

Determinants of the Life Cycle of Initial Public Offering Companies: A Panel Analysis of Chinese Listed Companies

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Abstract

Many prior studies have been devoted to corporate failure of Chinese listed companies over the last two decades. These studies just simply examine the determinants of corporate failure, however they have largely ignored what influence the transition after Initial Public Offering (IPO). Therefore, the purpose of this paper is to provide an evolution of IPO companies trading on Chinese Stock Exchanges and the determinants of the transition to three basic post-IPO states during the period between 1998 and 2008. An Initial Public Offering referred to simply as an “offering” or “flotation”, is when a company (called the issuer) issues common stock or shares to the public for the first time. The starting point of Initial Public Offering is a commercial concept that is initially nurtured with private equity capital, when a company has developed at a certain phase. After the IPO stage, the listed company will evolve into one of the three basic states, including healthy state, Mergers and Acquisitions (M&A), and delisting state.

By using Binary Logit Model, the empirical findings present the relationship between independent research variables and the possibility of subsequent transition to the three post-IPO states. We evaluate the influence of independent variables representing accounting indicators, company characteristics, governance attributes, ownership structure, industry control, offering characteristics, and pre-IPO performance on the

likelihood of transition to three post-IPO phases. Particularly, we analyse the impacts of governance attributes and ownership structure on Chinese IPO issuing companies. Of these governance attributes variables, we find evidence to suggest that higher agency costs have an impact on the probability of the IPO companies being acquired and delisted. Ownership structure also appears to be important factors to affect the probability of post-IPO transition state. Surprisingly, different from many prior literatures, higher state ownership increases the probability of being acquired state relative to healthy status, yet state ownership reduces the probability of getting delisted. Apart from the consideration of post-IPO factors, we also adopt the early stages of the companies before they tend to go public. According to the results, healthy IPO companies as independent entities perform better with higher pre-IPO operating performance.

JEL classification: G30; G32; G33

Keywords: Initial Public Offering; Corporate Governance; Agency Costs; Ownership Structure

1. Introduction

Corporate failure has become an important issue in economic and business areas. Failure in general refers to the state or condition of not meeting a desirable or intended objective (Walter, 1957; and Donaldson, 1962). It may be viewed as the opposite of success. Many prior studies have been devoted to corporate failure of Chinese Initial Public Offering (IPO) companies over the last two decades. These studies just simply examine the determinants of corporate failure, however they have largely ignored what influence the transition state after IPO. A company attempts to grow at a certain stage in its development through an IPO. In the post-IPO status, Jain and Kini (1999) point out that the company can evolve into one of three basic states, including independent company, get acquired and lose its current identity, or fail outright. By studying Jain and Kini's (1999) research and combining the characteristics of Chinese stock market, the determinants of the transition to three basic post-IPO states during the period between 1998 and 2008 in China is the focus of this paper.

This study of Chinese listed companies is motivated by several considerations. The first and the most important motive to undertake this research is that the stock exchange activities are popular in China. What is more, Chinese stock market just introduced delisting mechanism from 1998, thus it is still a new research area of investigating the issue of corporate failure. Second, the unique legislation in China regarding the suspension and termination of listed loss making companies, adds a new dimension to the current corporate failure literatures.

The bulk of the existing literature concerning corporate failure in the research area, such as Beaver (1966), Altman (1968), Argenti (1986a), Ohlson (1980), Beaver and Parker (1995), and for China, such as Sun, Tong and Tong (2002); Fan, Huang and Zhu (2007); and Wang and Li (2007). In China, most of these studies of Chinese stock market imply that weak corporate governance, severe agency problem, and uneven ownership structure lead listed companies to risky situation. Corporate governance is

one of the most talked about topics in business, indeed in society, today. Corporate governance is the set of processes, customs, policies, laws, and institutions affecting the way a corporation (or company) is directed, administered or controlled. Corporate governance concerns the interaction and relationship between the institutions and individuals immediately or ultimately implicated or concerned in decision-making of an economic institution. This may include the principals (shareholders or owners), the agents (managers), and the stakeholders (customers, suppliers, lenders, creditors, and employees) (Blair, 1995a; Carlin and Mayer, 1995; Elmeskov, 1995; Hilmer, 1998; and Milhaupt, 1998). Good corporate governance serves several important objectives. It improves the performance of corporations, by creating an environment that motivates managers to maximize returns on investment, enhances operational efficiency, and ensures long-term productivity growth (Murthy, 2006). Furthermore, it also ensures the conformance of corporations with the interests of investors and society, via creating fairness, transparency and accountability in business activities among employees, management and the board. Thereby, the focus of the literatures of corporate governance issue has traditionally been on the composition and structure of the board and how it influences the performance of a company. Corporate governance in China is not so matured like developed countries, such as U.S. or U.K. In China, with the continuous corporatization of State-owned enterprises (SOEs), the rapid expansion of the security markets and the ever increasing market awareness, coupled with a series of giant corporate scandals and accounting failure recently, corporate governance has become a very pressing problem (Ho, 2003c).

