

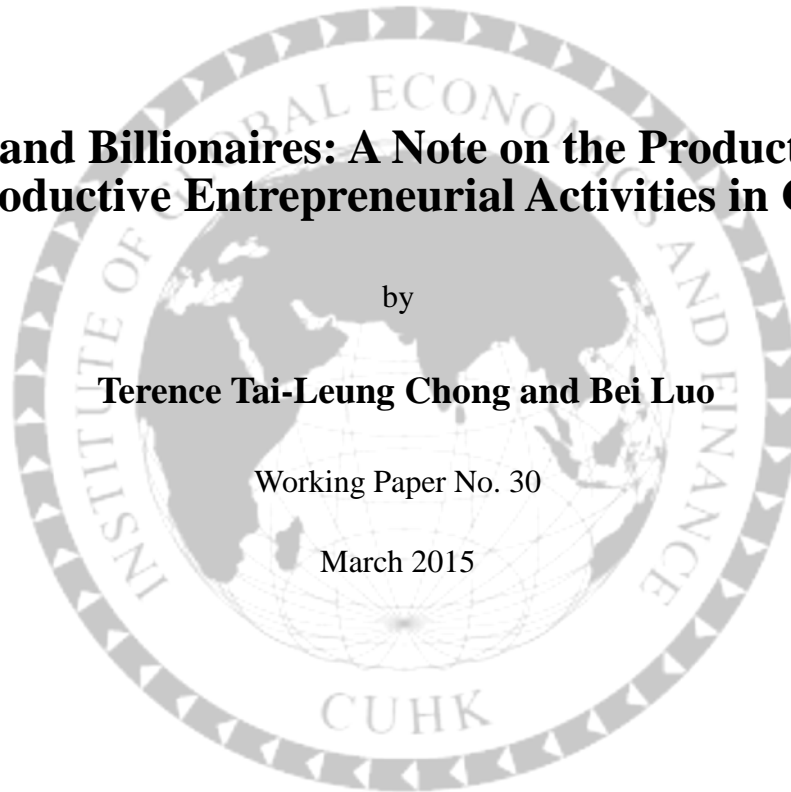
# **Forbes and Billionaires: A Note on the Productive and Unproductive Entrepreneurial Activities in China**

by

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# **Forbes and Billionaires: A Note on the Productive and Unproductive Entrepreneurial Activities in China**

**Terence Tai-Leung Chong and Bei Luo**\*

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**Abstract:** This paper establishes a causal relationship between the quality of an institutional environment and the stated types of entrepreneurial activities in China. An event study on the influence of *Forbes* magazine's list of China's billionaires (the list) on the associated share prices is conducted. Our results show that a significantly positive relationship exists between the quality of an institutional environment and the tendency towards productive entrepreneurial activities.

**Keywords:** Forbes; Entrepreneurial activities; Institutional environment.

**JEL Classifications:** D02, L26.

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## 1. Introduction

An institutional environment refers to the “rules of the game”, or the incentives that lead to certain activities and determine the legitimacy of certain behaviours. It consists of three dimensions: the economic, the political, and the socio-cultural. The effect of institutional environments on entrepreneurial activities has been widely addressed in the literature. Entrepreneurial activities can be productive (e.g., innovations in technology, management, products, and market development) and unproductive (e.g., organised crime or rent-seeking). The essence of such analysis is to consider the impact of institutional environments on the entrepreneurs’ choice between productive and unproductive activities. North (1990) argues that institutional environments influence individual behaviours. A number of studies have investigated the influence of institutional environments on an individual’s likelihood to engage in entrepreneurial activities (Shane, 2003). However, little attention has ever been paid to the effect of an institutional environment on one’s choice of entrepreneurial activities.

