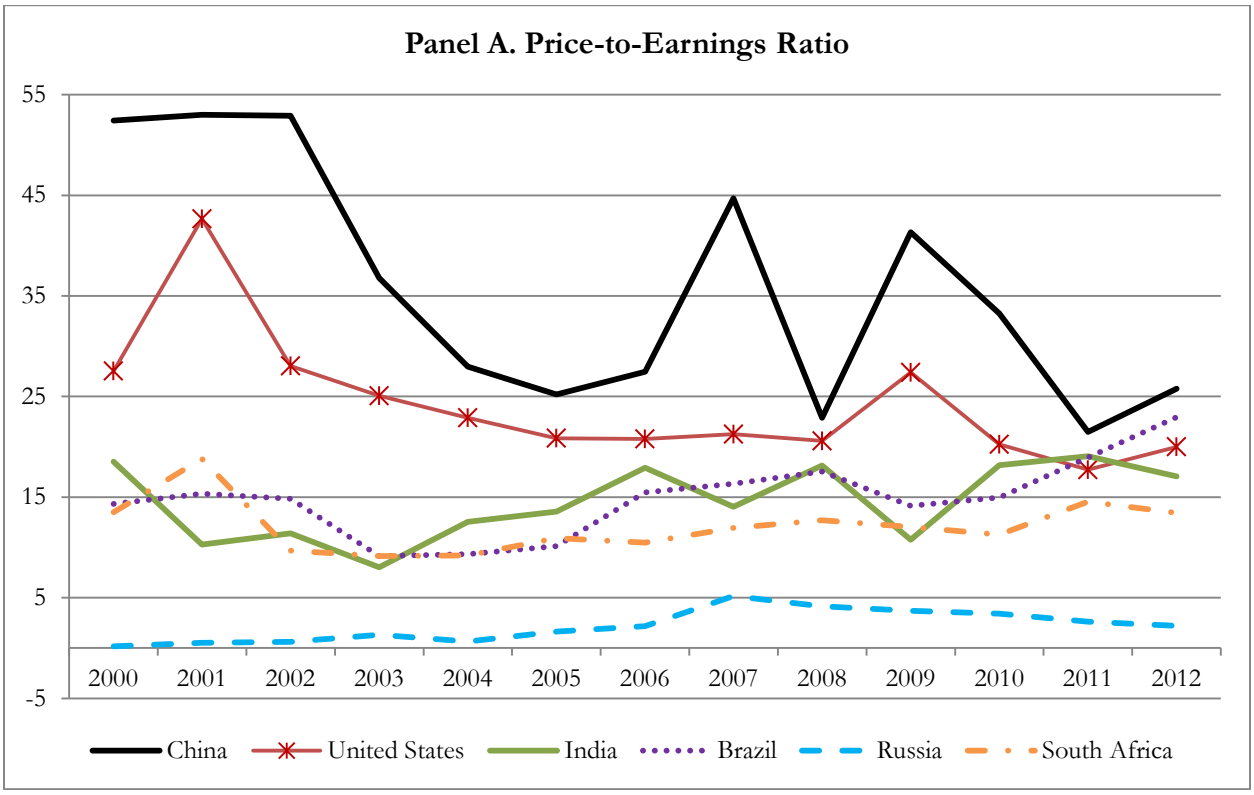


Figure 14. Valuation of Listed Firms

This figure plots the average valuation of all listed firms in China and other major countries, measured by the price-to-earnings (P/E) ratio (left y-axis) and the market-to-book ratio (right y-axis) in Panel A and Panel B, respectively. To ensure consistency of the calculation of the valuation measures, we use both the market value and earnings measure at the security level. We obtain the earnings for security ***j*** issued by firm ***i*** by multiply the firm-level earnings by the ratio $\frac{\text{Market Cap of Security}_j}{\text{Market Cap of Firm}_i}$. The book equity used for the calculastion of the market-to-book ratio is calculated in the same way. We calculate the P/E ratio by aggregating the security-level market capitalization across all firms and dividing it by the aggregated security-level net income. We calculate the market-to-book ratio by aggregating the security-level market capitalization across all firms and divide it by the aggregated security-level book equity.