Corporate governance is a multi-faceted subject. An important theme of corporate governance is to ensure the accountability of certain individuals in an organization through mechanisms that try to reduce or eliminate the principal-agent problem. The knowledge of corporate governance today is largely derived from the agency theory that was developed in the West. Governance problems in the Western countries often originate from the problem of the separation of ownership structure and control within a business organization, which gives rise to information asymmetry, incomplete

contacts and subsequent agency costs for increasing conflicts between principal and agents (Fama and Jensen, 1983a & b). Agency problems rise to considerable position when a manager's interests are not perfectly aligned with shareholders of the company. Agency problems also involved the costs. The potential associated costs of the arrangement are agency costs (Jensen and Meckling, 1976; Shleifer and Vishny, 1986a). The notion of agency costs proposed that agents make optimal decisions that maximise the wealth of the principal only if appropriate and appealing inducement is provided, or if monitoring of the agent is proactively pursued (Hovey, 2004). Agency costs mainly arise due to divergence of control, separation of ownership and control and the different objectives (rather than shareholder maximization) the managers consider. Jensen and Meckling (1976) argued that shareholders incur agency costs when management owns less than 100 percent of the company equity. Consistent with Jensen and Meckling (1976), Nohel and Tarham (1998) pointed out that the agency problem is caused by the physical presence of excess cash and certain investments that are considered liquid.

Berle and Means (1932) argued that the consequence of the separation of ownership and control in the modern corporation is the potential for conflict between the owners and professional managers and posited the argument that the dispersion of ownership has allowed managers to engage in practices other than the pursuance of wealth maximization. Accordingly, the relationship between ownership structure and company performance is one that has received considerable attention in the finance literatures. Economists have been interested in the effects of the separation of ownership and control in the modern corporation at least since the classic works of Berle and Means (1932) and Coase (1937). This interest continues, as evidenced by major studies in the last decade (Cosh and Hughes, 1987; Jensen and Murphy, 1990). The major focus of concern has been the potential conflicts of interest between managers and shareholders. One approach suggested to reduce this potential conflict is to increase the identity between the two groups, typically through inducing managers to own shares in the company. Empirical studies of Chinese scholars on

ownership structure develop dramatically. In China, the share structure is split into tradable and non-tradable shares. Tradable shares (A-shares and B-shares)¹ are the conventional shares that can be freely traded in the stock markets, while non-tradable shares are further classified as state shares and Legal Person shares. In China, the state is the largest shareholder, especially the state-owned companies, the state will be the primary shareholder. Nevertheless, many studies believed that state ownership increase the probability of risky situation, particularly among the state-owned companies, they have the lack of hard budget constraints, overstaffing, the inflexible wage and employment situation, social benefits, and use of dated technology and their production focus, all contribute (Henning and Lu, 2000; and Claessens, Djankov and Xu, 2000c).

Therefore, in order to overcome the weaknesses above, this paper, by focus on corporate governance, agency problems and ownership structure, aims to provide an investigation of the listed companies trading on Chinese Stock Exchanges and to elaborate the determinants of post-IPO transition state. Due to this purpose, we also use some variables to which previous studies gave little attention, such as industry control, IPO characteristics, and pre-IPO performance. The paper is organized as follows. Section 2 briefly reviews Chinese stock market and the characteristics of IPO in Chinese listed companies. Section 3 describes the data, research variables and methodology to test the relationship the likelihood of post-IPO state and variables, as well as the descriptive analysis. Section 4 presents the empirical findings. Section 5 concludes with a discussion of these findings.

2. Chinese Stock Market and Corporate Governance

2.1 Overview of Chinese Stock Market

Chinese securities market can be traced back to 1888, when trading was focused on

¹ A-shares are held by Chinese domestic individuals; B-shares were available exclusively to foreign investors until 2000. This paper will provide detailed information about A-shares in Chapter 3.

government bonds, mostly issued to finance the many civil wars among various warlords (Hovey, 2004). The securities markets were closed with the formation of the People's Republic of China in 1949. However, Chinese capital market reforms reached a new high with the opening of the Shanghai and Shenzhen securities exchanges in 1990 and 1991 respectively.

A very important aspect of the economic reforms was the acknowledge move towards a "socialist market economy" and the reopening of Chinese stock markets in the early 1990s. The authorities had closed the Shanghai Stock Exchange in 1949 (Hovey, 2004). In the middle of 1980s, Chinese government proposed to set up an over-the-counter (OTC) market for company shares. Already by this time around 20 companies wholly or partly owned by the government had structured themselves into companies limited by shares. The period in the early 1990s saw the opening of two stock exchanges in China mainland - the Shanghai Stock Exchange in 1990 and the Shenzhen Stock Exchange in 1991. Since then, the Chinese stock markets have been developing at a rapid rate, contributing greatly to the country's economic growth. In fewer than fifteen years, Chinese stock market has grown to become the eighth largest in the world (Liu, 2005). Because of the direct impetus from the government, China's stock markets underwent fast growth. Based on the statistics from the China Securities Regulatory Commission, there are already nearly 80 million investor accounts opened across the country. Roughly 200-300 million Chinese people, directly or indirectly, invest in and are also affected by the stock market. According to the statistics of Shanghai Stock Exchange and Shenzhen Stock Exchange (2008), Chinese stock market has gained huge improvement in the past almost two decades (see Table 1 and Figure 1). By end of 2008, there have been already 1604 listed companies in the two stock markets. It can be seen that there was a rapid expansion from 1990 to 2008 in Chinese stock market. Compared with the year 1990, the number of stock companies in 2008 was almost 230 times as many as the number in 1990. During the past 19 years, the number of share issues has been increased sharply from 0.03 hundred million to 18852.25 hundred million. Meantime, according to both

