2-2005

# Disproportionate ownership structure and IPO long-run performance of non-SOEs in China

Xiaoming WANG
*Shanghai University of Finance and Economics*

Jerry CAO
*Singapore Management University*, jerrycao@smu.edu.sg

Jinghua TANG
*University of Wollongong*

Gary Gang TIAN
*University of Wollongong*

Published in China Economic Review, Volume 32, February 2015, Pages 27-42
https://doi.org/10.1016/j.chieco.2014.11.004

# Disproportionate Ownership Structure and IPO Long-run Performance of non-SOEs in China

Xiaoming Wang[a], Jerry Cao[b], Qigui Liu[c], Jinghua Tang[d], Gary Gang Tian[e*]

a Shanghai University of Finance and Economics, China

b Singapore Management University, Singapore

c, d, e University of Wollongong, Australia

## Abstract

This paper examines the relationship between ownership structures and IPO long-run performance of non-SOEs in China. Although non-SOEs underperform the market in general after IPO but the poor performance is mainly caused by the IPOs with ownership control wedge. Non-SOEs with one share one vote structure outperform those with control-ownership wedge by 30% for three years post-IPO performance in adjusted buy-and-hold returns. Non-SOEs with control-ownership wedge have higher frequency of undertaking value-destroying related party transactions. These findings suggest that non-SOEs need to improve corporate governance such as disproportionate ownership structure to better safeguard the interest of long-run shareholders.

**Keywords**: IPO, Long-run performance, Excess control right, Disproportionate ownership, Corporate governance, Non-SOEs firms

JEL: G30, G32

* Gary Gang Tian is corresponding author. His email: gtian@uow.edu.au. We received valuable comments from the participants at 24th Australasian Finance and Banking conference, Sydney, December 2011. Xiaoming Wang gratefully acknowledges support from Program for Innovative Research Team of Shanghai University of Finance and Economics.

## 1. **Introduction**

Initial Public Offering (IPO)'s performance has important implications for public investors. IPO literature has clearly documented the phenomenon of pervasive long-run IPO underperformance. The literature (Ritter 1991; Loughran & Ritter 1995) shows that IPO stocks on a 3-5 year horizon underperforms the market or matching firms. Jain and Kini (1994) and Mikkelson et al. (1997) find that IPO firms experience a decline in their post-issue operating performance. Pagano et al. (1998) attribute the post-IPO fall in profitability to the window opportunity hypothesis when entrepreneurs want to take advantage of market timing.

In this paper, we examine whether the difference in ownership structure at firm level can explain IPO long-run (under) performance in China. Shleifer and Vishny (1997) point out that large owners gain major control of the corporation and extract private benefits. Large shareholders often prefer disproportionate ownership structure in which their control rights are much greater than cash flow rights in emerging markets. Such disproportionate ownership structure becomes a major channel to facilitate expropriation of minority shareholders (Claessens et al., 2002; Lins, 2000; Lemmon and Lins, 2003; Laeven and Levine, 2008; Bae et al., 2012; Liu and Tian, 2012). These empirical studies document a negative association between firm value/performance and disproportionate ownership structure in non-IPO contexts. Yeh et al. (2008) study IPO first-day return and disproportionate ownership structure in

Taiwan. Different from all these studies, we investigate IPO long-run performance in association with disproportionate ownership structure in China.

Post-IPO's secondary market is important place for most small and public investors to trade IPO firms. Many IPO underwriting process favors institutional investors so that small investor can only buy hot IPOs after they are traded. It is thus relevant to understand IPO long-run performance. On the other hand, IPO market offers an ideal place to investigate the causality between performance that is observed ex post and ownership structure ex ante. Most studies on ownership and performance are subject to endogeneity problem since they are jointly determined. We hypothesize that IPO firms with disproportionate ownership structure in the IPO day[1] will underperform other IPO firms in the long run due to the expropriation by controlling shareholders. We not only examine IPO's long-run stock performance using cross-sectional approaches, but also report the change of operating performance post-IPO. Furthermore, we try to understand the channels through which disproportionate ownership decrease long-run post-IPO performance.

We take advantage of Chinese IPO market for the following reasons. First, as other emerging markets, China's corporate governance system and investor protection are weak for small shareholders due to weak institutions. One implication is that the entrenchment effects of a disproportionate ownership structure are likely to be

[1] Using the disproportionate ownership structure of the first day of IPO helps to eliminate the endogeneity issue because shares held by large controlling shareholders usually have a lock-up period of at least 36 months, which make the controlling shareholders are not able to change the disproportionate ownership structure during the long lock-up period.

pronounced in this market. Second, small retail investors actively investing in Chinese IPOs are naïve ones, which means IPO long-run performance is critical. Third, equity market provides a critical source of external financing for non-government owned firms, which comprise the majority of IPOs during the recent years. Most of firms in China are characterized with a concentrated and disproportionate ownership structure. Our findings therefore have general implications of ownership structure and IPO firm performance in countries with weak institutions.

We utilize a comprehensive sample of non-SOEs, and the sample includes 636 IPO companies listing between 2002 and 2010. SOEs are excluded in this research primarily because (1) SOEs in China have different objectives and principal–agent framework, compared to the non-SOEs, so the main agency issue in SOEs is agency conflict between the shareholders and managers rather than between controlling shareholders and minority shareholders (Rousseau and Xiao, 2007; Liu and Tian, 2012); (2) Although SOEs may also have a disproportionate ownership structure, it was created mainly for the purpose of decentralization rather than to create an internal capital market (Fan et al., 2007), so disproportionate ownership structure in SOEs means that the controlling power of controlling shareholders has been largely decentralized to managers, which makes the agency conflicts between shareholders and managers stronger and controlling and minority shareholders less severe. We manually collect ownership information such as ultimate owners, controlling shareholders' cash flow and control rights. Disproportionate ownership is quite pervasive: 46% of our IPO

companies are characterized by excess control rights. We find that IPOs with excess control rights significantly underperform both the market and other comparable IPOs. With three-year market, industry and size adjusted buy-and-hold returns (BHR) and cumulative abnormal returns (CAR), IPOs with a control-ownership wedge underperform other IPOs by 32% and 16%, respectively. We also find IPOs with excess control rights show significant decline in operating performance post-IPO even after the pre-IPO earning management is controlled.

We further provide analysis to understand the channels through which disproportionate ownership leads to lower long-run performance. First, we rule out IPO mispricing[2] as a driver of underperformance for firms with excess control rights. We find that first day return is negatively associated with excess control rights. This suggests IPOs with disproportionate ownership have lower underpricing, partially excluding a possibility that overpricing leads to low long-run stock returns. We furthermore link firm performance and ownership structures to related party transactions. Recent studies suggest that when corporate wealth can be transferred from listed firms to their controlling shareholders, tunneling activities lead to poor performance (Peng et al., 2010). We show that the frequency of value-destroying related party transactions is increasing in the presence and magnitude of excess control rights in IPO firms.

[2] Loughran et al., (1994) document IPO underpricing is a common phenomenon. Loughran and Ritter (2002) attribute such underpricing to irrational behavior such as speculation bubbles and market fads.

By examining the impact of disproportionate ownership structure on IPO long-run performance in Chinese capital market, this paper complements previous literature such as Smart and Zutter (2003) and Smart et al. (2008) who examine the value implication of control-ownership wedge in the IPO market of the US by documenting a strong entrenchment effect of excess control rights in newly listed firms in emerging markets. More importantly, it contributes to the literature on IPO long-term performance. We show that disproportionate ownership structure can explain IPO long-run underperformance. We show channels through which controlling shareholders expropriate minority ones by undertaking value-destroying related party transactions.

The remainder of the paper proceeds as follows. Section 2 reviews the relevant literature and develops the hypotheses. Section 3 introduces our data and sample. Section 4 analyzes the impact of the divergence between the ultimate owner's cash flow and control rights on long-run performance. Section 5 addresses the effect of the ultimately controlling shareholders' excess control rights on the underpricing of non-state controlled IPOs, and section 6 concludes the paper.

## 2. Literature review

The very first investigation into the divergence between cash flow and control rights by La Porta et al., (1999), which covers companies from 27 countries, suggests that controlling shareholders can gain control rights in excess of their cash flow claims through a pyramid structure and the common practice of ownership concentration. In

emerging markets, particularly, where concentrated ownership structure is widespread and the legal protection of minority shareholders is weak, agency costs are more like to originate from a conflict between controlling and minority shareholders. Classens et al., (2000), for example, identify a pyramid structure and cross shareholding as the major organizational strategy used by firms in nine East Asian economies to separate ownership and control. They also provide important evidence that entrenchment effects on corporate governance stemming from the divergence between cash flow rights and control rights can significantly decrease firm value (Classens et al, 2002), a claim supported by several later studies (Lemmon and Lins, 2003; Laeven and Levine, 2008; Gompers et al., 2010).

Fan et al. (2011) show that the cost of expropriation is ultimately born by a controlling owner who must then devote substantial resources to mitigate the cost, while other researchers identify several channels through which large shareholders tunnel benefits. Cheung et al.'s (2006) analysis of related party transactions between Hong Kong listed companies and their controlling shareholders, for instance, associates these transactions with the wealth losses of minority shareholders. Likewise, Peng et al. (2010) provide evidence that in Chinese listed firms whose financial condition is sound, controlling shareholders use related party transactions to extract private benefits from minority shareholders.

In general, the literature on IPO performance documents two phenomena relevant for shareholders: pervasive short-run underpricing of IPOs across markets and time

periods and long-run IPO underperformance of the market in the long term, usually over three- or five-year periods (Ritter, 1991). Jain and Kini (1994), for example, find that new IPOs experience declines in operating performance post issuance. For China, Chan et al. (2004) document both underpricing and long-run underperformance, while Sun and Tong (2003) show that post-issue performance is negatively related to state ownership but positively related to legal-entity ownership. Wang (2005) also documents a sharp decline in post-IPO operating performance but argues that neither state ownership nor ownership concentration is related to performance. A negative relation between a disproportionate ownership structure and the initial return of IPOs is identified by Yeh et al. (2008), but their study focuses on the Taiwanese market only.