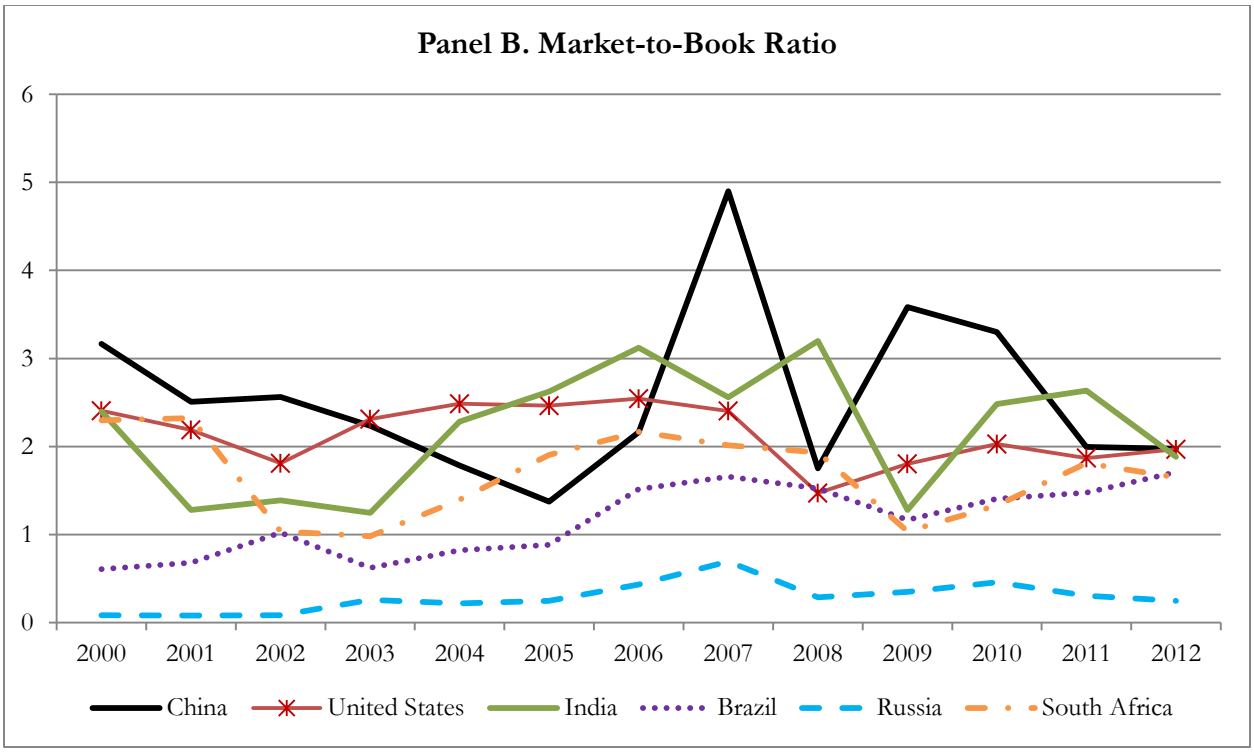

Panel B. Market-to-Book Ratio
6
5
4
3
2
1
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
China
United States
India
Brazil
Russia
South Africa

Table I
Distribution of the Sample by Year

This table presents the summary statistics of firm and country characteristics by year Panel A presents summary statistics of firms listed in all countries. Panel B presents summary statistics of firms listed in China. The sample is restricted to firms that have non-missing stock price, total assets, net income, shareholder equity, sales and dividend data. The buy-and-hold returns are calculated as the weighted buy-and-hold returns including dividend, with the market-capitalization in the same year as the weight. Price-to-Earnings ratio is calculated by summarizing all firms' market capitalization and dividing it by the sum of the firms' book equity. Market-to-book ratio is the sum of firms' market capitalization divided by the firms' total book assets. ROA is the sum of firms' net income divided by the sum of firms' total assets. ROE is the sum of firms' net income to shareholders divided by the sum of firms' shareholder equity. Stock prices and firm financial data are extracted on annual basis from Worldscope.

Panel A. Firms Listed in All Countries

Year	Number of Firms	Total Assets ($ Billion)	ROA	ROE	Value-weighted Buy-and-Hold Return	Value-weighted Buy-and-Hold Return (including dividends)	Sharpe Ratio	Price-to-Earnings	Market-to-Book
2000	23258	3.02	0.02	0.10	1.00	1.00	-0.59	20.01	2.08
2001	25476	2.69	0.01	0.07	0.92	0.97	-1.42	18.50	1.73
2002	26525	2.84	0.01	0.07	0.85	0.95	0.15	22.87	1.26
2003	26989	3.11	0.02	0.09	1.01	1.23	1.24	19.98	1.94
2004	29476	3.31	0.03	0.11	1.15	1.34	0.55	21.05	2.30
2005	34001	3.31	0.03	0.13	1.40	1.75	0.04	16.59	2.22
2006	37652	3.55	0.03	0.13	1.52	2.26	0.55	16.69	2.10
2007	39353	3.91	0.03	0.13	1.78	2.72	0.27	18.73	2.13
2008	40576	3.79	0.02	0.10	1.03	1.20	-1.18	20.55	1.69
2009	40378	3.89	0.02	0.08	1.27	1.89	0.86	16.50	1.70
2010	40234	4.18	0.03	0.11	1.37	2.00	0.50	15.87	1.60
2011	36970	4.38	0.03	0.11	1.14	1.57	-1.41	14.99	1.28
2012	44014	4.79	0.02	0.10	1.19	1.67	-0.66	11.43	1.26

Panel B. Firms Listed in China

Year	Number of Firms	Total Assets ($ Billion)	ROA	ROE	Value-weighted Buy-and-Hold Return (excluding dividends)	Value-weighted Buy-and-Hold Return (including dividends)	Sharpe Ratio	Price-to-Earnings	Market-to-Book
2000	1389	0.21	0.03	0.07	1.00	1.00	1.14	52.42	3.17
2001	1410	0.26	0.02	0.04	0.81	0.81	-0.71	53.01	2.51
2002	1591	0.31	0.02	0.04	0.66	0.66	-0.66	52.91	2.56
2003	1716	0.36	0.02	0.07	0.62	0.62	0.05	36.79	2.23
2004	1769	0.41	0.02	0.08	0.49	0.49	-0.53	27.97	1.78
2005	1770	0.47	0.02	0.06	0.41	0.41	-0.31	25.19	1.37
2006	1814	0.57	0.02	0.08	0.67	0.67	1.25	27.45	2.16
2007	2067	0.77	0.03	0.12	1.51	1.52	1.81	44.71	4.90
2008	2333	0.86	0.02	0.07	0.50	0.51	-1.19	22.89	1.75
2009	2617	1.02	0.03	0.09	0.98	0.99	1.58	41.34	3.58
2010	2739	1.23	0.03	0.12	0.88	0.88	-0.19	33.26	3.30
2011	2791	1.45	0.03	0.11	0.62	0.62	-0.72	21.47	1.99
2012	2779	1.60	0.03	0.09	0.61	0.62	0.17	25.76	1.97

Table II
Deposit Interest Rates and Stock Returns

This table shows the nominal and real return on deposits and stocks in China from 2000 to 2012. The real returns are adjusted for inflation by subtracting the contemporaneous CPI rate from the nominal returns. The deposit rate data are from the website of the Peoples' Bank of China (PBOC). The stock returns data are from Datastream. The CPI data are from the website of World Bank.