Table 1 and Figure 1, there were very dramatic rise on both market capitalization of total shares and market capitalization of tradable shares between 1990 and 2008. What is more, by 2008, the transaction turnover has risen sharply from nearly zero to more than 267112 hundred million yuan. Moreover, the stock market presented an obvious bull market between 2005 and 2007. For example, the market capitalization of total shares and transaction turnover in 2006 was both nearly three times of this in 2005 respectively. Noticeably, transaction turnover in 2007 was about five times larger than this in 2006. Meanwhile, the market capitalization of total shares and market capitalization of tradable shares in 2007 was even over 9 times than it in 2005 respectively.

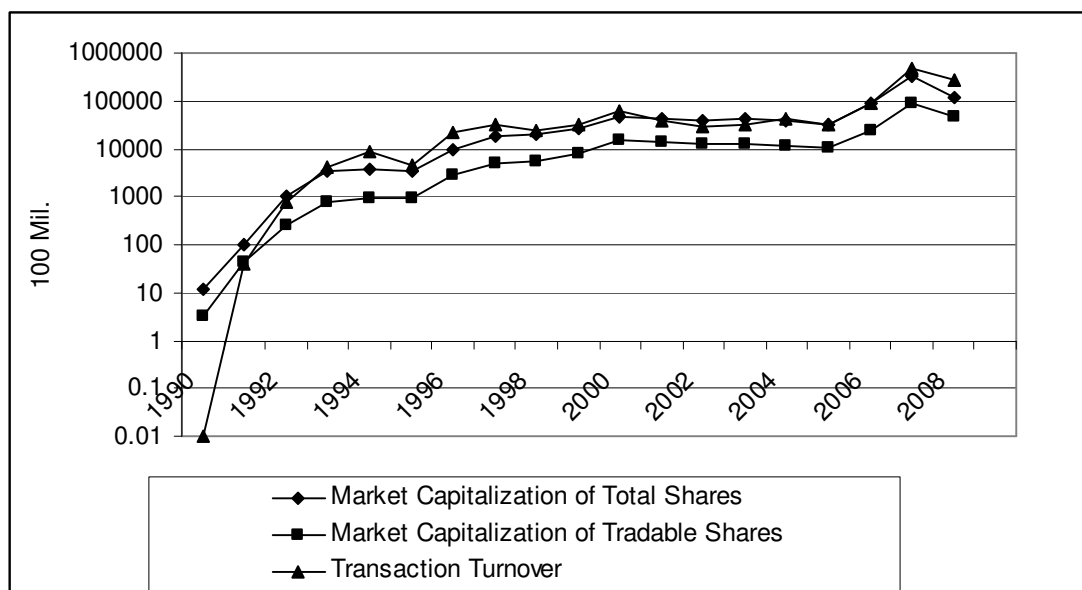
Table 1 Major index of stock market, 1990-2008

(100 million shares, 100 million yuan)

No. of Companies	No. of Share Issues	Total Tradable Share Issues	Market Capitalization of Total Shares	Market Capitalization of Tradable Shares	Transaction Turnover	Money Raised	No. of Accounts (10,000 unit)
1990	7	0.03	12.31	3.07	0.01	18.4538	-
1991	13	5.06	104.14	43.31	40.09	17.8198	-
1992	50	69.47	1023.4	256.56	748.52	221.402	217
1993	169	355.3	3473.3	782.82	3995.36	549.806	835.17
1994	278	636.64	3676.85	949.57	8960.5	197.461	1107.76
1995	305	765.69	3467.55	936.64	4481.63	139.115	1294.19
1996	499	1106.89	9798.1	2840.92	22017.5	352.212	2422.08
1997	710	1766.97	17552.93	5196.75	32115.1	992.077	3480.26
1998	819	2336.85	19438.29	5700.54	24129.9	797.237	4259.88
1999	918	2914.89	26648.97	8163.8	32216	864.492	4810.63
2000	1061	3596.84	48126.33	15896.43	60846.4	1523.6	6154.53
2001	1140	4837.63	43741.89	14348.82	38423	1066.62	6965.9
2002	1211	5467.04	38522.36	12398.94	27998	727.721	7202.16
2003	1278	6004.07	42710.17	13169.56	32093.5	617.499	7344.41
2004	1377	6684.64	36946.26	11609.96	42316.6	625.303	7180.22
2005	1381	7629.51	32430.28	10630.52	31663.14	-	7336.07
2006	1438	14897.6	89403.9	25003.64	90468.89	2334.34	7854
2007	1550	16954.82	327140.89	93064.35	460556.22	7876.54	13887.02
2008	1604	18852.25	121366.44	45213.9	267112.66	3487.21	15481.87

Source: China Securities Market Investment Yearbook, 2008.