Baumol (1990) argues that policies and norms influence the allocation of entrepreneurship between productive and unproductive activities. When institutional environments improve, entrepreneurs choose productive activities over unproductive ones, with the latter incurring higher economic and moral costs. Productive and unproductive activities can be substitutes (Murphy, Shleifer, and Vishny, 1991; Lu, 1994). For instance, if entrepreneurs are able to influence the tax rate, (e.g., through bribery), they are more likely to engage in unproductive activities. Aldrich and Fiol (1994) provide evidence that entrepreneurial activities take a productive form if they are legitimate. Parente and Prescott (1999) suggest that more productive entrepreneurial activities will be encouraged in the absence of monopoly. Holmes and Schmitz (2001) propose a theoretical framework to demonstrate that entrepreneurs are more likely to choose productive entrepreneurial activities in an open economy.

The choice between the two activities depends on the incentives and costs under different social rules and norms (Fadahunsi and Rosa, 2002). Bjørnskov and Foss (2006), Bowen and Clercq (2008), and Amorós (2009) apply the economic freedom index as a proxy for institutional environments. They find that productive

entrepreneurial activities are positively related to better institutional environments. Sobel (2008) uses political entrepreneurship as a measurement for unproductive entrepreneurial activities in the United States. It is found that a negative relationship exists between political entrepreneurship and the institutional environment.

The aforementioned studies, however, fail to address the endogeneity problem between institutional environments and entrepreneurs' behaviours. Institutional environments affect entrepreneurs' decisions but this relationship can be seen as reciprocal.<sup>1</sup> It is difficult to identify the causal relationship between institutional environments and a choice between the two types of entrepreneurial activities.

In this paper, we apply the present entrepreneurial dynamics in China to illustrate the causal relationship between the institutional environment and the choice of entrepreneurial activities. We conduct an event study to examine the correlation between the stock return of a company and the event that its owner<sup>2</sup> appears on the list, which is comprised of the most publicly known billionaires in mainland China. However, in addition to revealing the most financially successful entrepreneurs, the report also associates the wealth of these billionaires with unproductive activities, since some of them have been found guilty of various crimes such as corruption, bribery, and even treason (see Table 1 for details). It is found that the presence of a company's owner on the list has a significant impact on the performance of associated stocks. Moreover, the institutional environment of the province where a company's headquarters is located has a positive relationship with the abnormal return<sup>3</sup> of the company, as impacted by being on the list.

### **Insert Table 1 Here**

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<sup>1</sup> For example, entrepreneurs could influence the legislation process (Lu, 1994). Many researchers only agree with Baumol (1990) that the institutional environment influences entrepreneurial opportunity exploitation (Venkataraman, 1997; Shane and Venkataraman, 2000).

<sup>2</sup> The billionaires either own the company or can significantly influence the operation of the company. For example, Lou Zhongfu and Liu Yonghao held just 17.87% and 7.98% of shares respectively in Shanghai A-share stocks 600052 and 600016 from 2001 to 2002. However, they are the largest shareholders and sit on the boards of directors. As a result, they can significantly influence the operation of the company.

<sup>3</sup> Event study methodology attributes abnormal returns to a certain event.

This study contributes to the understanding of the relationship between institutional environments and the distribution of two types of entrepreneurial activities in the following aspects. Firstly, we conduct an empirical analysis of the casual relationship. The release of the list is an exogenous shock to the publicly listed companies. In the short run, the renown attracts investigations into the companies' past activities. The results are supported by the volatility of the stock price. Furthermore, the event study methodology allows us to analyse the effect of an event by examining the characteristics of related companies and their institutional environments. Finally, to avoid the endogeneity problem, we examine the relationship by investigating the institutional environment in the long run, from 1989 to one year before the list was announced. Although entrepreneurs may choose to be excluded from the list, they cannot influence institutional environments in the long run. The rest of the paper is organised as follows. Section 2 provides background information of our study. The empirical methodology is presented in section 3, and the data collection method is elaborated in section 4. Section 5 reports the estimation results, and this paper closes with a few conclusions in section 6.