	Nominal Rate				Real Rate			
Year	Demand Deposit (%)	1-year Deposit (%)	5-year Deposit (%)	Value-weighted Stock Returns (%)	Demand Deposit (%)	1-year Deposit (%)	5-year Deposit (%)	Value-weighted Stock Returns (%)
2000	0.99	2.25	2.88	59.46	-0.51	0.75	1.38	57.11
2001	0.99	2.25	2.88	-22.10	1.29	2.55	3.18	-21.87
2002	0.72	1.98	2.79	-16.61	1.12	2.38	3.19	-16.28
2003	0.72	1.98	2.79	-4.02	-2.47	-1.21	-0.40	-6.98
2004	0.72	2.25	3.60	-17.09	-1.70	-0.17	1.18	-19.05
2005	0.72	2.25	3.60	-12.89	-0.84	0.69	2.04	-14.23
2006	0.72	2.52	4.14	65.26	-2.09	-0.29	1.33	60.74
2007	0.72	4.14	5.85	107.55	-5.79	-2.37	-0.66	94.87
2008	0.36	2.25	3.60	-62.63	-0.84	1.05	2.40	-63.08
2009	0.36	2.25	3.60	81.60	-1.50	0.39	1.74	78.29
2010	0.36	2.75	4.55	2.90	-4.23	-1.84	-0.04	-1.62
2011	0.50	3.50	5.50	-18.34	-3.57	-0.57	1.43	-21.53
2012	0.35	3.00	4.75	5.61	-2.15	0.50	2.25	3.03

Table III
The Prediction Model of Buy-and-Hold Returns

This table presents the OLS estimates of the prediction model of the buy-and-hold returns at firm-level. The regression is conducted on 67 countries. China is excluded from the sample. The buy-and-hold returns are calculated with the stock price n 2000 as the base price, and averaged at country-level with the market capitalization in the same year as the weight. Firms with one of the following variables missing in any year are excluded from the sample: (1) total assets; (2) net income; (3) shareholder equity; (4) sales; (5) dividends. Other variables are the same as those described in Table I. The explanatory variables are lagged by one year. We restrict the sample to the period 2000 to 2012. Standard errors clustered by country are reported in the parentheses. ***, ** and * denote the statistical significance at 1%, 5% and 10% level.

	BHR		Sharpe Ratio	
Variable	Model1	Model2	Model3	Model4
Firm Characteristics				
Log (Total Assets)	0.400***	0.398***	0.013*	0.013
	(8.175)	(8.371)	(1.707)	(1.582)
Leverage	0.633	0.583	0.040	0.045
	(1.426)	(1.323)	(1.154)	(1.226)
ROA	1.709*	1.880**	0.321***	0.328***
	(1.914)	(2.120)	(4.443)	(4.883)
ROE	3.756***	3.718***	0.678***	0.669***
	(7.181)	(6.615)	(6.709)	(6.650)
ROS	0.000	0.003	-0.011***	-0.007***
	(0.018)	(0.084)	(-3.555)	(-3.681)
EBIT Growth	0.257***	0.264***	0.082***	0.081***
	(7.775)	(7.863)	(11.410)	(11.006)
Sales Growth	0.618**	0.580**	0.124***	0.110***
	(2.164)	(2.132)	(3.128)	(2.863)
Volatility of Stock Return since 2000	1.179***	1.172***	1.684***	1.661***
	(9.434)	(9.338)	(6.477)	(6.475)
Country Characteristics				
GDP Per Capita	-0.327	-3.019	-0.002	0.325
	(-0.464)	(-0.643)	(-0.052)	(0.740)
GDP Growth	-0.065	-0.057	0.014	0.017
	(-0.968)	(-1.033)	(1.208)	(1.175)
Domestic Credits from Financial Sector/GDP	0.002	-0.001	0.000	0.000
	(0.263)	(-0.218)	(0.112)	(0.140)
Number of Listed Firms/Population	-0.009	-0.005	-0.001**	-0.001
	(-1.215)	(-0.844)	(-2.372)	(-1.458)
Log (Population in Million)	-0.392	-0.632	-0.034	-0.032
	(-0.986)	(-1.521)	(-1.112)	(-0.880)
Turnover Ratio	0.276	0.258	0.082**	0.083**
	(0.973)	(0.927)	(2.397)	(2.395)
Anti-Self-Dealing Index	-2.547	-1.633	-0.230	-0.096
	(-1.018)	(-0.629)	(-1.483)	(-0.591)
Tax Evasion	0.081	-0.202	0.016	-0.009
	(0.247)	(-0.495)	(0.751)	(-0.504)
Time to Collect on a Bounced Check	-0.188	-0.868*	0.034	0.042
	(-0.426)	(-1.745)	(1.042)	(1.425)
English	0.946	0.777	0.080	0.098
	(0.550)	(0.443)	(0.744)	(0.970)
French	-1.142	-0.141	-0.032	0.025
	(-1.315)	(-0.101)	(-0.430)	(0.287)
German	-0.367	1.012	-0.041	0.147
	(-0.430)	(0.507)	(-0.750)	(1.324)
Earnings Management Score		-0.092		-0.009*
		(-1.250)		(-1.723)

Intercept	3.736	10.426**	-0.098	-0.058
	(0.891)	(1.971)	(-0.343)	(-0.247)
Year Fixed Effect	Yes	Yes	Yes	Yes
R-squared (%)	6.83	6.92	33.35	32.92
Observations	337604	324378	337604	324378

Table IV
Stock Performance of Listed Firms in China

This table examines the stock performance of listed firms in China. The buy-and-hold returns are calculated with the stock price in 2000 as the base price, and averaged at country-level with the market capitalization in the previous year as the weight. The annual Sharpe Ratio is calculated as the excess annual returns divided by the annualized stock return volatilities. The annual returns and annual volatilities are calculated as monthly returns and monthly volatilities multiplied by 12. The regression is conducted on 69 countries. The independent variable of interest is the China dummy. Other explanatory variables are the same as we used in Table III. We omit coefficients of some control variables to save space. Firms with one of the following variables missing in any year are excluded from the sample: (1) total assets; (2) net income; (3) shareholder equity; (4) sales; (5) EBIT. The explanatory variables are lagged by one year. We restrict the sample to the period 2000 to 2012. Standard errors clustered by country are reported in the parentheses. ***, ** and * denote the statistical significance at 1%, 5% and 10% level.