Figure 1 Major index of stock market, 1990-2008



2.2 IPO in China

The initial public offering (IPO) fundamentally alters many characteristics of a company, but none more so than its ownership structure. An immediate consequence of issuing shares through an IPO is the greater dispersion of shareholdings. Further substantial changes in ownership structure are also documented for many years after listing (Brennan and Franks, 1997; and Mikkelson et al., 1997). These changes have a profound effect on managerial incentive and control considerations (Jensen and Meckling, 1976; and Zingales, 1995), and to some extent, have been linked to observed anomalies in IPOs, such as underpricing and underperformance (Jain and Kini, 1994; Booth and Chua, 1996; and Pham, Kalev and Steen, 2003).

In the early 1980s, China initiated various economic reform policies to restructure its economy towards the “socialist-market” economy. In the process of institutional transformation, whereby China has moved gradually away from a central-planned economy towards a market economy, the emphasis has been on the establishment of a sound system of property rights and a stable financial system. The reform of the financial system has attracted the most attention. Besides allowing enterprises to raise

funds by issuing corporate bonds and stocks to the public, one of the main tasks for the government is to seek efficiency and productivity transformation in state-owned enterprises through economic and shareholding reforms. An important step in the economic reforms was the privatization of state-owned enterprises (SOEs). This process involves carving-out productive units which gradually become independent, profit-oriented entities with limited liability. In this respect, the privatization process of SOEs is similar to equity carve-outs in the US. The ownership of these carve-outs is represented by share capital. These privatized units then issue unseasoned new shares to the public through IPOs.

According to Chen, Firth and Kim (2000), although the first privatization took place in 1984, subsequent IPO activity was quite modest, and there were a total of 44 issues between 1984 and 1990. This lack of popularity of IPOs was due in large part to the fact that there was no organized stock exchange where shares could be traded. Accordingly, recognizing the lack of market liquidity, the state sanctioned two new stock exchanges in Shanghai (SHSE) and Shenzhen (SZSE) which officially opened in December 1990 and July 1991, respectively.

The offering and listing process distinguishes the Chinese IPO market from those in other countries. Quite differently from other mature IPO markets, the Chinese IPO market is rigidly regulated by the central government. The market, from the number of companies going public, to the pricing process and timing of listing, suffers from pervasive intervention by authorities (Chan et al., 2004; Fan, Wong and Zhang, 2007; Megginson and Tian, 2007; and Wan and Yuce, 2007). The State Planning Committee (SPC), the central bank and the China Securities Regulatory Commission (CSRC) are responsible for monitoring stock exchange activities and security policy formulation and supervision. In other words, the IPO decision in China is made in terms of political considerations as well as the commercial considerations. In China, the State Planning Committee (SPC), the central bank and the China Securities Regulatory Commission (CSRC) together determine the aggregate amount of new shares

available for IPOs each year (Chen, Firth and Kim, 2000). This quota is subsequently allocated among various industrial ministries and provinces. The local security regulatory authorities (provincial-level) invite SOEs to request and IPO within the limit of the allocated quota, and then select SOEs for IPOs based on political objectives as well as commercial consideration (Chen, Firth and Kim, 2000). This quota system was changed slightly beginning in 1996 to a “direct volume indicator management” process. Under the new system, the State Planning Committee (SPC), the central bank and the China Securities Regulatory Commission (CSRC) decided the annual amount of new shares to be issued by the same mechanism. The reason why Chinese central government rigidly controls the IPO market is because in privatization, the success of any IPO not only affects the individual company’s reputation, but also the government’s credibility, the government therefore cannot afford any possible failure in the IPO markets (Chi and Padgett, 2005). Subsequently, the “authorization system” formally replaced the “direct volume indicator management” process in April 2001². Under this new system, investment banks were empowered to recommend companies that satisfied the listing standards to go public under the approval of CSRC. However, most of the financial intermediaries were controlled by local governments who had strong incentives to have their affiliated SOEs to go public. Under the direction of local government, these financial intermediaries began to make up false financial reports for unqualified candidates (Li, Shen and Parwada, 2009). As a result, the number of IPO candidates rose disproportionately to their quality on profitability at one time. The CSRC was forced to recentralize its control on quotas, and rationed each qualified investment bank a certain number of volume indicators. Noticeably, only when a company succeeds in going public, the investment bank could undertake another IPO application. In the meanwhile, the IPO process is still always under the direct control of the central government.

² The volume indicator of year 1997 validated until 2001 although the CSRC did not announce new volume indicator since the Securities Law became effective in 1999.

The offering mechanism adopted by most Chinese companies is different from those observed in many mature stock markets as well. The offer price is chosen months before market trading commences and there is no feedback mechanism regarding the market demand that allows adjustments to the offer price (Su and Fleisher, 1999). There is typically a huge demand for new offerings in China. Hence, there is a serious imbalance of supply and demand – undersupply of issue stocks for the demand of the market. The A-shares are therefore distributed via a lottery system, in which there is a fixed price offer and investors bid for the quantities they desire (Li and Hovey, 2007). The winners of the lottery are then selected randomly and are entitled to purchase a limited number of shares at the offer price (Chi and Padgett, 2005). Due to the serious imbalance of supply and demand, only a small percentage of investors win the lottery. Thereby, many previous Chinese IPO studies found extraordinarily higher initial returns than many other countries (Mok and Hui, 1998; Su and Flisher, 1999; Gu, 2003; Chan et al., 2004; and Chi and Padgett, 2005).