All these studies, however, despite being focused on ownership's effect on IPO performance, fail to explore the implication of the first-order agency problems that arise from ownership concentration; that is, the conflicts between controlling and minority shareholders. In the context of a disproportionate ownership economy, controlling shareholders are likely to have perverse incentives because of an excess of control rights. If the result is expropriation, it should be evident in IPOs. We therefore fill this research void by linking IPO performance to disproportionate ownership structure in newly listed firms.

The agency problem of disproportionate ownership structure results from conflicts of interest. In particular, through a pyramid ownership structure and cross-shareholding, controlling shareholders can exert control in excess of their cash flow rights, an

imbalance that also makes them less subject to board governance and market discipline. Such entrenched controlling shareholders are more likely to pursue private benefits at the expense of minority shareholders or outside investors through such activities as related party transactions or connected party transactions in which corporate wealth can be expropriated through tunneling (Faccio et al., 2001). Fan and Wong (2002) show that in East Asian corporations, the earnings-return relation decreases with the level of controlling shareholders' excess control rights.

In the past three decades, China has undergone a profound institutional reform that has transformed its economic system from a central planning economy to a fairly decentralized market economy in which almost two-thirds of the nation's GDP is produced by the private sector (China Annuals of Statistics, 2009). Since the opening of the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE) in December 1990 and July 1991, respectively, China's stock market has developed rapidly. In the early years, the majority of Chinese listed companies were former state owned enterprises (SOEs); however, since then the number of IPOs with non-state ownership has increased gradually through share issue privatization. Between 2002 and 2010, for example, the proportion of non-state controlled listed firms among all publicly listed companies in China increased from about 18% to more than 70%.

## 3. Data and methodology

### 3.1 Sample

Our sample comprises all companies (excluding SOEs) that launched IPOs on the Shanghai Stock Exchange and the Shenzhen Stock Exchange between 2002 and 2010. We restrict our observations to these years because the reporting of cash flow and control rights has only been mandated in China since 2002, and our long-term performance analysis requires at least three years of post-issue data, necessitating the inclusion of companies that went public prior to December 2010. We also exclude financial firms because of their unique accounting standards, and firms with incomplete pre- or post-issue financial information. Our final sample consists of 636 firms that launched IPOs during the period from 2002 to 2010 (60 firms listed in main board of Shanghai Stock exchange, 432 firms listed in SME board and 144 firms listed in GEM board of Shenzhen stock exchange)[3]. All IPOs cases of non-SOEs have been included in our sample and no firm has been delisted during our sample period, so our research results are not influenced by survivorship bias of our sample. We compile our dataset by merging IPO firm characteristics, market performance, financial information, and ownership data from the Chinese Stock Market Accounting Research (CSMAR) database with related party transactions information from the RESSET database.

### 3.2 Variables

#### 3.2.1 Long-term IPO performance

[3] There are two stock exchanges in China, the Shanghai Stock Exchange and Shenzhen Stock Exchange. Our sample covers IPOs listed in both exchanges. The main board here refers to IPOs listed in Shanghai Stock Exchange because there are no IPOs listed in main board of the Shenzhen Stock Exchange during our research period. The SME and GEM board were established in 2004 and 2009 separately by the Shenzhen Stock Exchange, which were mainly designed to allow small and medium size firms and young high-teach firms to go public. Thus profile of firms listed in the main board and SME and GEM board differs. Thus our study includes dummy variables of listed boards in our regressions to control potential bias due to the different listed board and exchanges.

We evaluate the post-IPO performance of the non-SOEs in our sample using both market- and accounting-based measures. Our market-based performance measures are the 12-month, 24-month, and 36-month post-IPO buy-and-hold stock returns (BHR) and the cumulative abnormal stock returns (CAR), both adjusted by the return of firms within the same market, industry, and size[4]. We calculate our results on the basis of monthly stock returns starting from the first month after the IPO date.

We compute the buy-and-hold market-adjusted stock returns (BHR) as follows:

$$R_{it} = \prod_{i=1}^{t}(1+r_{it}) - 1$$

where $R_{it}$ is the buy-and-hold return of stock *i* from month 1 to month *t*, and $r_{it}$ is the monthly raw return of the stock, and

$$R_{bt} = \prod_{i=1}^{t}(1+r_{bt}) - 1$$

where $R_{bt}$ is the buy-and-hold return of the benchmark portfolio from month 1 to month *t*, and $r_{bt}$ is the monthly raw return of the benchmark portfolio.

The buy-and-hold market-adjusted return (BHR) is thus

$$BHR_t = R_{it} - R_{bt}$$

and the cumulative abnormal stock returns (CAR) is

$$AR_{it} = r_{it} - r_{bt}$$

[4] Barber and Lyon (1997) argue that matching firms are the most appropriate benchmark to measure the long-term returns and to yield well-specified statistical tests, while Perry and William (1994) claim that firms classified under the same industry and with similar size are subject to similar economic and competitive factors and thus have comparable operating, investing, and financing opportunity sets. Therefore we calculated the post-IPO market performance by using the return of firms within the same market, industry and size as benchmark returns. We appreciated the valuable comment made by an anonymous referee regarding this issue.

where $AR_{it}$ is the abnormal return of stock *i* at month *t*, $r_{it}$ is the monthly raw return of the stock, and $r_{bt}$ is the monthly adjusted return of the benchmark portfolio. The cumulative abnormal market-adjusted return (CAR) from event month 1 to month *t* is thus

$$CAR_{it} = \sum_{i=1}^{t} AR_{it}$$

We also evaluate firm performance using accounting-based measures, which, however, raises the issue of all Chinese pre-IPO accounting data being subject to accounting manipulation to fulfill listing requirements (Aharony et al., 2000). Such manipulation can create a downward bias in the accounting performance change measures, a bias that we take into account by weighting the results based on stock return measures more heavily than those based on accounting return measures. For our analysis, we adopt three industry-adjusted[5] accounting performance measures: sales growth, earnings growth, and the change in return on sales (ROS), calculated as the difference between the firm-specific and industry-median value of performance measure. We use ROS, calculated as net income divided by sales, rather than ROA or ROE because Fan et al. (2007) argue that measures based on equity or assets might create a downward bias on Chinese post-IPO firm performance.[6] Likewise, due to the fact that firms change significantly after IPO and the pre-IPO accounting performance and subject to manipulation, we use the average changes of the accounting

[5] We employ the six-industry classifications borrowed from Firth et al. (2006): finance, industrial, commercial, public utility, property, and conglomerate (all other industries).
[6] See Fan et al. (2007) for more details.

performance measures (sales growth, earnings growth and ROS) in the 3-year post-IPO period rather than the accounting performance changes before and after the IPO as proxy of post-IPO accounting performance change. It should be noted, however, that we have omitted the accounting numbers in the IPO year because these data tend to be heavily manipulated (Fan et al., 2007), and that the pre-IPO earning management is controlled in our regressions by including the pre-IPO earning management as a control variable.

3.2.2 Underpricing of IPO issues

We calculate the underpricing of an IPO issue as the return on the first day of trading (relative to the offering price):

$$RET_{i0} = \frac{P_{i1} - P_{i0}}{P_{i0}}$$

where $Ret_{i0}$ is the initial return (underpricing) of stock *i*, $P_{i0}$ is the closing price of stock *i* on the first trading day, and $P_{il}$ is the offering price of stock *i.*

The market return on the first trading day of the new stock is

$$RET_{i0} = \frac{P_{im1} - P_{im0}}{P_{im0}}$$

where $Ret_{im}$ is the market return on the first trading day of the new stock *i*, $P_{i,m0}$ is the closing price of the appropriate Shanghai or Shenzhen composite index that corresponds to the offering day of the new stock *i*, and $P_{i,ml}$ is the closing price of the appropriate Shanghai or Shenzhen composite index on the first trading day of the new stock *i* .

We adjust the return for the market effect as follows:

$$ADJRET_{i0} = RET_{i0} - RET_{im}$$

where $AdjRet_{i0}$ is the initial return (underpricing) of stock *i*.

3.2.3 Disproportionate ownership structure, cash flow rights, and control rights

To examine the effects of a disproportionate ownership structure, we first identify the ultimate controlling shareholders by tracing the chain of ownership. Consistent with previous studies (La Porta et al., 1999; Claessens et al., 2002), we define control rights as the weakest link in the chain and cash flow rights as the product of ownership stakes along the chain. To illustrate, if an ultimately controlling shareholder owns 70% of the stock of publicly traded firm A, which in turn has 35% of the stock of firm B, then the ultimately controlling shareholder controls 35% of firm B, the weakest link in the control rights chain, and has cash flow rights of 24.5%, the product of the two ownership stakes along the chain. Because of a pyramid structure, cross-shareholding, and dual-class stocks, the largest shareholders' control rights are always in excess of its cash flow rights (La Porta et al., 1999), and because controlling shareholders' control rights exceed their cash flow rights, they always have the incentive and opportunity to expropriate the wealth of minority shareholders (La Porta et al., 1999).

3.2.4 Other control variables

Following previous studies, several control variables are also included in our study, detailed definition of all our variables used in this paper are reported in Appendix A.

### 3.3 Sample distribution and description

Table 1 provides the distribution and description of our sample. As Panel A clearly shows, the IPO firms are unevenly distributed across the sample period, which largely reflects the overall IPO market condition in China. From 2002 to 2006, the Chinese stock market experienced a serious bear market in which the Shanghai Stock Index dropped from 2,200 in mid-2001 to 1,050 in mid-2005, and only a few firms (e.g., eight in 2005) went public. Panel A also reveals that an average 45.60% of the sample firms have a disproportionate ownership structure, with the highest percentage occurring in 2005, when all the IPO firms had such a structure, and the lowest (39.80%) occurring in 2010. In the remaining years, the percentages fluctuate from 40.91% to 63.27%. The presence of a disproportionate ownership structure also varies across industries: the highest percentage occurs in the property and real estate and commercial sectors (70.00% and 68.75%), followed by the industrial sector (45.68%), the public utilities sector (44.19%), and the conglomerate sector (38.27%). In terms of listed board, 48.33% of IPO firms listed in main board have disproportionate ownership structure, while the number is 50% and 31.25% in SME and GEM board.