	BHR		Sharpe Ratio	
Variable	Model1	Model2	Model3	Model4
China	-2.042***	-2.089***	-0.360***	-0.256**
	(-3.889)	(-3.951)	(-3.876)	(-2.297)
Firm Characteristics				
Log (Total Assets)	0.372***	0.385***	0.013*	0.014*
	(8.494)	(8.776)	(1.725)	(1.687)
Leverage	-1.100***	-1.420***	-0.005	-0.018
	(-4.237)	(-4.586)	(-0.143)	(-0.544)
ROA	1.467**	1.610**	0.345***	0.346***
	(1.966)	(2.160)	(4.827)	(5.030)
ROS	-0.034	-0.031	-0.012***	-0.009***
	(-1.592)	(-1.566)	(-3.328)	(-3.516)
EBIT Growth	0.201***	0.203***	0.083***	0.082***
	(7.639)	(7.641)	(11.451)	(11.050)
Sales Growth	0.588**	0.555**	0.123***	0.112***
	(2.246)	(2.090)	(3.289)	(3.028)
Volatility of Stock Return since 2000	1.174***	1.168***	1.876***	1.868***
	(9.435)	(9.383)	(5.162)	(5.081)
Country Characteristics				
GDP Per Capita	-0.118	-3.770	-0.002	-0.191
	(-0.154)	(-0.797)	(-0.035)	(-0.435)
GDP Growth	-0.013	-0.017	0.031*	0.037*
	(-0.241)	(-0.359)	(1.856)	(1.791)
Domestic Credits from Financial Sector/GDP	-0.002	-0.003	0.000	0.000
	(-0.318)	(-0.595)	(0.045)	(0.367)
Number of Listed Firms/Population	-0.007	-0.004	-0.002**	-0.001**
	(-1.172)	(-0.764)	(-2.459)	(-2.158)
Log (Population in Million)	-0.116	-0.466	-0.029	-0.049
	(-0.504)	(-1.235)	(-1.123)	(-1.290)
Turnover Ratio	0.304	0.147	0.116***	0.110**
	(1.298)	(0.593)	(2.851)	(2.453)
Anti-Self-Dealing Index	0.317	-1.149	-0.042	-0.155
	(0.228)	(-0.931)	(-0.359)	(-1.076)
Tax Evasion	0.208	-0.084	0.027	0.021
	(0.813)	(-0.300)	(1.291)	(1.108)
Time to Collect on a Bounced Check	0.071	-0.708	0.062	0.057
	(0.212)	(-1.593)	(1.597)	(1.604)
Intercept	0.313	9.585*	-4.266	11.066
	(0.118)	(1.784)	(-0.546)	(1.421)
Year Fixed Effect	Yes	Yes	Yes	Yes
R-squared (%)	6.73	6.78	6.42	6.79
Observations	337604	324378	337604	324378

Table V

Performance of Chinese Listed Firms after IPO: Matching Firm Approach

This table presents the regression results of changes in ROA in the listing year t, for listed firms in China and their matching firms. Both panels require treatment firms and matching firms have non-missing accounting information in windows [-2, +3]. Listed firms are matched with one private firm from the same level-2 industry with the closest book assets in the year prior to IPO.

Panel A. ROA

Variable	Δ(t-1,t)	Δ(t-1,t+1)	Δ(t-1,t+2)	Δ(t-1,t+3)	Δ(t-2,t)	Δ(t-2,t+1)	Δ(t-2,t+2)	Δ(t-2,t+3)
Listed Firm	-0.039***	-0.134**	-0.198*	-0.072***	-0.068***	-0.042***	-0.047***	-0.041*
	(-2.903)	(-2.503)	(-1.910)	(-2.703)	(-7.261)	(-2.732)	(-2.537)	(-1.708)
ROA	-0.090*	-0.156**	-0.243***	-0.230***	-0.110**	-0.160***	-0.242***	-0.251***
	(-1.800)	(-2.398)	(-3.703)	(-3.009)	(-2.272)	(-2.547)	(-3.824)	(-3.349)
Total Assets ($ Billion)	0.001*	0.002**	0.002*	0.002***	0.001	0.002	0.002	0.004**
	(1.746)	(2.010)	(1.783)	(2.570)	(1.554)	(1.397)	(1.006)	(2.234)
Leverage	-0.021	0.030	0.019	0.094**	-0.027	0.043*	0.024	0.089*
	(-1.230)	(1.454)	(0.785)	(2.246)	(-1.567)	(1.947)	(0.952)	(1.937)
Sales Growth	-0.000	-0.000	0.000	-0.000	-0.000	-0.000	0.000	-0.000
	(-0.810)	(-1.087)	(0.075)	(-0.173)	(-0.837)	(-1.071)	(0.198)	(-0.208)
Earnings Growth	0.000	-0.000*	-0.000	-0.000	0.000	-0.000*	-0.000	-0.000
	(0.130)	(-1.710)	(-0.041)	(-1.232)	(0.145)	(-1.872)	(-0.001)	(-1.238)
Intercept	0.020	-0.009	0.019	-0.003	0.021	-0.016	0.016	-0.004
	(1.284)	(-0.482)	(0.849)	(-0.089)	(1.454)	(-0.826)	(0.754)	(-0.121)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared (%)	23.78	22.18	26.87	26.08	31.39	26.23	26.33	27.88
Observations	442	442	442	442	442	442	442	442