Because of the importance of the Chinese transition from a central-planned to a market-oriented economy, the privatization of SOEs in China provides a case study of initial public offerings. A study of Chinese IPOs is interesting for at least two reasons. First, China has experienced a large scale of public share offerings over the past decade. However, there is only a nascent institutional investment community in China and the stock prices are driven by the actions of private investors who individually own very few shares. The special environment implies that IPO studies in China need to be different from the studies in other countries. A separate study is necessary. Very little investment and IPO analysis is done. Thereby, addressing and understanding IPO performance in the transitional economy is of great interest and importance. Second, the majority of Chinese listed companies are transformed from state-owned enterprise, and each company has several types of shares. Chinese IPOs consist of state-owned enterprises that are being privatized through the new issue, and the state and its various entities usually retain a majority shareholding after the new issue of shares. Therefore, the corporate governance and ownership structure is quite

different from IPO companies of other countries. This provides us a unique opportunity to study corporate governance within the context of privatization by examining the relation between state shareholdings and company performance.

2.3 The Main Problems in Chinese Stock Market

China has become No.1 country in attracting overseas investment and No.1 in foreign currency reserves since 2006. Chinese domestic markets have attracted considerable global investment. However, with the rapidly growing markets, many potential problems have emerged, including rampant speculation, poor-quality listed companies, defective regulation and widespread corruption that characterized the stock market.

First of all, the only way a value-destroying company can survive was if its managers, accountants and auditors faked its numbers. Company disclosures are very unreliable as to make real supervision of corporate activities impossible. Although Chinese laws on corporate governance appear to generally follow international standards on paper, mandatory disclosure of company information does not necessarily result in greater transparency (Lin, 2004). Many listed companies provide wrong and unreal disclosure of information to investors in order to gain more benefits and refinancing. Most of real information is not for all investors, but only for internal management level or large investment institution. Individual investors and small investors could not be assured of the truthfulness and accuracy of company reports, and these behaviors have led investors into the warp of investment.

Secondly, there are numbers of potential high-risk companies in Chinese stock market. By the end of 2008, there have been large numbers of problematic companies in Shanghai and Shenzhen stock exchanges. Moreover, apart from the delisted companies, there are some companies whose superficial performance is good but with potential risks, such as Xiangyang Zhoucheng (stock code: 000678), which has

changed many different statuses between 2002 and 2005: normal listing status → ST³ status → *ST⁴ status → ST status → to normal listing status.

Thirdly, a successful development of stock market depends on the stock market becoming a viable market in ownership rights. In other words, the owner of a listed company can control and manage its running, normally by appointing the board of directors, the owner has the right to sell and transfer his or her shares, and also has the right to receive a share of any money the listed company can make profit in the form of a dividend. However, these rights do not yet exist in China's stock market. In Chinese listed companies, majority shareholders are typically very strong and individual minority shareholders are extremely weak to counter the influence of the majority shareholders (Lin, 2004). Medium or small shareholders are usually ignored at shareholders' meetings. A great number of listed companies just publish the lists of main investment participants in their annual reports. These investment participants are composed of large investment institutions or state-owned shareholders, but no medium or small investors. Individual shareholders always face huge obstacles of influencing listed companies' performance. Also, only few dividends are paid to shareholders, and the company funds are frequently siphoned off by large (majority) shareholders.

Fourthly, highly concentrated ownership structure in Chinese listed companies is a key problem in China. Currently, the ownership structure in China is not optimal because the state and Legal Person ownership are unreasonably high and concentrated. Largest shareholders (the state and Legal Person) have held nearly 60% of the issued shares. The state and Legal Person shares are not tradable in the stock market, which means that around 60% of the outstanding shares have been excluded from Chinese

³ ST means "Special Treatment", which is a delisting alert for the company with two-year continuous losses or other problems.

⁴ It is also a delisting alert for the company which has been lifted as a result of its profitability after continued losses, the audited results for the last fiscal year indicate its principal business activities have not been in normal operation, or its net profits after deducting non-recurring gains and losses were negative.

stock market, thus it is not easy to estimate the market price of these shares or optimize the true value. Besides, the separate and uneven ownership structure may cause large shareholders expropriation and lower independence of the board, and overly dispersed tradable A-shares. Due to this special situation, majority shareholders ignore minority investors easily and use information asymmetries, because the board directors and senior managers have the access to the important information regarding the stock price before individual shareholders, to beautify the books and defraud new investors (Shi and Weisert, 2002).

Fifthly, state shareholdings incur some principal-agency problems. A large number and excessive concentration of non-tradable shareholdings impede the emergence of the market for corporate control. For the state shareholdings, the ultimate shareholder actually is the people of China. The government agencies hold the control rights of the state shares, however the dividends or the gains from these shares should be submitted to the state's finance departments, and the public or the state should bear the risk residual of the state shares ultimately. Additionally, the appointment and evaluation of top management are often determined by the party organization and the government's personnel department, which may result in rent-seeking behavior and collusion between the controlling shareholders and management. As a consequence, under these bureaucratic selection measures, the management of the state-controlled companies naturally pursues a political relationship with government official rather than improvement in company performance (Wang and Deng, 2006).