Panel B reports firm characteristics at the time of the IPO. With a mean initial return of 79.30%, the average levels of underpricing are lower than those reported in earlier research (Mok and Hui, 1998; Su and Fleisher, 1999; Chan et al., 2004). Nonetheless, the underpricing of IPOs in China is still much higher than that in

developed markets (Loughran et al., 1994):[7] the mean (median) number of shares issued (in millions) is 66.46 (51.10) and the mean (median) issue price of the IPOs is 22.15 (18.80) RMB. Panel B also shows average cash flow rights of 36.64% as compared to excess control rights of 5.94%, which indicates a clear divergence between the largest shareholders' control rights and their cash flow rights in non-state controlled IPOs firms.

Panel C reports the mean and median values of the stock-based and accounting-based performance measures for the sample. It clearly shows that the average BHR and CAR of newly listed non-state controlled firms in China fall significantly in the three years subsequent to their IPOs in terms of both mean and median. As regards the accounting-based measures, the mean (median) change in the three-year average ROS of the sample is a negative -13.02% (-7.61%), reflecting a decline in Chinese IPO firms' accounting performance that is consistent with the data reported by Aharony et al. (2000) and Sun and Tong (2003). Although the average post-IPO sales growth is positive (20.88%), the earnings growth lags far behind the sales growth (-28.90%), suggesting that the accounting performance of Chinese firms decrease in the post-IPO period.

**[INSERT TABLE 1 ABOUT HERE]**

[7] Please visit Jay Ritter's website at http://bear.cba.ufl.edu/ritter/interntl.htm for the most recently updated information.

## 4. Disproportionate ownership structure and long-term firm performance

In this section, we investigate how the disproportionate ownership structure of non-state controlled IPO firms affects their long-term market-based performance and accounting-based performance.

### 4.1. Univariate tests

Figure 1 plots the mean BHRs and CARs, respectively, of non-state controlled IPOs firms in China sorted by whether or not the controlling shareholders have excess control rights. In Panel A, the mean BHR of the group of IPOs firms with excess control (in solid lines) remain negative over the three years, while the mean BHR of the group of IPOs firms without excess control (in dotted lines) is much more than that of firms with excess control rights although it also exhibits negative. And the difference between the two groups of firms is larger as time passes. Likewise, very similar results are found in Panel B.

**[INSERT FIGURE 1 ABOUT HERE]**

Table 2 reports the mean and median values of the market-based and accounting-based performance measures for two subsamples sorted by whether or not the firms are characterized by excess control rights. In each of the three post-IPO years, the mean and median BHRs and CARs of firms with excess shareholder control rights are statistically significantly lower than those for firms without. This finding indicates that the post-IPO market can indeed distinguish between the two groups of firms. Moreover, the magnitude of the difference in average BHRs and CARs between the

two groups grows larger over time, suggesting that over the years, the market gradually perceives the negative effects of entrenchment. Our between-group comparison of accounting-based performance measures further shows that firms with excess control rights experience a more substantial drop in average ROS and slower sales and earnings growth than do their counterparts without excess control rights.

**[INSERT TABLE 2 ABOUT HERE]**

**4.2 Regressions**

4.2.1 Disproportionate ownership structure and post-IPO market performance

To examine the effects of disproportionate ownership structure on post-IPO performance, we perform regression analyses using generalized least squares to control for sample heterogeneity. Tables 3 and 4 summarize our regression results using the 12-, 24-, and 36-month BHRs and CARs as dependent variables. As the BHRs may not be normally distributed, to alleviate the potential influence of non-normal distribution of the long-term performance of IPOs, we transform the equal weighted matching firm-adjusted three-year BHR to the natural logarithm of 1000% plus each BHR. The regressions also include the ultimately controlling shareholders' cash flow rights (CASHFLOW), the degree of excess control (EXCESS), and a dummy (EXDUMMY) equal to one if the wedge between the ultimately controlling shareholders' control rights and cash flow rights is larger than zero. The control variables are the log of total assets (SIZE), debt-to-asset ratio (LEVERAGE), issuing P/E ratio (P/E) to control the influence from issuing price, a dummy variable SELLING (a dummy equals to 1 if

there are block trading activities within a specific year and 0 otherwise) to control the potential influence from block holder's selling activities on stock return. Finally, year and industry dummies to control for the effect of year and industry factors, dummies for listed board are included to control for the different profiles of IPOs listed on different boards.

**[INSERT TABLE 3 ABOUT HERE]**

Consistent with the univariate results reported in table 2, the multivariate regression results show that firms with a disproportionate ownership structure experience a more statistically significant stock performance decline after the IPO (as shown in table 3, the regression coefficients of excess control rights (EXCESS) are all statistically significantly negative). The results indicate that firms with a disproportionate ownership structure underperform those without in term of BHR, which is consistent with our univariate test results. Likewise, as shown in table 4, firms with a disproportionate ownership structure significantly underperform those without in CARs in the post-IPO period of 12, 24 and 36 months.

**[INSERT TABLE 4 ABOUT HERE]**

4.2.2 Disproportionate ownership structure and post-IPO accounting performance

Table 5 reports the results of our regressions analyzing the effects of a disproportionate ownership structure on changes in post-IPO accounting performance,

measure by the average change in ROS, sales growth, and earnings growth in the 3-years post-IPO period. Panel A and B reports the results using excess control rights and excess dummy as explanatory variables separately. Main control variables are the degree of excess control (EXCESS), and a dummy (EXDUMMY) equal to one if the wedge between the ultimately controlling shareholders' control rights and cash flow rights is larger than zero. In addition to the control variables used in Table 3 and 4, we include one more variable (EM[8]), which is the degree of earning management in the 3 year pre-IPO period, the results are reported separately in columns (2), (4) and (6). This is because pre-IPO firms in China tend to manipulate their earnings in the pre-IPO period (Chen et al., 2013), which may also result in a decrease in post-IPO accounting performance. In other word, if we observe a worse post-IPO accounting performance in firms with excess control rights, it may be caused by those firms have more pre-IPO earnings management. By controlling the pre-IPO earning management in our regression models, we are able to achieve results that are free from potential effect from pre-IPO earnings management.

**[INSERT TABLE 5 ABOUT HERE]**

The regression results in Table 5 indicate that firms with a disproportionate ownership structure experience deteriorating accounting performance subsequent to their IPOs regardless of whether performance is measured by the change in ROS, sales

[8] Earnings management is defined by discretionary accruals (DAs) using the modified Jones models developed by Jones (1991).

growth, or earnings growth, even after the pre-IPO earnings management has been controlled. Consistent with the univariate test results, our results show that every one percentage increase in excess control rights results in a 2.66% (2.58%) decline for the change in ROS, a 0.45% (0.41%) slower sales growth, and 4.38% (5.67%) slower earnings growth.

According to Aharony et al. (2000), in managing their earnings, Chinese firms typically manipulate accruals and profits from non-core operations. Therefore, to check the robustness of our results and to bring our accounting-based measures more in line with those of previous studies, we also use operating earnings/assets, operating earnings growth, and net operating income growth as accounting-based performance measures to test the relation between a disproportionate ownership structure and performance changes. As table 6 indicates, even using these alternative post-IPO accounting performance changes, the level of excess control rights remains negatively correlated with firms' accounting performance subsequent to the IPO. More specifically, firms whose ultimately controlling shareholders have more excess control rights experience a greater drop in operating earnings/assets and slower operating earnings growth and net income growth.

**[INSERT TABLE 6 ABOUT HERE]**

Taken together, the regression results in tables 3, 4, 5, and 6 suggest that non-state controlled firms in China that have issued IPOs generally show poorer stock returns and accounting performance when the ultimately controlling shareholders can exert

control through a pyramidal structure or cross-shareholding using control rights that are in excess of cash flow rights.

### 4.3 Disproportionate ownership structure and related party transactions

On the assumption that controlling shareholders can expropriate minority shareholders by tunneling the wealth of listed firms, we now explore whether a firm with disproportionate ownership structure is more likely to conduct tunneling activities. Using related party transactions as proxies, we measure the effect of the wedges between control rights and cash flow rights on the probability of a firm undertaking tunneling transactions using the likelihood of a firm undertaking a value-destroying related party transaction as the dependent variable. Because there is no accurate measure of exactly how much benefit is transferred through these transactions, as in prior studies (Cheung et al., 2006, 2009), we use the market reaction to related party transaction announcements as a proxy. A negative market reaction indicates tunneling, which reduces firm value and goes against the interests of minority shareholders. We define value-destroying related party transactions as any connected transaction associated with negative cumulative abnormal market-adjusted stock returns (CARs) over trading day windows [0,+1], [-1,+1], [-2,+2], [-2,+5] relative to the announcement day (day 0). We report the estimates of our logistic models in table 7.

**[INSERT TABLE 7 ABOUT HERE]**

As the table clearly shows, firms with a disproportionate ownership structure are more likely to engage in value-destroying related party transactions, and the likelihood

of a firm's engaging in such transactions increases with the divergence between control rights and cash flow rights. Moreover, consistent with Cheung et al.'s (2006) findings, the cash flow rights of controlling shareholders and firm size are negatively related to value-destroying related party transactions. Overall, the evidence in table 7 indicates a positive relation between disproportionate ownership and the likelihood of controlling shareholders expropriating minority shareholders. This relation is stronger for IPO firms with a wider wedge between controlling shareholders' control rights and cash flow rights. This evidence further indicates that, in long-term, the underperformance of IPOs with excess control rights relative to IPOs without excess control rights is partly driven by their higher likelihood of undertaking value-destroying related party transactions.

### 4.4 Robustness results

For robustness of our results, we also conduct the following tests: (1) we use the ratio of control rights and cash flow rights as new measure of excess control rights, and we find the positive relationship still hold between new measure of excess control rights and post-IPO performance; (2) we conduct separate regressions using different subsample of firms listed in main board, SME board and GEM board, and similar results are found indicating that the worse post-IPO performance in firms with excess control rights is not driven by the different risk profile of firms listed in different boards. The results of these robustness tests are not reported to save space.