Panel B. ROE

Variable	Δ(t-1,t)	Δ(t-1,t+1)	Δ(t-1,t+2)	Δ(t-1,t+3)	Δ(t-2,t)	Δ(t-2,t+1)	Δ(t-2,t+2)	Δ(t-2,t+3)
Listed Firm	-0.030	-0.175**	-0.468**	-0.033	-0.095***	-0.102***	-0.096**	-0.152***
	(-0.891)	(-2.188)	(-2.009)	(-0.513)	(-3.530)	(-3.122)	(-2.108)	(-3.345)
ROE	-1.069***	-0.851***	-1.019***	-0.855***	-1.080***	-0.853***	-1.023***	-0.851***
	(-3.534)	(-16.251)	(-14.733)	(-15.905)	(-3.495)	(-16.200)	(-14.882)	(-15.920)
Total Assets ($ Billion)	0.001	0.003*	0.002	0.006**	0.002*	0.003	-0.001	0.009**
	(1.555)	(1.719)	(0.472)	(2.071)	(1.665)	(1.501)	(-0.233)	(2.260)
Leverage	-0.106***	-0.159**	0.178	-0.099	-0.122**	-0.145**	0.171	-0.202**
	(-2.759)	(-2.504)	(1.051)	(-1.389)	(-2.409)	(-2.117)	(0.943)	(-2.156)
Sales Growth	-0.000	-0.000	-0.000	0.000	-0.000	-0.000	-0.000	0.000
	(-0.928)	(-1.373)	(-1.313)	(0.097)	(-0.922)	(-1.330)	(-1.309)	(0.148)
Earnings Growth	0.000	-0.000	-0.000	-0.000	0.000	-0.000	-0.000	-0.000
	(0.152)	(-1.369)	(-1.145)	(-0.503)	(0.188)	(-1.418)	(-1.096)	(-0.104)
Intercept	0.189***	0.191***	0.064	0.197***	0.188***	0.176***	0.061	0.232***
	(4.704)	(4.747)	(0.821)	(4.451)	(3.702)	(4.408)	(0.744)	(4.451)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared (%)	58.51	82.28	21.56	66.91	58.42	86.16	21.55	67.51
Observations	442	442	442	442	442	442	442	442

Panel C. ROS								
Variable	Δ(t-1,t)	Δ(t-1,t+1)	Δ(t-1,t+2)	Δ(t-1,t+3)	Δ(t-2,t)	Δ(t-2,t+1)	Δ(t-2,t+2)	Δ(t-2,t+3)
Listed Firm	-0.296***	-0.850***	-0.761**	-0.434*	-0.024	-0.063	-0.296***	-0.396***
	(-3.572)	(-2.731)	(-2.204)	(-1.737)	(-0.660)	(-0.872)	(-3.296)	(-3.414)
ROS	-0.112	-0.307***	-0.420***	0.497***	-0.128	-0.292***	-0.427***	0.494***
	(-1.447)	(-2.783)	(-25.720)	(14.269)	(-1.634)	(-2.693)	(-41.121)	(11.998)
Total Assets ($ Billion)	0.002	0.002	-0.002	-0.001	0.001	-0.001	-0.003	0.003
	(0.458)	(0.267)	(-0.284)	(-0.089)	(0.192)	(-0.085)	(-0.406)	(0.248)
Leverage	-0.080	-0.113	-0.173**	0.146	-0.006	0.018	-0.190**	0.005
	(-1.517)	(-1.324)	(-2.125)	(1.382)	(-0.130)	(0.265)	(-2.414)	(0.042)
Sales Growth	-0.000	-0.000	-0.000	0.000	0.000	-0.000	-0.000	0.000
	(-0.383)	(-0.817)	(-1.297)	(1.094)	(0.124)	(-0.520)	(-1.119)	(1.562)
Earnings Growth	0.000	-0.000	-0.000	-0.000***	0.000	-0.000	-0.000	-0.000***
	(0.095)	(-0.357)	(-1.135)	(-9.005)	(0.094)	(-0.530)	(-0.950)	(-6.604)
Intercept	0.074*	0.138*	0.172***	-0.069	0.028	0.051	0.176***	-0.030
	(1.850)	(1.862)	(3.089)	(-0.593)	(0.761)	(0.802)	(3.009)	(-0.280)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared (%)	9.11	14.93	41.17	43.76	13.83	10.32	39.75	40.79
Observations	442	442	442	442	442	442	442	442

Table VI

Performance of Chinese Listed Firms around IPO: Cross-Country Comparison

This table presents multivariate regression results for changes in ROA and ROE for the time period t-2 to t+3 for all listed firms. Year t represents the IPO year. The regression is conducted on a panel of firm-year from 68 countries over the period 2000 to 2012. The independent variable of interest is the China dummy. Industry concentration is the sum of the squared market share (in terms of annual sales) of the top 5 firms in the industry. Other explanatory variables are constructed by firm-year and lagged one year in the regressions. Standard errors clustered by country are reported in the parentheses. ***, ** and * denote statistical significance at 1%, 5% and 10% levels.

Panel A. Δ in ROA								
Variable	t-1, t	t-1,t+1	t-1,t+2	t-1,t+3	t-2, t	t-2,t+1	t-2, t+2	t-2,t+3
China	-0.062***	-0.057***	-0.069***	-0.048**	-0.089***	-0.084***	-0.078***	-0.037*
	(-9.192)	(-5.923)	(-4.300)	(-1.985)	(-4.214)	(-3.739)	(-3.271)	(-1.647)
Total Assets ($ Billion)	0.001***	0.001***	0.001***	0.001***	-0.001	-0.001**	0.001*	0.001
	(7.507)	(6.788)	(7.253)	(9.390)	(-1.184)	(-2.227)	(1.845)	(1.563)
ROA	-0.303***	-0.373***	-0.402***	-0.433***	0.058***	-0.027	-0.041**	-0.076***
	(-44.299)	(-31.883)	(-48.658)	(-57.199)	(3.450)	(-1.053)	(-2.422)	(-3.694)
Leverage	-0.053***	-0.035***	-0.048***	-0.041***	0.083***	0.111***	0.106***	0.117***
	(-3.156)	(-3.334)	(-3.262)	(-3.122)	(15.572)	(7.911)	(11.875)	(9.758)
Sales Growth	-0.002***	-0.002***	-0.003**	-0.003***	0.005***	0.004***	0.003***	0.003***
	(-3.126)	(-2.549)	(-2.067)	(-2.729)	(5.046)	(3.827)	(3.352)	(2.864)
Earnings Growth	-0.001***	-0.001***	-0.001**	-0.001***	-0.002***	-0.002***	-0.001	-0.001
	(-2.989)	(-3.952)	(-2.136)	(-2.553)	(-2.634)	(-3.138)	(-1.233)	(-1.310)
Ln (GDP Per Capita)	0.000	-0.002	0.001	-0.002	0.005	0.002	0.003	0.003
	(0.081)	(-0.414)	(0.230)	(-0.262)	(0.785)	(0.272)	(0.333)	(0.366)
GDP Growth	0.005***	0.006***	0.009***	0.008*	0.001	0.003	0.004	0.002
	(3.251)	(2.973)	(3.176)	(1.736)	(0.373)	(0.782)	(0.925)	(0.430)
Intercept	0.033	-0.030	0.070	0.003	-0.026	-0.082	-0.015	-0.122
	(0.853)	(-0.512)	(1.467)	(0.036)	(-0.464)	(-1.139)	(-0.255)	(-1.632)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared (%)	16.57	18.82	16.93	20.59	17.45	18.28	17.43	16.34
Observations	15720	15720	15720	15720	15720	15720	15720	15720