## **2. Background**

### **2.1 The Forbes List in Mainland China**

In China, private capital activities were essentially non-existent following the socialist transformation of private corporations in 1956. However, in 1999, only 10 years after private companies were once again legitimised in mainland China, large numbers of entrepreneurs were able to accumulate substantive wealth. In the same year, Forbes released the first List of Billionaires in Mainland China.<sup>4</sup> The last person on the list was estimated to possess more than USD 6 million, an amount equivalent to around USD 200 million in the United States by purchasing power. At that time,

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<sup>4</sup> In 1999, Forbes purchased the list for mainland China from Rupert Hoogewerf, a British chartered accountant who conceived the list with the help from three Chinese researchers. To find the wealth among Chinese businesspeople, Hoogewerf scoured various sources including Chinese newspapers and magazines, corporate financial reports, China's Who's Who, securities firms, the Internet, donors to charities, awardees of national prizes, and delegates to the National People's Congress. Hoogewerf compared different published estimates of individuals' wealth and offered a conservative estimate for each person. The list was released on 15 November 1999.

China's annual per capita income was merely around USD 700. In China, it is common for billionaires to forge personal relations with party cadres and senior bureaucrats, though many people on the list did not have such connections. Moreover, the list focused on active individuals who ran real businesses instead of the so-called "princelings", privileged descendants or relatives of mainland China's political and military leaders.

In 2000, the survey methodology was refined. The list ranked the estimated net holdings of individual entrepreneurs. The combined estimated wealth of the top 50 billionaires was USD 10 billion, of which USD 203.8 million was an average net holding. In the following year, the list included 100 billionaires. Also, the definition of "Chinese" was expanded to include anyone who was born and grew up in Greater China<sup>5</sup> and had conducted business in mainland China. The statistical calibre of the list has remained unchanged since then.

## **2.2 Relevant Institutional Environment Issues in Mainland China after 1978**

We outline relevant problems within institutional environments after the 1978 economic reform in two aspects: the "rules of the game" and the public attitudes towards entrepreneurial activities. The former can be related to entrepreneurial activities (productive and unproductive), while the latter to complex beliefs and attitudes regarding individual entrepreneurial activities affected by the socio-cultural environment.

Reforms and openness in China have been enabled by decreased government intervention in microeconomic activities and increased macroeconomic management and regulation (The World Bank, 1995). However, the pace of reform at the micro and macro levels has not always been consistent. The lag between legislation and real microeconomic activities has caused great uncertainty to entrepreneurial activities. In addition, prior to the constitutional revisions in March 1999, the non-state sector was merely treated as a supplementary part in the whole economy. This status bias led to

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<sup>5</sup> Greater China consists of mainland China, Hong Kong, Macau, and Taiwan.

discrimination against private entrepreneurial firms. Compared to state-owned enterprises (SOEs), individuals who were not associated with the government faced more difficulties in obtaining factor inputs. This can be partly attributed to a general vulnerability to interventions by local governments (Tsang, 1994; Chow and Fung, 1996). Such situations imply that private companies need to keep good relations with local governments in order to succeed (Xin and Pearce, 1996; Peng and Luo, 2000; Park and Luo, 2001; Luo, 2003; Wu and Leung, 2005). In this institutional environment, rent-seeking behaviours are necessary for acquiring critical resources and accessing entrepreneurial opportunities or acting as a complement to institutional voids in the transitional economic framework. Thus, a combination of productive and unproductive activities became common in the wealth accumulation process of Chinese billionaires.

### 3. Methodology

Since the Forbes billionaires' listed stocks are influenced by the same event in the same period, we apply the seemingly unrelated regression model to address the cross-sectional dependence in residuals (Christie, 1990). The regression system is as follows:

$$\begin{aligned}
 R_{1t} &= \alpha_{1t} + \beta_{1t}r_{mt} + \gamma_{1t}\mu_{1t} + \epsilon_{1t} \\
 R_{2t} &= \alpha_{2t} + \beta_{2t}r_{mt} + \gamma_{2t}\mu_{2t} + \epsilon_{2t} \\
 &\dots\dots\dots \\
 R_{it} &= \alpha_{it} + \beta_{it}r_{mt} + \gamma_{it}\mu_{it} + \epsilon_{it}
 \end{aligned} \tag{1}$$

$R_{it}$  is the daily stock return of a stock  $i$  in an event period;

$r_{mt}$  is the market index return in the event period;

$\mu_{it}$  is a dummy variable which equals one if the trading day is in the event window and zero if in the estimation window;

$\epsilon_{it}$  is the residual;

$\alpha_{it}$ ,  $\beta_{it}$  and  $\gamma_{it}$  are the parameters;

$t$  refers to trading days in the event period.