## 5. Disproportionate ownership structure and initial IPO returns

This section examines how the disproportionate ownership structure of non-state controlled IPO firms affects initial IPO returns (underpricing). Table 8 reports the mean and median market-adjusted initial stock returns for our sample, sorted by controlling shareholders' excess control rights and year. As the table shows, in most years, firms with a disproportionate ownership structure show smaller initial returns than firms without. The difference in mean of market-adjusted initial return of firms with and without disproportionate ownership structure is 9.16% (71.47% versus 80.63%, which is significant at the 10% level. These results support our hypothesis that the largest controlling shareholders' excess control rights have a negative impact on the initial returns of non-state controlled IPO firms.

**[INSERT TABLE 8 ABOUT HERE]**

To distinguish the effect of a disproportionate ownership structure on the initial returns of non-state controlled firms, we also perform a regression analysis that controls for additional firm, industry, year, and institutional factors in China's IPO markets. The dependent variable in this model is the IPO's initial stock return, including both the unadjusted initial return (INITIAL RETURN) and the market-adjusted return (ADJ. INITIAL RETURN). Our key independent variables are the degree of the excess control rights (EXCESS) and a dummy (EXDUMMY) for the largest shareholders having excess control rights. The results are reported in panel A (initial return as dependent variable) and B (adjusted initial return as dependent variable) of Table 9. As in panel A of Table 9, when we include the key independents and only

control for year and industry factors, the estimated coefficients are significantly negative at the 5% level for the degree of excess control rights (Ex_wedge) and at the 1% level for the presence of largest shareholders' excess control rights (Ex_dummy).

We then run further regressions that include additional control variables suggested by prior research on IPO underpricing. Chowdhry and Sherman (1996), for example, suggest that underpricing can be affected by the time gap between the offering and the listing. That is, because the information known by issuers, underwriters, and investors is asymmetrical (Baron, 1982; Rock, 1986), the longer the time lags between the offering and the listing, the higher the risk to investors and thus the greater the probability of underpricing. In fact, both Chan et al. (2004) and Su (2004) provide empirical evidence that IPO underpricing in China is positively related to the offering-to-listing time lag. To capture the effects of this information asymmetry, we include the natural logarithm of the number of days between the offering and listing dates (DAYLAG), together with other variables commonly used in related studies of Chinese IPOs (Su and Fleisher, 1999; Chan et al., 2004; Chen et al., 2004), including the ultimately controlling shareholders' cash flow rights (CASHFLOW); the age of the firms(LNAGE), represented by the natural logarithm of one plus the age in years of the company from the date on which it was first listed (with any part of a year treated as a whole year); the issue size (PROCEEDS), represented by the natural logarithm of the gross proceeds; the issuing P/E ratio and year, industry and listed dummies.

**[INSERT TABLE 9 ABOUT HERE]**

The results of these multiple regressions, shown in table 9, indicate that the time lag between the IPO date and the first trading date is insignificant in explaining IPO underpricing. Although this result contrasts with those of earlier studies (Mok and Hui, 1998; Su and Fleisher,1999; Chen et al.,2004), it is consistent with more recent findings that the time lag in the Chinese IPO market has been dramatically shortened, thereby removing previously unknown factors caused by the long time lag (Yu and Tse, 2006). The coefficients for the degree of excess control rights (EXCESS) reported in panel A and the dummy variable (EXDUMMY) reported in panel B remains negative and they are statistically significant. The marginally lower initial return, or smaller underpricing, associated with a disproportionate ownership structure is consistent with our second hypothesis that, in non-state controlled IPO firms, the excess control rights enjoyed by ultimately controlling shareholders become entrenched in a disproportionate ownership structure, thereby giving largest controlling shareholders less incentive to underprice new issues. These results, which support our second hypothesis, are also consistent with Yeh et al.'s (2008) findings for Taiwan.

## 6. Conclusions

Public investors invest in IPOs at capital markets because they believe in the issuing firms' future prospects, financial performance, and corporate governance. In China, the world's largest emerging economy, although the IPO market is actively attracting critical financing from retail investors, the long-run IPO performance is

proving dismal. Many newly listed firms are essentially controlled by private owners through a complex pyramid ownership structure, which gives their controlling shareholders greater control rights in excess of their cash flow rights. Under this disproportionate ownership structure, controlling shareholders are incentivized to expropriate minority shareholders. IPOs with the disproportional ownership structure should be deemed as bad investment in the long run for public investors.

Utilizing a hand-collected data on ownership for publicly listed non-SOEs, we show that IPO firms characterized by excess control rights significantly underperform other IPOs in the long-run stock and operating performance. Our findings thus suggest that the conflict between large controlling shareholders and minority shareholders remains the primary agency problem because of the significant entrenchment effect generated by disproportional ownership structures. Furthermore we show that IPO firms with excess control show significantly lower first day return but are associated with higher frequency of value-destroying related party transactions, suggesting that the latter reason can explain IPO-run poor performance.

This research has important implications for both investors and regulators. First, small public investors interested in IPOs must understand the ownership structure of the newly listed firm and rationally discount the price of such firms commensurate with the adverse incentives of controlling shareholders. Disproportionate ownership structures have to be considered as an important corporate governance issue. Regulators, for their part, must recognize that the current investor protection systems

need to address the challenge of protecting minority investors in corporations characterized by a complex and disproportionate ownership structure.

**References**


Aharony, J., Lee, C. W. J., and Wong, T. J., 2000. Financial packaging of IPO firms in China. Journal of Accounting Research 38**,** 103–126.

Baron, D. P., 1982. A model of the demand for investment banking advising and distribution services for new issues. Journal of Finance 37, 955–976.

Bae, K. H., Baek, J. S., Kang, J. K., and Liu W. L., 2012. Do controlling shareholders' expropriation incentives imply a link between corporate governance and firm value? Theory and evidence. Journal of Finance Economics 105, 412-435.

Barber, B. M., Lyon, J. D., 1997. Detecting long-run abnormal stock returns: The empirical power and specification of test statistics. Journal of Financial Economics 43, 341-372.

Brennan, M. J. and Franks, J., 1997. Underpricing, ownership and control in initial public offerings of equity securities in the UK. Journal of Financial Economics 45**,** 391–413.

Chan, K., Wang, J., and Wei, K., 2004. Underpricing and long-term performance of IPOs in China. Journal of Corporate Finance 10**,** 409–430.

Chen, C., Shi, H., Xu, H., 2013. Underwriter reputation, issuer ownership, and pre-IPO earnings management: Evidence from China. Financial Management 42 (3): 647-677.

Cheung, Y. L., Rau, P. R., and Stouraitis, A., 2006. Tunneling, propping and expropriation: Evidence from connected party transactions in Hong Kong. Journal of Financial Economics 82, 343–386.

Cheung, Y.L., Jing, L., Lu, T., Rau, P.R., Stouraitis, A., 2009. Tunnelling and propping up: An analysis of related party transactions by Chinese listed companies, Pacific-Basin Finance Journal, 17, 372-393.

Chen, G., Firth, M., and Kim, J. B., 2004. IPO underpricing in China's new stock markets. Journal of Multinational Financial Management 14**,** 283–302.

Chowdhry, B. and Sherman, A., 1996. International differences in oversubscription and

underpricing of IPOs. Journal of Corporate Finance 2**,** 359–381.

Claessens, S., Djankov, S., Fan, J. P. H., and Lang, L. H. P., 2002. Disentangling the incentive and entrenchment effects of large shareholdings. Journal of Finance 57, 2741–2771.

Claessens, S., Djankov, S., and Lang, L. H. P., 2000. The separation of ownership and control in East Asian corporations. Journal of Financial Economics 58**,** 81–112.

D'Souza, J. and Megginson, W. L., 1999. The financial and operating performance of privatized firms during the 1990s. Journal of Finance 54**,** 1397–1438.

Faccio, M. and Lang, L. H. P., 2002. The ultimate ownership of Western European corporations. Journal of Financial Economics 65**,** 365–395.

Faccio, M., Lang, L. H. P., and Young, L., 2001. Dividends and expropriation. American Economic Review 91**,** 54–78.

Fan, J. P. H. and Wong, T. J., 2002. Corporate ownership structure and the informativeness of accounting earnings in East Asia. Journal of Accounting and Economics 33**,** 401–425.

Fan J.P.H., Wong, T.J., Zhang, T.Y., 2007, The Emergence of Corporate Pyramids in China, SSRN working paper.

Fan J.P.H., Wong, T.J., Zhang, T.Y., 2007, Politically connected CEOs, corporate governance, and Post-IPO performance of China's newly partially privatized firms, Journal of Financial Economics, 84: 330–357.

Fan, J. P. H., Wei, K., and Xu, X., 2011. Corporate finance and governance in emerging markets: A selective review and an agenda for future research. Journal of Corporate Finance 17, 207–214.

Firth, M., Fung, P. M. Y., Rui, O. M., 2006. Corporate performance and CEO compensation in China. Journal of Corporate Finance 12(4): 693–714.

Gompers, P. A., Ishii, J., and Metrick, A., 2010. Extreme governance: An analysis of dual-class firms in the United States. Review of Financial Studies 23**,**

1051–1088.

Jain, B. and Kini, O., 1994. The post-issue operating performance of IPO firms. Journal of Finance 49, 1699–1726.

Johnson, S., La Porta, R., Lopez-de-Silanes, F., and Shleifer, A., 2000. Tunneling. American Economic Review 90, 22–27.

La Porta, R., Lopez-de-Silanes, F., and Shleifer, A., 1999. Corporate ownership around the world. Journal of Finance 54**,** 471–517.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R., 2000. Investor protection and corporate governance. Journal of Financial Economics 58**,** 3–27.

Laeven, L. and Levine, R., 2008. Complex ownership structures and corporate valuations. Review of Financial Studies 21**,** 579–604.

Lemmon, M. L. and Lins, K. V., 2003. Ownership structure, corporate governance, and firm value: Evidence from the East Asian financial crisis. Journal of Finance 58**,** 1445–1468.