Last but not least, with the development of Chinese national financial obligations, the scale of listed companies' refinancing activities have being distensible. According to recent report of People's Daily, compared with the past 20 years, the amount of listed companies' refinancing of both stock exchanges in 2006 caught the highest record - over 110 billion. Nevertheless, the extremely high level of refinancing number could not bring great scale development of Chinese stock markets, especially for ST and

PT⁵ companies, the situation is getting worse. Although the shareholders of these companies have already tried to dispose of the financial obligations and bad debts, the disposal activities are still not properly unfolded. What is more, the management level of these companies plunged too much energy into refinancing activities, the managerial regulations within these problematic companies have been digressive. Chinese stock investors have suffered from serious refinancing obligations, and this situation has badly restrained the growth speed of Chinese stock markets.

3. Methodology

3.1 Sample Selection

The sample of IPO companies is compiled for the period between 1998 and 2008. We track the listed companies for 11 years to exam if it keeps healthy status, it gets acquired, or it is delisted. Our sample for this study comprises 1750 companies. All the companies, which are traded in A-shares and B-shares, are included in this analysis.

Based on the post-IPO status, our research sample is segmented into healthy companies, M&A companies, and delisted companies. The group of healthy companies consists of 1499 healthy listed companies between 1998 and 2008, which are equivalent to 86% of the total number of listed companies that are in operation in that year on Chinese SHSE and SZSE, excluding financial companies, investment trusts and foreign companies, covering 16489 company-year observations in total.

By studying Jain and Kini's (1999) research, we define the M&A companies as the listed companies that get merged and/or acquired by an existing listed public company, private company, or converted into a private entity through a leveraged buyout. An acquisition or a merger may be public or private, depending on whether the acquiree

⁵ PT means "Particular Transfer". In July 1999, under China Securities Regulatory Commission (CSRC) instructions, Chinese stock markets set up the PT category to handle and transfer the companies with three years of continuous losses.

or merging company is or is not listed in public markets. M&A usually refers to a purchase of smaller company by a larger one. Sometimes, however, a smaller company will acquired administrative control of a larger or older company and keep its identity for the combined entity. This is known as a reverse takeover. Another type of M&A is reverse merger. It is the deal that enables a private company to get publicly listed in a short timer period. This group involves 188 listed companies that experienced merged and/or acquired process from 1998 to 2008, which occupies 11% of the whole listed companies.

Delisting status is defined as the companies are delisted from the trading exchange between 1998 and 2008 due to negative financial reasons. Since 1998, the China Securities Regulatory Commission (CSRC) has begun to execute “Special Treatment (ST)” and then “Particular Transfer (PT)” (1999) on listed companies that suffered from an “abnormal financial situation” or “other situation abnormality.” Subsequently, “Narcissus Electronics” was delisted on April 23, 2001. It is the first stock that was forced to delist in Chinese stock market, which denotes the real start of the “delisting mechanism” in the stock market. Only 63 companies have been delisted from 1998 to 2008, which equals to 4% of the total stock companies, indicating that healthy and M&A status are more preferable ending states compared with delisting.

Furthermore, the three research groups covers 16 general industries, such as medicine, chemistry, metallurgy, home appliances / electronic information, mobile manufacturing, mechanics, comprehensive, travel, light manufacturing, traffic and energy, agriculture, textile, vintage, building material and construction, as well as posts and telecommunications. Financial companies and unit offerings are excluded.

3.2 Variables

Dependent Variable

The focus in this paper is on three post-IPO states. After offering, a listed company can evolve into one of three basic states. It can remain healthy status, get acquired, or

delist outright. Making the best of our available of data, the dependent variables we chose for examining the post-issue performance was defined as the probability of subsequent transition to one of the three post-IPO states. First, in the first logit regression, the dependent variable equals 1 for the M&A companies, and 0 for the healthy companies. This model is to determine the likelihood of getting acquired. Second, in the second logit regression, the dependent variable equals 1 for the delisted companies and 0 for the healthy companies. This model is to determine the likelihood of being delisted.

Independent Variables

This section justifies and describes the explanatory variables. Table 2 provides a summary of the name, brief description and measurement of each independent variable. The following variables are included by virtue of their potential to have explanatory power in the various regressions.