We expect  $\gamma_{its}$  to be equal to zero if the announcement of the list has no effect. We test the following hypotheses.

**Hypothesis 1:** The estimated parameters of the event dummy variable across the sample do not equal zero in all equations.

Hypotheses 2 and 3 below are proposed to identify whether the socio-cultural environment creates the event effect for the listed company's owners.

**Hypothesis 2:** For companies whose owners were on the list for the first time, the estimated parameters of the event dummy variable across companies do not equal zero in all equations.

Hypothesis 2 is the sub-hypothesis of Hypothesis 1. If Hypothesis 2 is not rejected, Hypothesis 1 should also be true under the aforementioned assumptions about the socio-cultural environment. The impact direction should be the same as that in the above two tests, regarding relevant company's performance.

**Hypothesis 3:** For companies whose owners were dropped from the list, the estimated parameters of the event dummy variable across the stocks do not equal zero in all equations in the year of being dropped from the list.

Hypothesis 3 assumes that the effect of being excluded from the list is positive, *ceteris paribus*, if being on the list is negative.

After examining the existence of the event effect, we calculate the cumulative abnormal return (CAR). We first obtain the abnormal return (AR) on each trading day in the event window. The abnormal return observations will then be aggregated in order to draw overall inferences for the event of interest. For stock  $i$ , we define the  $CAR_i$  as:

$$CAR_i = \sum_{t_1} AR_{it} = \sum_{t_1} (R_{it} - \widehat{R}_{it}) \quad (2)$$

$\widehat{R}_{it}$  is the predicted daily stock return in the event window, and  $t_1$  is the total trading days in the event window.

Following Fama and French (1992), we perform a pooled cross-sectional OLS analysis to examine the association between the magnitude of CAR and the characteristics specific to event observations. We run the following regression:

$$CAR_i = \alpha_0 + \beta X_i + \eta Ins_i + \varepsilon_i \quad (3)$$

$X_i$  is the variable vector measuring the company characteristics of stocks;

$Ins_i$  is the variable vector representing institutional environments;

$\alpha_0$  is the intercept term;

$\beta$  and  $\eta$  are the vectors of coefficients for company characteristics and the measurements of the institutional environment;

$\varepsilon_i$  is the error term.

Since provinces with a better institutional environment offer entrepreneurs incentives to choose productive activities, we test the following hypothesis:

**Hypothesis 4:** The government competitiveness index has a positive relationship with CAR.

Hypothesis 4 tests if the stock of a company operating in a better institutional environment performs better because of such reaction.

#### 4. Data Description

Our sample is drawn from 1999 to 2002, a period in which Forbes was the only institution to publish a list of billionaires in mainland China. The effect of being on the list is difficult to identify after 2002 because various similar lists have subsequently been released by other institutions. Additionally, we choose companies publicly listed in mainland China because Chinese investors roughly shared similar socio-cultural mindset in that period.

The financial and accounting data are obtained from the China Stock Market and Accounting Research Database (CSMAR), which also provide the simple data on personal characteristics. The variable of the institutional environment is taken from the *China Regional Competitiveness Development Report* (Xiao, 2006).

The daily return data of a firm and the market index are drawn from CSMAR stock files from 1998 to 2003. The data include all four mainland Chinese stock markets: Shanghai A-share market, Shanghai B-share market, Shenzhen A-share market, and Shenzhen B-share market. The estimation window is shortened from 200 days to 31 days before the event date, and the event window consists of 30 trading days before and after the event date. For each year, we have at most 201 observations for every stock and relevant market index, except in cases where a stock is newly listed or in trade suspension in the estimation window period.