Liu, Q., Tian, G., 2012. Controlling shareholder, expropriations and firm's leverage decision: Evidence from Chinese non-tradable share reform, Journal of Corporate Finance, 18, 782–803.

Loughran, T., Ritter, J. R., and Rydqvist, K., 1994. Initial public offerings: International insights. Pacific-Basin Finance Journal 2**,** 165–199.

Megginson, W. L., Nash, R. C., and Van Randenborgh, M., 1994. The financial and operating performance of newly privatized firms: An international empirical analysis. Journal of Finance 49**,** 403–452.

Mok, H. M. K., and Hui, Y., 1998. Underpricing and aftermarket performance of IPOs in Shanghai, China. Pacific-Basin Finance Journal 6**,** 453–474.

Peng, W. Q., Wei, K. and Yang, Z., 2010. Tunneling or propping: Evidence from connected transactions in China. Journal of Corporate Finance 17**,** 306–325.

Perry, S.E., Williams, T.H., Earnings Management Preceding Management Buyout

Offers, Journal of Accounting and Economics, 1994, 18(2), 157-179.

Ritter, J. R., 1984. The "hot issue" market of 1980. Journal of Business 57, 215–240.

Ritter, J. R., 1991. The long-run performance of initial public offerings. Journal of Finance 46, 3–27.

Rock, K., 1986. Why new issues are underpriced. Journal of Financial Economics 15**,** 187–212.

Rousseau, P.L., Xiao, S., 2007. Change of control and the success of China's share issue privatization. SSRN working paper.

Shleifer, A. and Vishny, R. W., 1997. A survey of corporate governance. Journal of Finance 52**,** 737–783.

Smart, S., Zutter, C., 2003. Control as a motivation for underpricing: A comparison of dual- and single-class IPOs. Journal of Financial Economics 69 (1): 85-110.

Smart, S., Thirumalai, R., Zutter, C., 2008. What's in a vote? The short- and long-run impact of dual-class equity on IPO firm values. Journal of Accounting and Economics 45 (1): 94-115.

Su, D., 2004. Adverse-selection versus signaling: Evidence from the pricing of Chinese IPOs. Journal of Economics and Business 56**,** 1–19.

Su, D. and Fleisher, B. M., 1999. An empirical investigation of underpricing in Chinese IPOs. Pacific-Basin Finance Journal 7**,** 173–202.

Sun, Q. and Tong W., 2003. China share issue privatization: The extent of its success. Journal of Financial Economics 70, 183–222.

Wang, C., 2005. Ownership and operating performance of Chinese IPOs. Journal of Banking & Finance 29**,** 1835–1856.

Yeh, Y. H., Shu, P. G., and Guo, R. J., 2008. Ownership structure and IPO valuation: Evidence from Taiwan. Financial Management 37**,** 141–161.

Yu, T. and Tse, Y. K., 2006. An empirical examination of IPO underpricing in the Chinese A-share market. China Economic Review 17**,** 363–382.

## Table 1: Sample and Variables Summary statistics

This table presents summary information on the sample of non-state controlled IPO firms in China. Panel A reports the sample by year of IPO, industry sector and the listed board. Panel B lists the IPO firm characteristics, including initial return, market-adjusted initial return, firm age, issue size (i.e., the value of shares issued in millions), the number of days between the offering and listing dates, the listing date issue (ordering) price, the ultimately controlling shareholders' cash flow rights, and the level of excess control rights (i.e., the difference between the ultimately controlling shareholders' cash flow rights and control rights). Panel C reports statistics for the two market-based performance measures of non-state controlled Chinese firms that went public during 2002–2010 and for the accounting-based performance measures of non-state controlled Chinese firms that went public during 2002–2010. The market-based performance measures are the buy-and-hold adjusted returns (BHRs) and the cumulative market-adjusted stock returns (CARs) accumulated for 12, 24, and 36 months starting from one month after the IPO month, both market based performances are adjusted by market, industry, and size. The accounting return measures are the average industry adjusted change in return on sales (ΔAROS), sales growth (ΔAGSALES), and earnings growth (ΔAGEARNS) in the three-year post-IPO period.

**Panel A: Distribution of firms by IPO year, industry and listed board**

| | Number of IPOs | | | |
|---|---|---|---|---|
| IPO Year | Firms with excess control | Firm without excess control | Total | Firms with excess control in total sample by year (%) |
| 2002 | 6 | 6 | 12 | 50.00 |
| 2003 | 9 | 13 | 22 | 40.91 |
| 2004 | 31 | 18 | 49 | 63.27 |
| 2005 | 8 | 0 | 8 | 100.00 |
| 2006 | 20 | 14 | 34 | 58.82 |
| 2007 | 39 | 36 | 75 | 52.00 |
| 2008 | 25 | 33 | 58 | 43.10 |
| 2009 | 33 | 46 | 79 | 41.77 |
| 2010 | 119 | 180 | 299 | 39.80 |
| | | | | |
| Public utilities | 19 | 24 | 43 | 44.19 |
| Real estate | 7 | 3 | 10 | 70.00 |
| Conglomerate | 31 | 50 | 81 | 38.27 |
| Industrial | 222 | 264 | 486 | 45.68 |
| Commercial | 11 | 5 | 16 | 68.75 |
| | | | | |
| Main board | 29 | 31 | 60 | 48.33 |
| SME | 216 | 216 | 432 | 50.00 |
| GEM | 45 | 99 | 144 | 31.25 |
| | | | | |
| Total | 290 | 346 | 636 | 45.60 |

**Panel B: Characteristics of IPO firms**

| Panel B: Characteristics of IPO firms | Mean | Median | Min | Max | Std. dev. |
|---|---|---|---|---|---|
| Initial return (%) | 79.30 | 52.41 | -9.91 | 538.12 | 0.82 |
| Market-adjusted initial return (%) | 78.84 | 51.67 | -11.22 | 525.75 | 0.81 |
| Firm Age | 6.41 | 6.00 | 2.00 | 21.00 | 3.86 |
| Issue size (in millions) | 66.46 | 51.10 | 10.94 | 593.48 | 56.36 |
| Days elapsed between offering and listing | 13.81 | 13.00 | 7.00 | 50.00 | 4.54 |
| Issue price | 22.15 | 18.80 | 2.60 | 148.00 | 15.54 |
| Cash flow rights | 36.64 | 35.73 | 0.00 | 85.39 | 16.04 |
| Excess control rights (%) | 5.94 | 0.00 | 0.00 | 53.42 | 8.76 |
| Excess dummy | 0.46 | 0.00 | 0.00 | 1.00 | 0.50 |

**Panel C: Market-based performance and accounting-based performance**

| Panel C: Market-based performance and accounting-based performance | Mean | Median | Min. | Max. | Std. dev. | Obs. |
|---|---|---|---|---|---|---|
| BHR 12 (%) | -14.97 | -12.52 | -239.53 | 293.20 | 49.64 | 636 |
| BHR 24 (%) | -13.42 | -17.84 | -333.67 | 434.54 | 60.69 | 636 |
| BHR 36 (%) | -25.42 | -30.63 | -723.07 | 2148.31 | 146.22 | 636 |
| | | | | | | |
| CAR 12 (%) | -9.69 | -11.01 | -123.11 | 131.92 | 36.45 | 636 |
| CAR 24 (%) | -11.04 | -13.36 | -220.50 | 146.75 | 46.88 | 636 |
| CAR 36 (%) | -15.13 | -18.42 | -235.50 | 212.94 | 58.50 | 636 |
| | | | | | | |
| ΔAROS (%) | -13.02 | -7.61 | -1973.55 | 395.24 | 98.35 | 636 |
| ΔAGSALES(%) | 20.88 | 16.81 | -58.58 | 394.17 | 29.07 | 636 |
| ΔAGEARNS (%) | -28.90 | -9.40 | -2482.897 | 2544.564 | 240.92 | 636 |

Data sources: China Security Market and Accounting Research (CSMAR) and authors' own calculations.

## Table 2: Mean and median statistics of post-IPO performance measures

This table presents the mean and median values for market-based and accounting-based performance measures of non-state controlled Chinese firms that went public during 2002–2010. The firms are sorted by whether or not the ultimately controlling shareholders have control rights in excess of their cash flow rights. The market-based performance measures are the buy-and-hold returns (BHRs) and the cumulative abnormal stock returns (CARs) accumulated for 12, 24, and 36 months starting from one month after the IPO month, both performances are adjusted by market, industry, and size. We calculate the CARs measure based on monthly market-adjust stock returns, and compute the market returns as the weighted returns for all common stocks traded on the Shenzhen or Shanghai stock exchanges. The accounting return measures are the average industry adjusted change in return on sales (ΔAROS), sales growth (ΔAGSALES), and earnings growth (ΔAGEARNS) in the three-year post-IPO period. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

| | **Obs.** | | **With Excess control** | **Without Excess control** | **Different** | ***p*-value of mean/median difference** |
|---|---|---|---|---|---|---|
| BHR 12 (%) | 636 | Mean | -19.86 | -10.88 | -8.98** | 0.02 |
| | | Median | -16.58 | -9.49 | -7.09*** | 0.00 |
| BHR 24 (%) | 636 | Mean | -21.93 | -6.29 | -15.64*** | 0.00 |
| | | Median | -21.89 | -14.10 | -7.79*** | 0.00 |
| BHR 36 (%) | 636 | Mean | -42.65 | -10.97 | -31.68*** | 0.00 |
| | | Median | -43.49 | -20.70 | -22.79*** | 0.00 |
| CAR 12 (%) | 636 | Mean | -13.04 | -6.88 | -6.16** | 0.03 |
| | | Median | -14.68 | -7.27 | -7.41** | 0.01 |
| CAR 24 (%) | 636 | Mean | -17.03 | -6.03 | -11.00*** | 0.00 |
| | | Median | -17.62 | -8.81 | -8.81** | 0.00 |
| CAR 36 (%) | 636 | Mean | -23.83 | -7.83 | -16.00*** | 0.00 |
| | | Median | -26.15 | -10.15 | -16.00*** | 0.00 |
| ΔAROS (%)) | 636 | Mean | -22.52 | -5.05 | -17.47** | 0.03 |
| | | Median | -10.60 | -2.24 | -8.36** | 0.00 |
| ΔAGSALES(%) | 636 | Mean | 18.20 | 23.13 | -4.93** | 0.03 |
| | | Median | 13.21 | 18.47 | -5.26*** | 0.00 |
| ΔAGEARNS (%) | 636 | Mean | -45.09 | -15.32 | -29.77 | -0.12 |
| | | Median | -37.14 | 8.99 | -46.13*** | 0.00 |

Data sources: China Security Market and Accounting Research (CSMAR) and authors' own calculations.