Panel B. Δ in ROE								
Variable	t-1, t	t-1,t+1	t-1,t+2	t-1,t+3	t-2, t	t-2,t+1	t-2, t+2	t-2,t+3
China	-0.085***	-0.046***	-0.060**	-0.139***	-0.146***	-0.107***	-0.109***	-0.085**
	(-4.624)	(-2.755)	(-2.242)	(-4.775)	(-3.488)	(-3.350)	(-3.130)	(-2.382)
Total Assets ($ Billion)	0.001***	0.001***	0.001***	0.001***	-0.001	-0.001***	0.001	0.001***
	(4.273)	(7.006)	(3.513)	(6.355)	(-0.361)	(-2.819)	(0.289)	(5.025)
ROE	-0.774***	-0.866***	-0.883***	-0.870***	-0.013**	-0.111***	-0.122***	-0.094***
	(-109.38)	(-87.478)	(-141.24)	(-65.766)	(-2.074)	(-11.806)	(-19.437)	(-6.586)
Leverage	0.137***	0.086***	0.091***	0.067***	0.033**	-0.019**	0.008	-0.035***
	(9.761)	(7.762)	(22.241)	(20.564)	(2.469)	(-2.089)	(0.698)	(-7.254)
Sales Growth	-0.003***	-0.003***	-0.003***	-0.005***	0.005***	0.005***	0.005***	0.004**
	(-2.912)	(-3.852)	(-4.847)	(-2.977)	(2.970)	(3.268)	(4.233)	(2.497)
Earnings Growth	0.001*	0.001	-0.000	-0.000	-0.001	-0.001	-0.002*	-0.003**
	(1.923)	(1.094)	(-0.290)	(-0.292)	(-1.009)	(-1.206)	(-1.656)	(-2.491)
Ln (GDP Per Capita)	-0.011	-0.016**	-0.001	-0.003	-0.017	-0.021*	-0.009	-0.007
	(-1.359)	(-2.220)	(-0.113)	(-0.408)	(-1.357)	(-1.688)	(-0.706)	(-0.708)
GDP Growth	0.013***	0.009***	0.016***	0.019***	-0.003	-0.003	0.004	-0.003
	(4.025)	(2.964)	(4.318)	(4.807)	(-0.567)	(-0.607)	(0.731)	(-0.457)
Intercept	0.071	0.080	0.035	-0.077	0.168	0.127	-0.031	-0.039
	(0.704)	(1.004)	(0.560)	(-0.760)	(1.332)	(0.779)	(-0.259)	(-0.361)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared (%)	44.13	45.96	45.56	44.43	43.24	42.33	42.13	41.29
Observations	15720	15720	15720	15720	15720	15720	15720	15720

Panel C. Δ in ROS								
Variable	t-1, t	t-1,t+1	t-1,t+2	t-1,t+3	t-2, t	t-2,t+1	t-2, t+2	t-2,t+3
China	-0.453*	-1.185*	-1.431***	-0.486	-1.618*	-1.400*	-0.774	0.164
	(-1.890)	(-1.859)	(-3.049)	(-1.181)	(-1.661)	(-1.881)	(-0.966)	(0.353)
Total Assets ($ Billion)	0.001	0.001	0.001***	0.001***	0.001	0.001	0.001***	0.001***
	(1.282)	(0.883)	(7.620)	(8.878)	(1.282)	(0.883)	(7.620)	(8.878)
ROS	-0.004	-0.005	-0.001***	-0.002	-0.004	-0.004	-0.007	-0.006
	(-0.854)	(-0.926)	(-3.153)	(-1.413)	(-1.402)	(-1.327)	(-1.219)	(-1.399)
Leverage	0.140	0.167**	0.332***	0.119	0.852***	1.073***	1.471***	1.230***
	(1.220)	(2.243)	(3.538)	(1.201)	(7.753)	(6.544)	(9.037)	(6.933)
Sales Growth	-0.009	-0.026***	-0.042***	-0.042***	0.000	0.000	-0.000	0.000
	(-1.233)	(-3.101)	(-4.165)	(-4.441)	(0.665)	(0.548)	(-0.445)	(0.091)
Earnings Growth	0.013***	0.006	0.007	-0.001	0.000	0.000**	0.000	0.000***
	(2.983)	(1.386)	(1.099)	(-0.153)	(1.088)	(2.211)	(0.193)	(3.491)
Ln (GDP Per Capita)	0.106	-0.171	-0.184	0.099	-0.361	-0.168	-0.241	-0.101
	(0.750)	(-0.580)	(-0.747)	(0.757)	(-1.366)	(-0.942)	(-1.072)	(-0.700)
GDP Growth	0.101**	0.078	0.083	0.105*	0.053	0.112**	0.039	0.001
	(2.426)	(1.346)	(1.409)	(1.840)	(1.149)	(2.397)	(0.518)	(0.020)
Intercept	-1.200	1.200	1.940	-2.037	4.142	2.227	3.302	1.692
	(-0.884)	(0.331)	(0.839)	(-1.381)	(1.458)	(1.184)	(1.447)	(1.109)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared (%)	0.59	0.78	1.04	1.05	0.88	1.14	0.89	0.89
Observations	15720	15720	15720	15720	15720	15720	15720	15720