The cross-sectional analysis includes explanatory variables for firm characteristics, industry circumstances, and institutional environments. The dependent variable, CAR, varies from -50.02 percent to 51.08 percent with a mean of -0.74 percent. In Table 2-1, we present a summary of variables in our CAR analysis.

**Insert Table 2-1 Here**

In China, a company's productive and unproductive activities depend on the institutional environment in its province. For example, for a company that plans to conduct an initial public offering (IPO), the relationship with a local government is an important determinant. Before 2001, the China Securities Regulatory Commission (CSRC) set an annual quota for new shares to be issued each year. The quota was allocated equally between the provinces and state-industrial commissions based on supporting regional or industrial development goals. We define the institutional environment of each province from economic, political, and social cultural dimensions.

We average the GDP growth rates from 1989 to one year prior to the release of the list in order to measure the economic performance of a province in which a company's general headquarters is located. This represents a long-run measurement

for trend in an economic context. The average GDP growth rate is 12.16 percent, while the minimum and the maximum are 7.85 percent and 16.58 percent respectively.

The competitiveness index of government administration for each province, obtained from the *China Regional Competitiveness Development Report* (Xiao, 2006), is applied as a proxy for the political environment. The index evaluates government administration from four aspects: government expenditure, fiscal policy, government efficiency, and social equality and safety.

We use the mean competitiveness index of provincial government administration from 1989 to one year before the listees' appearance on the list to represent the long-run political trend faced by each company. The mean is 60.06 and the standard deviation is 17.40. According to Table 2-2, the location of a general headquarters varies across the 17 provinces.

### **Insert Table 2-2 Here**

Finally, we capture the change of the socio-cultural environment with the dummy year variables from 1999 to 2002. Taking year 1999 as the base group, the effect of the changed belief of investors is represented by the estimated coefficients of the dummy variables. The number of stocks for 1999, 2000, 2001, and 2002 are 9, 11, 31, and 30, respectively.

From the China Listed Firm's Corporate Governance Research Database, the China Stock Market Financial Database, and the annual report of CSMAR, we use a return on total asset ratio (ROA<sup>6</sup>) to represent the earning power of a company. As shown in Table 2-1, the mean of ROA in the sample is 5.49 percent, with 21.04 percent as the maximum and -13.35 percent as the minimum. We also study the length of a company's history before its IPO (by the number of years), the dummy variable of whether the SOE holds any shares, and the percentage of stock shares held

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<sup>6</sup> Since different companies have their own capital structures, we apply ROA as a consistent measurement of profitability across all companies.

by listees in the company. Table 2-1 shows that the length of a company's history before its IPO ranges from zero to eight years and that the average length is 2.06 years; 23 companies in the sample have stock shares that are held by the SOEs, and the mean of the stock shares held by listees is 39.78 percent, with 7.98 percent as the minimum and 71.25 percent as the maximum.

According to the Guidance for Industry Classification of Listed Companies of China, we define a firm's industry share in our sample as the percentage of the firm's market value relative to the total market value of the whole industry on the news announcement date. The mean industry share of the previous three years is the average industry share of 365, 710, and 1,095 calendar days before the event date, respectively. The minimum of this variable is zero if the company was publicly listed in the year when the list was released. It is also shown in Table 2-1 that the mean of this variable is 4.76 percent.<sup>7</sup> We also control for the education level of listees in our regression. Educational background is ranked from one to six, with one denoting primary school and six denoting above undergraduate level. In total, 76.74 percent of individuals in our sample received education above the junior college level and 30.23 percent above the undergraduate level.