**Table 3: GLS regression results for the effects of disproportionate ownership structure on the post-IPO stock performance (BHRs)**

In this table, the dependent variable is market-based performance, measured as BHRs for 12, 24, and 36 months, starting from one month after the IPO month. The BHR measures are calculated based on monthly market, industry, and size-adjusted stock returns. As the BHRs may not be normally distributed, to alleviate the potential influence of non-normal distribution of the long-term performance of IPOs, we transform the equal weighted matching firm-adjusted three-year BHR to the natural logarithm of 1000% plus each BHR. Definitions of variables are detailed in Appendix A. *p*-values are in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | BHR12 | | BHR24 | | BHR36 | |
| EXCESS | -0.30*** | | -0.20* | | -0.53*** | |
| | (0.01) | | (0.06) | | (0.00) | |
| EXDUMMY | | -0.02 | | -0.02* | | -0.03** |
| | | (0.22) | | (0.07) | | (0.03) |
| CASHFLOW | 0.06 | 0.10 | 0.07 | 0.10* | -0.03 | 0.06 |
| | (0.42) | (0.11) | (0.25) | (0.09) | (0.69) | (0.37) |
| SIZE | 0.02 | 0.01 | 0.00 | 0.00 | -0.00 | -0.01 |
| | (0.16) | (0.23) | (0.69) | (0.69) | (0.84) | (0.59) |
| LEVERAGE | -0.06 | -0.06 | -0.04 | -0.04 | -0.04 | -0.03 |
| | (0.27) | (0.31) | (0.39) | (0.41) | (0.48) | (0.59) |
| P/E | 0.00 | -0.00 | 0.01 | 0.01 | -0.01 | -0.01 |
| | (0.95) | (0.95) | (0.80) | (0.87) | (0.79) | (0.62) |
| SELLING | -0.02 | -0.01 | -0.00 | -0.00 | 0.02 | 0.02 |
| | (0.26) | (0.29) | (0.77) | (0.77) | (0.25) | (0.21) |
| Const | 0.86*** | 0.88*** | 1.32*** | 1.31*** | 2.23*** | 2.27*** |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Year | Included | Included | Included | Included | Included | Included |
| Industry | Included | Included | Included | Included | Included | Included |
| Board | Included | Included | Included | Included | Included | Included |
| *N* | 636 | 636 | 636 | 636 | 636 | 636 |
| adj. $R^2$ | 0.466 | 0.461 | 0.434 | 0.433 | 0.274 | 0.255 |

Data sources: China Security Market and Accounting Research (CSMAR) and authors' own calculations.

**Table 4: GLS regression results of the effects of a disproportionate ownership structure on the post-IPO stock performance (CARs)**

In this table, the dependent variable is market-based performance, measured as CARs accumulated for 12, 24, and 36 months, starting from one month after the IPO month. The CAR measures are calculated based on monthly market, industry, and size-adjusted stock returns. As the CARs may not be normally distributed, to alleviate the potential influence of non-normal distribution of the long-term performance of IPOs, we transform the equal weighted matching firm-adjusted three-year CAR to the natural logarithm of 1000% plus each CAR. Definitions of variables are detailed in Appendix A. *P*-values are in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | CAR12 | | CAR24 | | CAR36 | |
| EXCESS | -0.22*** | | -0.30*** | | -0.63*** | |
| | (0.01) | | (0.01) | | (0.00) | |
| EXDUMMY | | -0.02* | | -0.02* | | -0.03* |
| | | (0.06) | | (0.08) | | (0.05) |
| CASHFLOW | 0.05 | 0.08* | 0.07 | 0.12* | -0.04 | 0.07 |
| | (0.33) | (0.08) | (0.28) | (0.06) | (0.69) | (0.44) |
| SIZE | 0.01 | 0.01 | -0.01 | -0.01 | -0.01 | -0.01 |
| | (0.47) | (0.54) | (0.41) | (0.34) | (0.53) | (0.35) |
| LEVERAGE | -0.03 | -0.03 | -0.00 | 0.00 | -0.04 | -0.03 |
| | (0.41) | (0.45) | (0.94) | (0.99) | (0.58) | (0.68) |
| P/E | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | (0.65) | (0.75) | (0.61) | (0.71) | (0.71) | (0.88) |
| SELLING | -0.01 | -0.01 | 0.00 | 0.00 | 0.01 | 0.02 |
| | (0.61) | (0.63) | (0.99) | (0.96) | (0.41) | (0.36) |
| Const | 1.01*** | 1.02*** | 1.29*** | 1.30*** | 1.37*** | 1.41*** |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Year | Included | Included | Included | Included | Included | Included |
| Industry | Included | Included | Included | Included | Included | Included |
| Board | Included | Included | Included | Included | Included | Included |
| *N* | 636 | 636 | 636 | 636 | 636 | 636 |
| adj. $R^2$ | 0.235 | 0.231 | 0.208 | 0.202 | 0.170 | 0.152 |

Data sources: China Security Market and Accounting Research (CSMAR) and authors' own calculations.

**Table 5: GLS regression results for the effects of a disproportionate ownership structure on the post-IPO accounting-based performance**

In this table, the dependent variable is, alternately, the average industry adjusted change in return on sales (ΔAROS), sales growth (ΔAGSALES), and earnings growth (ΔAGEARNS) in the three-year post-IPO period. ΔSIZE, ΔLEVERAGE, and ΔP/E are the average industry adjusted change in firm size, leverage ratio and P/E ratio in the three-year post-IPO period. Excess control rights and cash flow rights are not change values because ownership structure are less likely to be changed during the 3 year lockup period. The number of observations in columns (2), (4) and (6) are smaller when we include pre-IPO earning management in our models because some firms do not have enough pre-IPO information to calculate the pre-IPO earning management. Pre-IPO earning management (EM) is also not in change values because they are pre-IPO values. Definitions of all other variables are detailed in Appendix A. *P*-values are in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Excess control rights as measure of disproportionate ownership structure

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ΔAROS | | ΔAGSALES | | ΔAGEARNS | |
| EXCESS | -2.66*** | -2.58** | -0.45*** | -0.41** | -4.38** | -5.67*** |
| | (0.00) | (0.04) | (0.01) | (0.03) | (0.01) | (0.00) |
| CASHFLOW | -0.14 | -0.32** | -0.02 | 0.03 | 0.82 | -1.00 |
| | (0.75) | (0.04) | (0.84) | (0.74) | (0.43) | (0.34) |
| ΔSIZE | 0.47*** | 0.09 | 0.73*** | 0.62*** | 1.75*** | 1.16*** |
| | (0.01) | (0.11) | (0.00) | (0.00) | (0.00) | (0.00) |
| ΔLEVERAGE | -0.21** | -0.05* | 0.07*** | 0.08*** | -0.53** | -0.51*** |
| | (0.03) | (0.07) | (0.00) | (0.00) | (0.02) | (0.01) |
| ΔP/E | -0.00 | -0.00 | -0.01** | -0.01** | -0.03 | -0.03 |
| | (0.94) | (0.72) | (0.03) | (0.01) | (0.24) | (0.26) |
| EM | | -0.38 | | -1.59 | | -0.89 |
| | | (0.83) | | (0.18) | | (0.94) |
| Const | 49.44 | -6.39 | 21.95*** | 13.98 | -311.25*** | -174.75* |
| | (0.14) | (0.64) | (0.00) | (0.13) | (0.00) | (0.06) |
| Year | Included | Included | Included | Included | Included | Included |
| Industry | Included | Included | Included | Included | Included | Included |
| Board | Included | Included | Included | Included | Included | Included |
| *N* | 636 | 533 | 636 | 533 | 636 | 533 |
| adj. $R^2$ | 0.046 | 0.019 | 0.414 | 0.438 | 0.078 | 0.051 |

Panel B. Excess dummy as measure of disproportionate ownership structure

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ΔAROS | | ΔAGSALES | | ΔAGEARNS | |
| EXDUMMY | -15.99** | -6.20** | -4.49** | -2.90* | -34.03* | -38.76** |
| | (0.05) | (0.01) | (0.02) | (0.09) | (0.08) | (0.02) |
| CASHFLOW | 0.28 | -0.25* | 0.04 | 0.10 | 1.48 | -0.12 |
| | (0.50) | (0.09) | (0.66) | (0.33) | (0.14) | (0.90) |
| ΔSIZE | 0.49*** | 0.09* | 0.74*** | 0.62*** | 1.78*** | 1.21*** |
| | (0.00) | (0.09) | (0.00) | (0.00) | (0.00) | (0.00) |
| ΔLEVERAGE | -0.23** | -0.06** | 0.07*** | 0.08*** | -0.55** | -0.53*** |
| | (0.02) | (0.05) | (0.00) | (0.00) | (0.02) | (0.01) |
| ΔP/E | -0.00 | -0.00 | -0.01** | -0.01** | -0.03 | -0.03 |
| | (0.97) | (0.70) | (0.03) | (0.01) | (0.25) | (0.26) |
| EM | | -0.64 | | -1.72 | | -2.57 |
| | | (0.72) | | (0.15) | | (0.83) |
| Const | 20.52 | -14.03 | 18.14** | 21.71** | -354.38*** | -227.28** |
| | (0.53) | (0.29) | (0.02) | (0.02) | (0.00) | (0.01) |
| Year | Included | Included | Included | Included | Included | Included |
| Industry | Included | Included | Included | Included | Included | Included |
| Board | Included | Included | Included | Included | Included | Included |
| *N* | 636 | 533 | 636 | 533 | 636 | 533 |
| adj. $R^2$ | 0.046 | 0.019 | 0.414 | 0.438 | 0.078 | 0.051 |

Data sources: China Security Market and Accounting Research (CSMAR) and authors' own calculations.