Table 2 Description of Variables

Variables	Description	Measure
Accounting Indictors		
ROA	Return on Assets	Net income over total assets
CUR	Current Ratio	Current assets over current liabilities
LEVST	Leverage Ratio (Short-Term)	Book value of short-term debt divided by book value of equity
BTM	Book-to-Market Ratio	Book value of equity divided by market capitalization of equity at the financial year-end
Company Characteristics		

AGE	Company Age	The number of the year since incorporation date
SIZE	Company Size	Natural logarithm of total assets in billions of Renminbi (RMB)
Governance Attributes		
AGENCY	Agency Costs	Free cash flow over total assets
DUAL	Duality of Position	A dummy variable taking the value 1 if the chairman and CEO positions are held by the same person; 0 otherwise
BOARD	Board Size	The number of board members
INDEP	Independent Directors	The proportion of independent directors in the board
Ownership Structure		
ULTI	Ultimate Owner	A dummy variable taking the value 1 if ultimate owner is state, 0 otherwise.
Industry Control		
TECH	High-tech Company	A dummy variable taking the value 1 if it is high-tech company, 0 otherwise.
Pre-IPO Performance		
OPRA	Pre-IPO Operating Return on Assets	Operating income (before depreciation and taxes) divided by total assets
OCFA	Pre-IPO Operating Cash Flow/Assets	operating cash flow over total assets = (operating income less depreciation) divided by total assets
Offering Characteristics		
OFFSIZE	IPO Offering Size	The natural logarithm of the offering size in RMB
RISK	Risk of IPO Companies	The aftermarket standard deviation of daily return during the first 30-day of listing

RETURN

IPO Initial Returns

The closing price on the first day of trading minus of the offer price, all scaled by the offer price

(1) Accounting Indictors

Following the literatures, we measure the financial performance by four significant financial indicators: return on assets (ROA), current ratio (CUR), Debt-to-Equity (D/E) Ratio, and book-to-market (BTM) ratio. ROA is one widely used accounting measure to estimate company profitability, and it is also an indicator of how profitable a company is relative to its total assets. Wang's (2005) research is to examine changes in company performance of Chinese listed companies around their initial public offerings (IPO). The performance is also measured by ROA, which is the most common accounting profitability measure in the literatures. The higher the ROA number, the better, because the company is earning more money on less investment. Current ratio is an important indicator which measures short term financial status of a company and directly reflects its ability of offering cash, covering short term liabilities and sustaining normal operation. The higher the current ratio, the greater the liquidity and margin of safety enjoyed by the company, and the higher probability of healthy state. Financial leverage is calculated as book value of total debt divided by book value of equity – the Debt-to-Equity (D/E) Ratio. The higher the leverage, the greater is the potential of the company facing failure and thus its risk. In China, a higher D/E ratio may imply the availability of state funding for corporate operations (Chow and Fung, 1998). Besides, Book-to-Market (BTM) ratio has been found to exhibit significant correlation with company performance. The book-to-market ratio is defined as book value of equity divided by market capitalization of equity at the financial year-end. Basically, the book-to-market ratio attempts to identify undervalued or overvalued securities by taking the book value and dividing it by market value. In basic terms if the ratio is above 1 then the stock is undervalued, and if it is less than 1 then the stock is overvalued. We therefore expect that a high

book-to-market ratio results into low probability of delisting state and/or acquisition.

(2) Company Characteristics

We define company age as the number of the year since incorporation date. A company with a long history can establish an important effect on corporate governance. For example, among Chinese listed companies, the agency costs, such as the entrenchment problem, are expected to vary with company age (Tian, 2005). It is expected that company age is negatively related to the probability of failure or getting acquired.

In this study, to control the company size effect of the company, this variable is taken as a natural logarithm of total assets in billions of Renminbi (RMB) during our investigation period between 1998 and 2008. A priori, larger companies are likely to have a higher probability of survival, as the potential losses to shareholders are greater. In China, larger companies are expected to have greater access to gain financial resources because they have established credit to maintain the stable relationships with state-owned banks. This phenomenon is more obvious as large companies tend to be state-controlled companies (SCCs) and strongly supported by local governments (Liu and Pang, 2009).

(3) Governance Attributes

Agent problems come from the relationship between the shareholders who own a public company and the managers who run it. The owners would like managers to run the firm in ways that maximize the value of their shares, whereas the managers' priority may be to build a business empire through rapid expansion and mergers and acquisitions, which may not increase their company's share price. As known, agency problem exists between shareholders and hired managers. Managers who own anything less than 100% of the residual cash flow rights of the company have potential conflicts of interest with the outside shareholders, since they choose to reinvest the free cash rather than return it to investors (Jensen, 1986). The conflict

arises when there is moral hazard inside the company, which is called agency costs of equity. Consistent with most of prior literatures, a widely used measure of agency costs is free cash flow. It is well-known that competition in the markets tends to drive prices towards minimum average cost in an activity. Therefore, the managers have to motivate the organizations to increase efficiency to enhance the probability of survival. Higher agency costs would imply a higher probability of failure. Here, we define agency costs as free cash flow (net income + depreciation + internal expense – capital expense) divided by total assets.

This study measures duality of position as a dummy variable taking the value one if the chairman and CEO positions are held by the same person; zero otherwise. The separation of the roles of chairman and CEO positions can create paralysis if the two powerful positions do not agree on decisions and strategies. Basically, the position of CEO should be separate from the position of board chairman because the duality leads to lower board independence, reduction in board monitoring effectiveness, and CEO entrenchment (Baysinger and Hoskisson, 1990; Rechner and Dalton, 1991; Jensen, 1993; and Chen et al., 2006).