## **5. Results**

### **5.1 The Event Effect of Being on the List**

The results of the hypothesis tests are summarised in Table 3. Hypothesis 1 is supported, while Hypotheses 2 and 3 have to be rejected. The event of being on the list does reveal more information to the stock market by revealing the names of successful entrepreneurs in China and allowing billionaires to concretely compare their wealth to others. However, we cannot simply interpret that the event effect detected in Hypothesis 1 is the result of optimistic public belief; otherwise, Hypothesis 2, the event that entrepreneurs on the Forbes list for the first time will

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<sup>7</sup> Besides, we find that, as stock 600256 is the only publicly listed company in the non-metal mineral product industry, its industry share is 100 percent in our sample.

influence the stock market, should also be true according to the same positive expectation.

We conduct a cross-sectional analysis to further interpret the institutional environmental influence on the CAR and the event effect on the relevant companies' stocks in the next subsection.

**Insert Table 3 Here**

## **5.2 Cross-Sectional Analysis**

Table 4 reports the pooled cross-sectional OLS estimation results of cumulative abnormal return. For each company, the provincial government competitiveness index is used as a proxy for the political environment. The environment is found to have a strongly positive relationship with the event effect. Note from Table 4 that the estimated parameter is significant at the 10 percent level after controlling for the economic environment and the socio-cultural environment. The result is consistent with our expectation that a better political environment facilitates productive activities and helps decrease the number of unproductive entrepreneurial opportunities, such as rent-seeking or smuggling. This is because an efficient local government can facilitate business operations by providing the public with enough public goods, and lessen systematic uncertainty and risk in all entrepreneurial activities by achieving greater equity and public safety.

**Insert Table 4 Here**

Our empirical result shows that entrepreneurs would choose more productive activities in a better political environment. Note that the impact of average provincial GDP growth rate is positive but not significant. Finally, the year dummies are included in the model to indicate the role of public belief. Taking 1999 as the reference group, we find a significant negative influence from being on the Forbes

list. Using the daily cumulative average abnormal return (CAAR<sup>8</sup>) of each year, we further illustrate how public belief direction changed in a four-year period. The results are shown in Figure 1. We find strictly positive daily CAAR up to 18.87 percent at the end of the event window in 1999. In 2000, some of the daily CAAR become negative, and CAAR is only 3.22 percent at the end of the event window. The sign of the daily CAAR in all trading days in the event window is negative, implying that public belief differs from that of 1999. As the R-squared of the regression almost doubles after we control for the dummy year in the CAR analysis, we conclude that the socio-cultural environment significantly explains the event effect.

### **Insert Figure 1 Here**

In each regression, we also control for the following company-specific characteristics: earning power, viability, corporate governance, relative competitiveness in the industry, and the education level of the owner. The estimated coefficient of ROA is positive but does not play a significant role in the CAR of each company after the dummy year is included. Similar results can be found in the parameter estimation of the average industry share in the previous three years. It is found that company history has a positive and significant influence on CAR. The billionaire's education level has a significantly positive relationship with CAR after controlling for the institutional environment. We measure corporate governance with two variables: the dummy variable of whether SOEs hold stock shares in a company and the percentage of stock shares held by an owner. The dummy variable indicates that SOE as a shareholder has a negative impact on the stock return of a company. From Table 4, if a company has SOE shareholders, its CAR will drop by 17.26 percent after controlling for the institutional environment. The result is consistent with that of Tian (2001), who finds that there is a U-shaped relationship between the size of government equity holdings and corporate value. When government shareholding increases, corporate performance declines and only begins to improve after the government takes control of the company.

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<sup>8</sup>  $t_2$  is years 1999, 2000, 2001, and 2002, and  $N_s$  is the number of stocks in each year.

Another corporate governance variable, the percentage of stock shares held by Forbes billionaires, depicts both an individual's management ability and the relative risk for being on the list. Our finding shows that after controlling for the influence of an institutional environment, the parameter estimate is negative and significant at the 5 percent level in column (4) of Table 4. The more company shares a billionaire owns, the higher the risk an investor will have if the billionaire is found guilty of a criminal offense. In addition, the variable depicts the leadership ability of a billionaire; *ceteris paribus*, as a billionaire with higher management ability can hold less share percentage while maintaining the same level of control over a company.