**Table 6: GLS regression results for the effects of disproportionate ownership structure on the post-IPO accounting-based performance**

In this table, the dependent variable is, alternately, the change in operating earnings/assets (ΔAOE/A), the operating earnings growth (ΔGAOE), and the net income growth (ΔGANOI) in the 3-year post-IPO period. ΔSIZE, ΔLEVERAGE, and ΔP/E are the average industry adjusted change in firm size, leverage ratio and P/E ratio in the three-year post-IPO period. Excess control rights and cash flow rights are not change values because ownership structure are less likely to be changed during the 3 year lockup period. The number of observations in columns (2), (4) and (6) are smaller when we include pre-IPO earning management in our models because some firms do not have enough pre-IPO information to calculate the pre-IPO earning management. Definitions of all other variables are detailed in Appendix A. P-values are in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Excess control rights as measure of disproportionate ownership structure

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ΔAOE/A | | ΔGAOE | | ΔGANOI | |
| EXCESS | -27.04*** | -6.08** | -11.01** | -15.35*** | -10.31*** | -9.98*** |
| | (0.00) | (0.03) | (0.01) | (0.00) | (0.00) | (0.00) |
| CASHFLOW | 1.05 | -0.69 | 0.79 | -0.58 | 1.38 | -0.73 |
| | (0.80) | (0.67) | (0.76) | (0.85) | (0.44) | (0.59) |
| ΔSIZE | 4.39*** | 0.77 | 1.70 | 1.51 | 2.32*** | 1.40*** |
| | (0.01) | (0.18) | (0.10) | (0.15) | (0.00) | (0.00) |
| ΔLEVERAGE | -2.42*** | -0.54* | 0.59 | 0.70 | -0.87** | -0.61** |
| | (0.01) | (0.07) | (0.31) | (0.20) | (0.03) | (0.01) |
| ΔP/E | 0.00 | -0.03 | -0.05 | -0.06 | -0.01 | -0.02 |
| | (0.98) | (0.38) | (0.45) | (0.39) | (0.79) | (0.43) |
| EM | | -4.64 | | 18.52 | | -3.16 |
| | | (0.80) | | (0.58) | | (0.84) |
| Const | -78.15 | -88.32 | -689.12*** | -281.59 | 95.87 | -90.31 |
| | (0.81) | (0.54) | (0.00) | (0.29) | (0.48) | (0.45) |
| Year | Included | Included | Included | Included | Included | Included |
| Industry | Included | Included | Included | Included | Included | Included |
| Board | Included | Included | Included | Included | Included | Included |
| *N* | 636 | 533 | 636 | 533 | 636 | 533 |
| adj. $R^2$ | 0.056 | 0.004 | 0.035 | 0.018 | 0.033 | 0.049 |

Panel B. Excess dummy as measure of disproportionate ownership structure

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ΔAOE/A | | ΔAOE | | ΔANOI | |
| EXDUMMY | -139.31* | -46.96* | -86.70* | -101.26** | -55.25* | -47.91** |
| | (0.07) | (0.07) | (0.08) | (0.04) | (0.09) | (0.03) |
| CASHFLOW | 5.44 | 0.22 | 2.46 | 1.82 | 3.04* | 0.95 |
| | (0.18) | (0.89) | (0.33) | (0.52) | (0.07) | (0.46) |
| ΔSIZE | 4.61*** | 0.82 | 1.79* | 1.63 | 2.40*** | 1.47*** |
| | (0.01) | (0.15) | (0.09) | (0.12) | (0.00) | (0.00) |
| ΔLEVERAGE | -2.51*** | -0.58* | 0.53 | 0.63 | -0.90** | -0.64** |
| | (0.01) | (0.05) | (0.36) | (0.25) | (0.02) | (0.01) |
| ΔP/E | 0.01 | -0.03 | -0.05 | -0.06 | -0.01 | -0.02 |
| | (0.94) | (0.38) | (0.46) | (0.38) | (0.83) | (0.43) |
| SELLING | -28.53 | -14.95 | -13.34 | -20.03 | -13.13 | -9.98 |
| | (0.74) | (0.58) | (0.80) | (0.68) | (0.71) | (0.66) |
| EM | | -6.66 | | 14.13 | | -5.30 |
| | | (0.72) | | (0.68) | | (0.73) |
| Const | -385.51 | -173.90 | -796.95*** | -423.26* | -20.02 | -229.02* |
| | (0.22) | (0.21) | (0.00) | (0.10) | (0.88) | (0.05) |
| Year | Included | Included | Included | Included | Included | Included |
| Industry | Included | Included | Included | Included | Included | Included |
| Board | Included | Included | Included | Included | Included | Included |
| *N* | 636 | 533 | 636 | 533 | 636 | 533 |
| adj. $R^2$ | 0.037 | 0.001 | 0.030 | 0.010 | 0.018 | 0.026 |

Data sources: China Security Market and Accounting Research (CSMAR) and authors' own calculations.

**Table 7: Logistical regressions on the likelihood of undertaking value-destroying related party transactions**

In this table, the dependent variable is a value-destroying connected transactions dummy that equals one if the firm has undertaken a connected transaction associated with negative cumulative abnormal market-adjusted stock returns (CARs) over trading day window [0,+1], [-1,+1], [-2,+2], [-2,+5] relative to the announcement day (day 0). The sample includes a total of 9,847 related party transactions over 36 months for 636 IPO firms, starting from one month after the IPO month. We calculate the CARs based on daily market-adjusted stock returns and compute the market returns as the value weighted returns for all common stocks traded on the Shenzhen or Shanghai stock exchanges. Definitions of variables are detailed in Appendix A. *P*-values are in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | =1 if CAR[0,+1] <0 | | =1 if CAR[-1,+1] <0 | | =1 if CAR[-2,+2] <0 | | =1 if CAR[-2,+5] <0 | |
| EXCESS | 0.05*** | | 0.03*** | | 0.03*** | | 0.04*** | |
| | (0.00) | | (0.00) | | (0.00) | | (0.00) | |
| EXDUMMY | | 1.04*** | | 0.95*** | | 0.67*** | | 0.83*** |
| | | (0.00) | | (0.00) | | (0.00) | | (0.00) |
| CASHFLOW | -0.02*** | -0.03*** | -0.04*** | -0.04*** | -0.03*** | -0.04*** | -0.02*** | -0.03*** |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.000) | (0.00) |
| SIZE | -0.68*** | -0.52*** | -0.47*** | -0.42*** | -1.08*** | -1.02*** | -0.97*** | -0.86*** |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| LEVERAGE | -0.00 | -0.00* | -0.00*** | -0.00*** | 0.00*** | 0.00*** | 0.00 | 0.00 |
| | (0.23) | (0.08) | (0.00) | (0.00) | (0.00) | (0.00) | (0.35) | (0.47) |
| Const | 12.06*** | 7.32*** | 11.61*** | 8.27*** | 24.46*** | 17.49*** | 26.96*** | 18.63*** |
| Industry | Included | Included | Included | Included | Included | Included | Included | Included |
| Year | Included | Included | Included | Included | Included | Included | Included | Included |
| Board | Included | Included | Included | Included | Included | Included | Included | Included |
| *N* | 9847 | 9847 | 9847 | 9847 | 9847 | 9847 | 9847 | 9847 |
| pseudo $R^2$ | 0.116 | 0.132 | 0.100 | 0.115 | 0.157 | 0.161 | 0.168 | 0.176 |

Data sources: China Security Market and Accounting Research (CSMAR) and authors' own calculations.

## Table 8: Mean and median statistics of initial returns

This table reports mean and median statistics of the initial (first day) stock returns of non-state controlled IPOs grouped by whether or not the Chinese IPO firm is subject to excess shareholder control during 2002–2010. The initial return of an IPO is measured as the difference between the closing stock price on the first trading day and the offering price, and then divided by the offering price adjusted by market return. Excess control > 0 and Excess control = 0 refer to firms with and without excess control rights. Note there is no IPO firm without excess control rights in the year 2005. *, **, and *** indicate significance at the 10%, 5%, 1% levels, respectively.

| | | | Market-adjusted initial returns (%) | | | |
|---|---|---|---|---|---|---|
| | Obs. | | Excess control > 0 | Excess control = 0 | Difference | *p*-value of mean/median difference |
| 2002 | 12 | Mean | 113.85 | 139.28 | -25.44 | 0.32 |
| | | Median | 98.69 | 89.90 | 8.79 | 1.00 |
| 2003 | 22 | Mean | 65.60 | 54.92 | 10.68 | 0.22 |
| | | Median | 54.45 | 45.96 | 8.49 | 0.33 |
| 2004 | 49 | Mean | 70.00 | 75.34 | -5.34 | 0.39 |
| | | Median | 60.24 | 52.00 | 8.24 | 0.84 |
| 2005 | 8 | Mean | 30.49 | | | |
| | | Median | 27.35 | | | |
| 2006 | 34 | Mean | 91.88 | 97.06 | -5.18 | 0.40 |
| | | Median | 82.97 | 87.14 | -4.17 | 0.33 |
| 2007 | 75 | Mean | 178.07 | 235.59 | -57.52*** | 0.01 |
| | | Median | 166.70 | 198.88 | -32.19* | 0.06 |
| 2008 | 58 | Mean | 122.39 | 126.08 | -3.69 | 0.44 |
| | | Median | 28.38 | 33.43 | -5.05 | 0.93 |
| 2009 | 79 | Mean | 56.55 | 78.86 | -22.31** | 0.01 |
| | | Median | 64.11 | 67.98 | -3.87** | 0.04 |
| 2010 | 299 | Mean | 27.98 | 40.92 | -12.94*** | -0.01 |
| | | Median | 18.38 | 33.64 | -15.26*** | 0.00 |
| Total | 636 | Mean | 71.47 | 80.63 | 9.16* | 0.08 |
| | | Median | 50.26 | 50.48 | 0.28* | 0.09 |

Data sources: China Security Market and Accounting Research (CSMAR) and authors' own calculations.