Table VII
Underperformance of SOE

This table compares the stock return and operating performance of state-owned and non-state-owned firms in China over the period 2000 to 2012. State-owned firms are defined as firms with more than 50% government ownership. The buy-and-hold returns are calculated by cumulating annual returns over years. All variables are constructed following the approach described in Table I. Firms with one of the following variables missing in any year are excluded from the sample: (1) total assets; (2) net income; (3) shareholder equity; (4) sales; (5) dividends. ***, ** and * denote the statistical significance at 1%, 5% and 10% level. This sample confines to firms that have non-missing "ultimate control" information in CSMAR. The dummy "SOE" refers to firms controlled by any of the below agent (1) central SASAC; (2) local SASAC; (3) Ministry of Finance; (4) other government agency.

	BHR				
Variable	Model1	Model2	Model3	Model4	Model5
Controlled by Central SASAC	-0.136***				
	(-4.474)				
Controlled by Local SASAC		-0.066***			
		(-3.545)			
Controlled by Ministry of Finance			-0.263**		
			(-2.511)		
Other Types of SOE				0.011	
				(0.417)	
SOE					-0.150***
					(-8.154)
Stock Return Volatility Since 2000	0.068***	0.067***	0.067***	0.067***	0.063***
	(16.196)	(15.892)	(15.991)	(15.929)	(15.520)
Log (Total Assets)	0.213***	0.210***	0.206***	0.205***	0.221***
	(18.878)	(18.566)	(18.364)	(18.278)	(19.926)
Leverage	-0.429***	-0.432***	-0.425***	-0.424***	-0.719***
	(-3.604)	(-3.626)	(-3.573)	(-3.565)	(-6.325)
ROA	3.841***	3.866***	3.880***	3.884***	4.104***
	(20.079)	(20.066)	(20.162)	(20.163)	(22.094)
EBIT Growth	0.015	0.015	0.015	0.015	0.013
	(1.527)	(1.572)	(1.579)	(1.563)	(1.404)
Sales Growth	0.117***	0.114***	0.116***	0.115***	0.124***
	(3.977)	(3.887)	(3.924)	(3.912)	(4.309)
Intercept	-0.479***	-0.458***	-0.500***	-0.498***	0.102
	(-4.746)	(-4.505)	(-4.941)	(-4.920)	(1.063)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
R-squared (%)	37.93	37.87	37.84	37.81	37.46
Observations	13428	13428	13428	13428	13428

Table VIII
Long-Run Stock Performance After IPO

We follow Table VIII of Loughran and Ritter (1997) to examine the long-run performance of firms after IPO. The annual average return is calculated over the maximum of either five years or, in the case of early delisting, the number of years through which it is delisted. For firms with returns in the IPO year available, the 1-year BHR is the return in the IPO year. For firms with returns in the IPO year not available, the 1-year BHR is the return in the next year following IPO. The sales growth is calculated as the year 0 sales divided by year -1 sales. We estimate the below model:

$$r_i = \alpha_0 + \alpha_1 \text{China Dummy}_i + \alpha_2 \text{Sales Growth} + \sum_{j=2001}^{2012} \alpha_j \text{Dummy}_j + e_i$$

Where i represents the firm and j represents the IPO year.

	1-Year BHR		Mean of Annual Return		5-Year BHR	
Variable	Model1	Model2	Model3	Model4	Model5	Model6
China	-1.394***	-1.646***	-0.328***	-0.367***	-1.077**	-1.399**
	(-4.364)	(-4.065)	(-2.539)	(-3.012)	(-2.397)	(-1.979)
Sales Growth	-0.001	-0.001	0.001	0.001	-0.001	-0.001
	(-0.526)	(-0.437)	(1.127)	(1.188)	(-0.730)	(-0.737)
Log (Total Assets)		-0.346***		-0.104***		-0.011
		(-3.087)		(-3.493)		(-0.061)
ROA		2.830***		0.799***		1.870**
		(5.595)		(5.760)		(2.371)
Leverage		0.354		0.431		-1.341
		(0.211)		(0.824)		(-0.484)
EBIT Growth		-0.001		-0.001		0.001
		(-0.645)		(-0.148)		(1.113)
Intercept	1.598***	1.001***	1.887***	1.692***	1.866***	2.032***
	(9.153)	(2.591)	(6.424)	(5.459)	(5.589)	(2.952)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-squared (%)	0.22	0.28	0.16	0.12	0.10	0.12
Observations	24825	24825	24825	24825	24825	24825

Table IX
Do Firms Listed in China Have Lower Valuation?

This table presents the OLS estimates of the prediction model of stock market valuation at firm-level. Panel A reports regression results of valuation measures of all firms from sample countries. Models 1, 3 and 5 of Panel B restrict the firms listed in China to state-owned firms; models 2, 4 and 6 restrict the firms listed China to non-state-owned firms. Stock market valuation is measured by the price-to-earnings ratio and market-to-book ratio. In models 1 and 3 of Panel A, the sample includes 69 countries; in models 2 and 4, the sample includes 32 countries. Panel B reports regression results based on models 1 and 3 in Panel A. We omit coefficients of control variables in Panel B to conserve space. Firms with one of the following variables missing in any year are excluded from the sample: (1) total assets; (2) net income; (3) shareholder equity; (4) sales; (5) dividends. Other variables are the same as those described in Table I. The explanatory variables are lagged by one year. We restrict the sample to the period 2000 to 2012. Standard errors clustered by country are reported in the parentheses. ***, ** and * denote the statistical significance at 1%, 5% and 10% level.