## **6. Conclusion**

In this paper, we investigate the causal relationship between an institutional environment and the choice between two types of entrepreneurial activities. Specifically, we examine the changes a public company undergoes when its owner is on the Forbes billionaires list, and find that the event is a shock to the stock market. The event study shows that an institutional environment directly influences the nature of entrepreneurial activities. In particular, entrepreneurs are more likely to choose productive activities due to better institutional environment. For future research, one can examine the role of performance consistency, as it is possible that entrepreneurs in a better institutional environment outperform their counterparts in a poorer institutional environment. The performance persistency in entrepreneurship (Gompers et al., 2010) indicates that successful entrepreneurs will be more likely to succeed in future entrepreneurial endeavours, suggesting that they will even perform better in a better institutional environment. In addition, as the improvement in government policy can be considered an innovation, which helps improve the institutional environment, it can also be important in encouraging entrepreneurship.



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**Table 1: Billionaires in the list from 1999 to 2002 and being in trouble or found guilty**

Name	In list year	Trouble and crime sentence
Huang Hongsheng	1999–2002	Limited imprisonment of 6 years
Li Jingwei	1999	Being suspected of corruption and bribery
Liu Xiaoqing	1999	Being suspected of crime against tax collection
Lu Junxiong	1999	Limited imprisonment of 18 years
Lu Youzhen	1999	Limited imprisonment of 7 years
Mou Qizhong	1999	Life imprisonment
Rubia Kadell	1999	Limited imprisonment of 8 years
Sun Feng	1999	Limited imprisonment of 6 and a half years
Wu Zhijian	1999–2000	Limited imprisonment of 17 years
Gu Chujun	2001	Forbidden to enter stock market for a lifetime
Shi Minzhi	2001	Being suspected of raping two underage girls
Tang Wanxin	2001–2002	Limited imprisonment of 8 years
Yang Bin	2001	Limited imprisonment of 18 years
Yang Rong	2001	Exiled abroad for being suspected of embezzling state assets
Zhou Zhengyi	2001–2002	Limited imprisonment of 3 years

**Table 2-1: Summary of pooled cross-sectional analysis variables**

Variable	Obs. Num.	Mean	Std.	Min.	Max
Cumulative abnormal return (%)	81	-0.7411	17.3005	-50.02	51.08
The length of the company's history before its IPO	81	2.0617	2.3095	0.00	8.00
SOE holds stock share in company	81	0.2222	0.4183	0.00	1.00
Return on total asset ratio (%)	81	5.4924	4.6188	-13.35	21.04
Billionaires' stock share (%)	81	39.7844	14.0815	7.98	71.25
Education level	81	4.8395	1.2294	2.00	6.00
Mean previous industry share (%)	81	4.7626	11.7011	0.00	100.00
Average provincial GDP growth ratio (%)	81	12.1709	2.2244	7.85	16.58
Gov. competitiveness index	81	62.2376	18.1682	37.72	91.26