## Table 9: GLS Regression results for the effects of a disproportionate ownership structure on the initial return

In this regression model, the dependent variables are the unadjusted initial return (Initial Return) and the market-adjusted initial return (Market-adjusted Initial Return). AGE is the natural logarithm of one plus the age in years of the company from the date on which it was first listed (with any part of a year treated as a whole year). PROCEED is the natural logarithm of the value of gross proceeds in the IPO. DAYLAG is the natural logarithm of the number of days between the offering and listing dates. Definitions of all other variables are detailed in Appendix A. *P*-values are in parentheses; *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A Unadjusted initial return as dependent variable

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | | Initial Return | | |
| EXCESS | -0.79*** | -0.52* | | |
| | (0.01) | (0.07) | | |
| EXDUMMY | | | -0.15*** | -0.11** |
| | | | (0.00) | (0.02) |
| CASHFLOW | | 0.11 | | 0.11 |
| | | (0.52) | | (0.53) |
| PROCEED | | -0.41*** | | -0.41*** |
| | | (0.00) | | (0.00) |
| AGE | | -0.02 | | -0.03 |
| | | (0.50) | | (0.44) |
| DAYLAG | | 0.06 | | 0.06 |
| | | (0.52) | | (0.53) |
| P/E | | 0.19* | | 0.19* |
| | | (0.06) | | (0.06) |
| Const | 1.41*** | 2.95*** | 1.40*** | 2.96*** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Industry | Included | Included | Included | Included |
| Year | Included | Included | Included | Included |
| Board | Included | Included | Included | Included |
| *N* | 636 | 636 | 636 | 636 |
| adj. $R^2$ | 0.450 | 0.506 | 0.452 | 0.508 |

Panel B Adjusted initial return as dependent variable

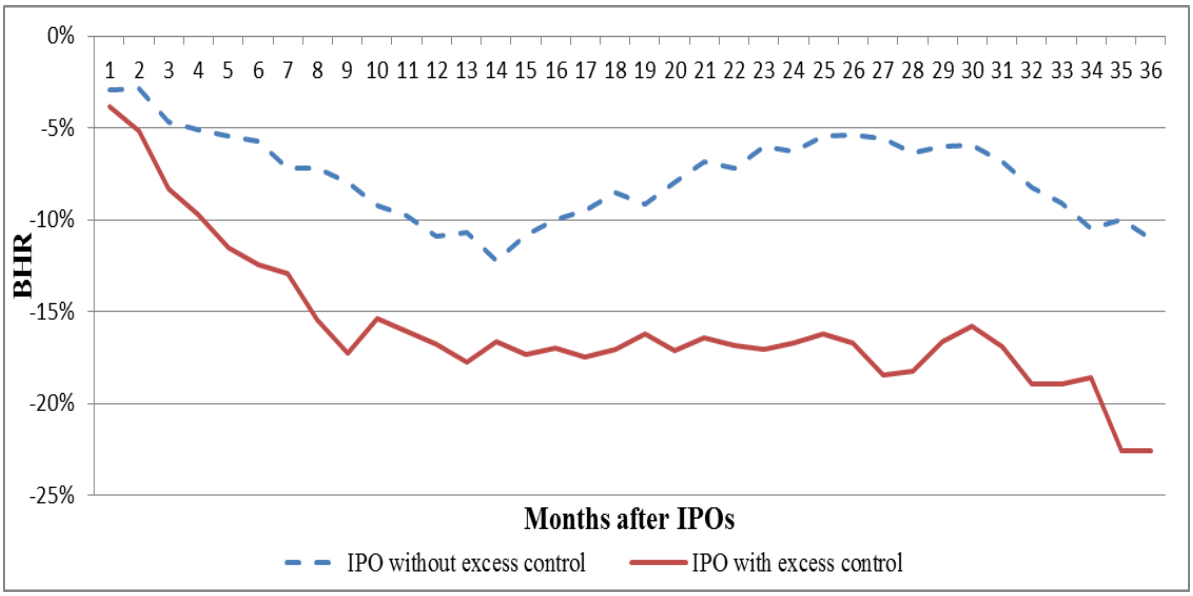
| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Market-adjusted Initial Return | | | |
| EXCESS | -0.82*** | -0.56** | | |
| | (0.00) | (0.05) | | |
| EXDUMMY | | | -0.16*** | -0.12** |
| | | | (0.00) | (0.01) |
| CASHFLOW | | 0.08 | | 0.07 |
| | | (0.66) | | (0.67) |
| PROCEEDS | | -0.40*** | | -0.40*** |
| | | (0.00) | | (0.00) |
| AGE | | -0.02 | | -0.03 |
| | | (0.50) | | (0.44) |
| DAYLAG | | 0.01 | | 0.01 |
| | | (0.89) | | (0.91) |
| P/E | | 0.21** | | 0.21** |
| | | (0.04) | | (0.04) |
| Const | 1.43*** | 2.99*** | 1.42*** | 2.99*** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Industry | Included | Included | Included | Included |
| Year | Included | Included | Included | Included |
| Board | Included | Included | Included | Included |
| *N* | 636 | 636 | 636 | 636 |
| adj. $R^2$ | 0.450 | 0.506 | 0.452 | 0.508 |

Data sources: China Security Market and Accounting Research (CSMAR) and authors' own calculations.

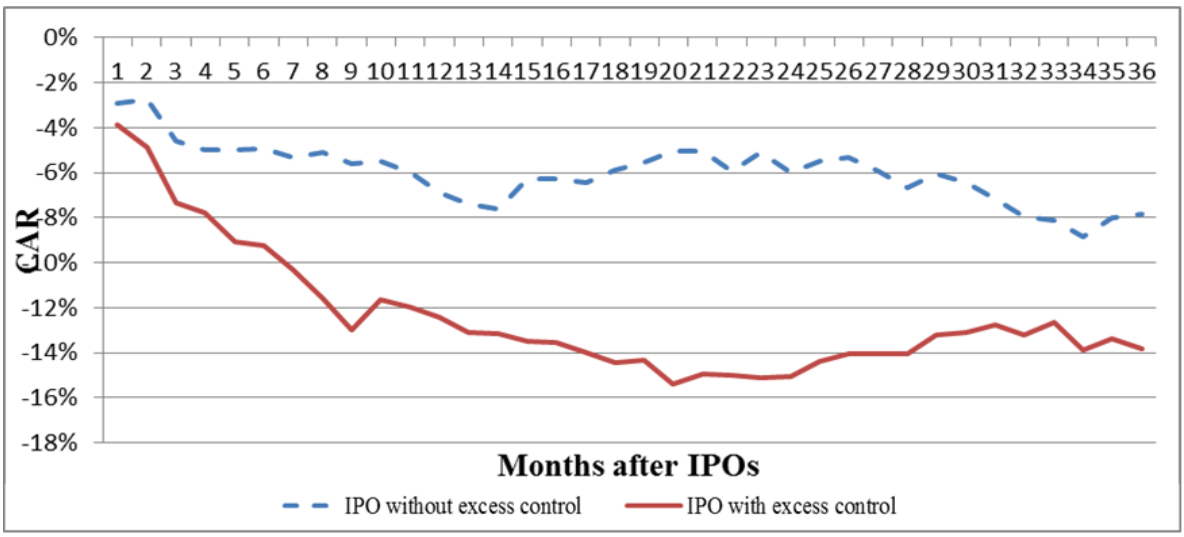
**Figure 1: Mean post-IPO returns from one to thirty-six months after the initial trading month**

This figure compares the average post-IPO performance (measured by BHRs and CARs) from one to thirty six months after the initial IPO month of firms with and without excess control rights. Definitions of BHRs and CARs are detailed in Appendix A.

Panel A: Post-IPO buy-and-hold stock returns (BHRs) of firms with and without excess control




Panel B: Post-IPO cumulative abnormal stock returns (CARs) of firms with and without excess control rights




Data sources: China Security Market and Accounting Research (CSMAR) and authors' own calculations.

**Appendix A. Variable definitions**

| Variable names | Variable definitions |
|---|---|
| *Post-IPO performance* | |
| BHR 12 | Twelve months post-IPO performance measured by BHR. |
| BHR 24 | Twenty four months post-IPO performance measured by BHR. |
| BHR 36 | Thirty six months post-IPO performance measured by BHR |
| CAR 12 | Twelve months post-IPO performance measured by CAR. |
| CAR 24 | Twenty four months post-IPO performance measured by CAR. |
| CAR 36 | Thirty six months post-IPO performance measured by CAR. |
| ΔAROS | Average change of ROS in the three-year post-IPO period |
| ΔAGSALES | Average growth rate of sales in the three-year post-IPO period. |
| ΔAGEARNS | Average growth rate of earnings in the three-year post-IPO period. |
| ΔAOE/A | Average growth in operating earnings/assets in the three-year post-IPO period. |
| ΔGAOE | Average growth in operating earnings in the three-year post-IPO period. |
| ΔGANOI | Average growth in net income in the three-year post-IPO period. |
| *Disproportionate ownership structure* | |
| EXCESS | Ultimate controlling shareholder's control rights minus cash flow rights at the time of IPO |
| EXDUMMY | Dummy equals to 1 if the ultimate controlling shareholder has excess control rights at the time of IPO |
| CASHFLOW | Ultimate controlling shareholder's cash flow rights at the time of IPO |
| *Control variables* | |
| SIZE | Natural logarithm of total assets at the time of IPO. |
| LEVERAGE | Total debt to total assets at the time of IPO. |
| P/E | Issuing P/E ratio. |
| SELLING | Dummy equals to 1 if the block holders sell their shares during the period of 12, 24 or 36 months. |
| EM | Average pre-IPO Earnings management measured by average discretionary accruals of the 3 years pre-IPO period as calculated by the modified Jones Models developed by Jones (1991) |

Notes: Calculation of BHRs and CARs is discussed in section 3.2.1.