Panel A. Prediction Model

	P/E Ratio		M/B	
Variable	Model1	Model2	Model3	Model4
Firm Characteristics				
Log (Total Assets)	-0.274***	-0.254**	-0.094***	-0.095***
	(-2.791)	(-2.387)	(-7.561)	(-7.492)
Leverage	0.418	0.252	-1.450***	-1.461***
	(0.328)	(0.191)	(-19.838)	(-20.431)
ROA	10.979	12.614*	0.463	0.458
	(1.479)	(1.685)	(0.698)	(0.668)
ROE	-101.59***	-103.55***	-0.334	-0.331
	(-10.629)	(-10.514)	(-1.372)	(-1.308)
ROS	0.060	0.110	-0.049***	-0.041***
	(0.084)	(0.158)	(-2.906)	(-2.863)
EBIT Growth	-1.563***	-1.573***	0.052***	0.053***
	(-10.478)	(-9.943)	(9.081)	(9.013)
Sales Growth	1.036***	1.006**	0.125***	0.111***
	(2.681)	(2.529)	(6.401)	(5.276)
Volatility of Stock Return since 2000	5.751*	5.023	0.531***	0.481**
	(1.725)	(1.537)	(2.738)	(2.331)
Country Characteristics				
GDP Per Capita	-0.089	11.356	-0.103	0.000
	(-0.123)	(1.191)	(-1.347)	(0.001)
GDP Growth	-0.340***	-0.388***	-0.029***	-0.024***
	(-2.765)	(-3.550)	(-3.888)	(-3.556)
Domestic Credits from Financial Sector/GDP	-0.009	-0.011	-0.002***	-0.002***
	(-1.420)	(-1.549)	(-3.581)	(-6.860)
Number of Listed Firms/Population	-0.019	-0.011	-0.000	0.001
	(-1.574)	(-0.753)	(-0.508)	(0.775)
Log (Population in Million)	0.735*	1.139*	0.023	0.006
	(1.774)	(1.839)	(0.721)	(0.152)
Turnover Ratio	0.915	0.714	0.094	0.070
	(1.149)	(0.877)	(1.320)	(1.046)
Anti-Self-Dealing Index	-5.680	-3.883	-0.731*	-0.513
	(-1.029)	(-0.664)	(-1.811)	(-1.500)
Tax Evasion	0.811***	0.383	0.071**	0.013
	(2.676)	(0.985)	(2.524)	(0.476)
Time to Collect on a Bounced Check	0.639	0.505	0.059	0.015
	(1.085)	(0.867)	(1.274)	(0.379)
English	1.441	2.008	0.303*	0.308***
	(0.581)	(0.766)	(1.761)	(2.684)
French	0.229	2.524	-0.247**	-0.055
	(0.122)	(1.214)	(-2.282)	(-0.476)
German	-0.924	2.330	-0.102	0.294**

	(-0.523)	(0.951)	(-0.954)	(2.274)
Earnings Management Score		-0.145		-0.023***
		(-1.396)		(-3.682)
Intercept	23.123***	23.656***	0.577	1.275***
	(3.900)	(4.164)	(1.400)	(3.618)
Year Fixed Effect	Yes	Yes	Yes	Yes
R-squared (%)	28.63	28.64	14.78	15.55
Observations	237108	227281	337604	324378

Panel B. China Firm Valuation

	P/E Ratio		M/B	
Variable	Model1	Model2	Model3	Model4
China	33.710***	36.166***	0.554***	0.885***
	(13.143)	(13.397)	(5.811)	(6.292)
Firm Characteristics				
Log (Total Assets)	-0.463**	-0.424**	-0.102***	-0.101***
	(-2.317)	(-2.014)	(-9.549)	(-8.650)
Leverage	1.589	0.778	-0.983***	-1.042***
	(1.048)	(0.472)	(-14.881)	(-17.432)
ROA	3.418	4.858	0.573	0.589
	(0.341)	(0.468)	(0.926)	(0.924)
ROS	0.015	-0.010	-0.047***	-0.042***
	(0.020)	(-0.013)	(-3.068)	(-3.006)
EBIT Growth	-1.867***	-1.888***	0.062***	0.063***
	(-4.196)	(-4.077)	(10.106)	(9.687)
Sales Growth	0.514	0.457	0.129***	0.118***
	(0.863)	(0.724)	(5.793)	(5.071)
Volatility of Stock Return since 2000	4.565	4.507	-0.097	-0.118
	(1.111)	(1.065)	(-0.542)	(-0.650)
Country Characteristics				
GDP Per Capita	0.744	5.517	-0.018	-0.716
	(0.941)	(0.628)	(-0.290)	(-1.132)
GDP Growth	-0.136	-0.140	-0.024**	-0.018
	(-0.531)	(-0.475)	(-2.319)	(-1.636)
Domestic Credits from Financial Sector/GDP	-0.012	-0.010	-0.002***	-0.002***
	(-1.399)	(-1.498)	(-2.598)	(-4.014)
Number of Listed Firms/Population	-0.021	-0.015	0.000	0.001
	(-1.355)	(-0.906)	(0.161)	(0.740)
Log (Population in Million)	0.826*	0.768	0.086***	0.027
	(1.884)	(1.187)	(2.559)	(0.651)
Turnover Ratio	1.966	1.674	0.177**	0.148
	(1.591)	(1.229)	(2.019)	(1.602)
Anti-Self-Dealing Index	-2.181	-4.535	-0.259	-0.527*
	(-0.611)	(-1.004)	(-0.955)	(-1.679)
Tax Evasion	0.846**	0.472	0.129***	0.095***
	(2.184)	(1.367)	(3.210)	(3.284)
Time to Collect on a Bounced Check	1.025*	0.715	0.098*	0.031
	(1.911)	(1.101)	(1.897)	(0.638)
Earnings Management Score		-0.125**		-0.013***
		(-2.355)		(-2.882)
Intercept	20.299***	27.414***	-0.490	0.684
	(5.095)	(4.799)	(-1.381)	(1.469)
Year Fixed Controls	Yes	Yes	Yes	Yes
R-squared (%)	36.93	37.03	19.24	20.01
Observations	243780	253614	368288	354168