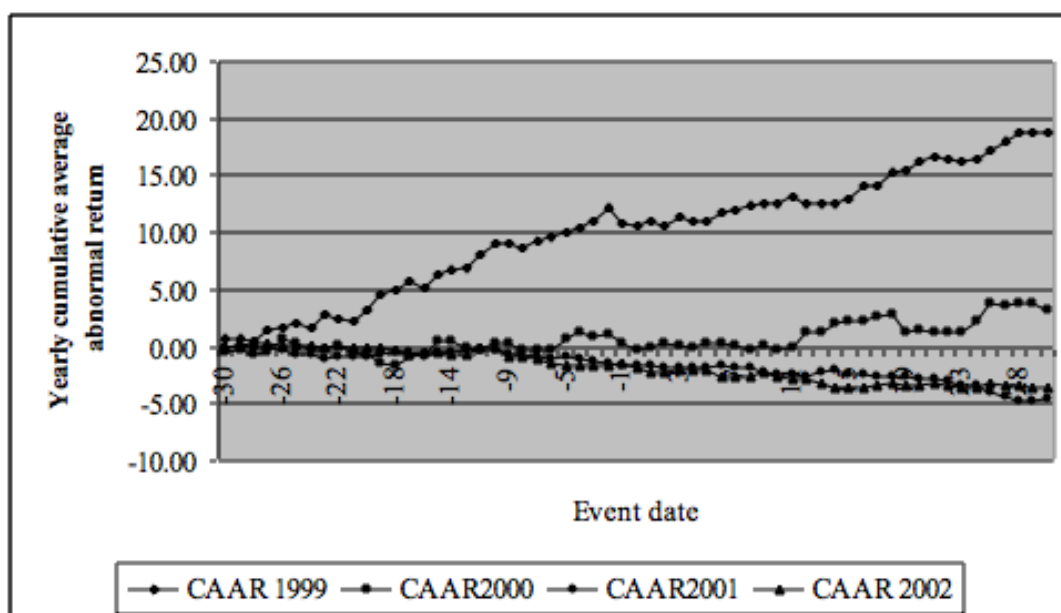
**Table 2-2: Provinces where general headquarters are located**

General Headquarters	Freq.	Percent	Cum.
Beijing	2	2.47	2.47
Chongqing	1	1.23	3.7
Fujian	3	3.7	7.41
Guangdong	10	12.35	19.75
Heilongjiang	4	4.94	24.69
Henan	2	2.47	27.16
Hubei	1	1.23	28.4
Hunan	1	1.23	29.63
Jiangsu	4	4.94	34.57
Jilin	2	2.47	37.04
Liaoning	1	1.23	38.27
Shandong	4	4.94	43.21
Shanghai	19	23.46	66.67
Shan'xi	8	9.88	76.54
Sichuan	9	11.11	87.65
Xinjiang	3	3.7	91.36
Zhejiang	7	8.64	100

**Table 3: Hypothesis test results**

	Being In the List	Newly in the List	Being out of the List
F test	F( 87, 10701) = 1.58	F( 46, 6026) = 1.08	F( 13, 2561) = 0.29
Prob. >F	0.0005	0.3370	0.9930
$\chi^2$ test	chi2( 87) = 137.36	chi2( 46) = 49.48	chi2( 13) = 3.81
Prob. >Chi2	0.0005	0.3362	0.9930

**Figure 1: Cumulative average abnormal return from 1999 to 2002**



**Table 4: Pooled cross-sectional OLS estimations of cumulative abnormal return**

	(1)	(2)	(3)	(4)
	Cumulative Abnormal Return			
Company history length before IPO	1.5592*	1.8388**	1.9026**	2.1971***
	1.87	2.18	2.51	2.85
SOE holds stock share in company	-15.0048***	-17.2515***	-11.8807***	-14.3642***
	3.27	3.61	2.77	3.17
Return on total asset ratio	0.7471*	0.8574*	0.2386	0.3377
	1.69	1.94	0.55	0.78
Billionaires' stock share	-0.2547*	-0.2790*	-0.2467*	-0.2949**
	1.70	1.88	1.82	2.17
Education level	1.3592	1.4863	2.0401	2.5202*
	0.84	0.94	1.40	1.72
Mean previous industry share	0.1587	0.1868	0.1603	0.2126
	1.00	1.18	1.10	1.46
Average provincial GDP growth ratio	0.344			0.4661
	0.41			0.55
Gov. competitiveness index		0.1558		0.1835*
		1.43		1.78
Year dummy for 2000			-14.1354**	-11.9284*
			2.08	1.75



Year dummy for 2001			-24.6763***	-25.1762***
			4.14	4.28
Year dummy for 2002			-22.1553***	-22.8231***
			3.56	3.64
<hr/>				
Constant	-6.111	-12.0887	15.412	-2.7969
	0.40	0.99	1.56	0.19
Observations	81	81	81	81
R-squared	0.1903	0.2107	0.3541	0.3907

Absolute values of t-statistics under estimated coefficients; \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.