According to prior studies, larger boards have more difficulty in coordinating, which gives managers more latitude to pursue their personal goals (Chaganti, Mahajan and Sharma, 1985). The accumulation of anecdotal evidence from Eisenberg and Sundgren (1996) and Jensen (1993) portrays large boards as unwieldy, slower decision makers and less apt to voice disapproval or control managerial behaviour. Smaller boards are argued to be more effective because they have less difficulty coordinating efforts. In this paper, we measure board size as the number of board members. We suggest that a listed company with a larger board would be more likely fall into failure.

A key problem of Chinese corporate governance is the weak independent board of directors. Company law stipulates that the shareholder's general meeting is

responsible for selecting and removing directors, however it does not state who is responsible for nominating directors (Lin, 2004). Most Chinese companies' officials are still nominated by the government in stead of the board directors. Many studies have confirmed a positive relationship between the independent directors and the monitoring effectiveness of the board. Beasley (1996) reported that there was a negative relationship between the number of non-executive members on the board and the likelihood of fraud. Independent directors are appointed on the board mainly to obtain independent monitoring mechanism over the board process thereby reducing agency conflicts and improve company performance (Craven and Wallace, 2001). Accordingly, Chinese listed companies need to increase the number of independent directors. We believe that the independent directors will play an important monitoring role in improving the credibility of the Chinese listed companies and increase the likelihood of healthy status.

(4) Ownership Structure – Ultimate Owner

One of the most important ways through which a company maximizes its performance and market value is through well-designed ownership structure of the company's shareholdings. The stock market in China is highly segmented. Looking at the share structure wise, approximately one-third is publicly traded, one-third is state-owned and another one-third is privately owned and non-tradable shares (Chen, Kan and Anderson, 2007). The clearest distinguishing feature of ownership structure of Chinese stock companies is pyramid shareholding dominated by the state (Liu and Sun, 2005). The state has retained direct control over the companies via the majority shareholdings among them, or has maintained indirect control over the listed companies through diverting ownership in the form of pyramids (Liu and Pang, 2009). In examining the relationship between ownership structure and the probability of post-IPO transition state, we use a dummy variable that measure whether the listed company's ultimate owner is the state or not. The dummy variable takes the value 1 if ultimate owner is state, 0 otherwise.

State ownership is widely believed inefficient to company performance (e.g. Xu and Wang, 1999; and Li and Hovey, 2007). Indeed, it is believed that the state may have goals, such as maintaining employment and social stability rather than profit maximization. As the controlling shareholder, government may use the listed companies as a vehicle to meet other policy goals that may conflict with shareholders' interests (Bai, et al., 2006), particularly the state shares are uniquely big and there is serious impingement upon the interests of small shareholders. Therefore, the ultimate control and power of the state in Chinese listed companies is typically used to further the political agenda and government policies, rather than simply improving company performance, so that companies in China with state dominance show evidence of inferior productivity overall (Hovey, 2004). Therefore, we believe that state-controlled companies (SCCs) are more likely to get acquired. However, state ownership may not necessarily be bad because government would help to monitor management and provide companies with a wide range of preferential treatments in China (Tian, 2001). What is more, State ownership structure might be helpful to company performance to a certain extent, because state ownership is related to free-rider problem. In China, the positive effect of state ownership is probably reasonable because ownership is somewhat dispersed there. The emergence of state shareholder may help overcome the free-rider problem among shareholders in monitoring the managers. Due to the mixed characteristics of state ownership, we expect that SCCs are less likely to get delisted.

(5) Industry Control

Competing companies strive to remain healthy state and grow through their positioning on strategically relevant parameters, such as high-technology investment. The companies in high-tech industries have high probability of survival relative to being acquired or failure. High Research and Development (R&D) investments need to remain competitive in certain industries helps IPO companies since it deters entry, either by other companies or by potential acquirers, thereby leading to a higher probability of survival. Consequently, R&D intensive companies experience

significant positive long-term abnormal returns, as the market eventually recognizes the benefits of R&D.

(6) Pre-IPO Performance

By studying Jain and Kini's (1999) research, we also measure pre-IPO performance as the ratios of pre-IPO Operating Return on Assets and pre-IPO Operating Cash Flow/Assets. Companies tend to go public at various stages of their growth cycle. When listed companies go public during the early period, they are generally not profitable at the time of IPO. As a consequence, these companies are likely to be characterized by low levels of pre-IPO operating performance. On the contrary, the companies with long established IPO history may already have a large scale of sales and earnings and in all likelihood are already profitable at the IPO. These companies are therefore likely to demonstrate relatively higher pre-IPO operating performance. According to Jain and Kini's (1999) research, we also expect the probability of the transition to post-IPO states can be influenced by pre-IPO performance.

(7) Offering Characteristics

Jain and Kini (1999) indicated that entrepreneurs need to grow their businesses to a certain efficient scale before attempting to go public, thereby increasing to the chance of survival. Indeed, listed companies holding larger offering size are better quality companies and are expected to have better long-term performance. Additionally, prior studies used the offering size to control for the issuer's overall risk and issue uncertainty, since better established companies often make larger issues, and such sizable companies are generally less risky than those making smaller issues (e.g. Levis, 1993; Khurshed, 1999; and Guo, Lev and Shi, 2005). Hence, we defined the offering size as the logarithm of the offer size in RMB Yuan, and it is expected that large IPO offering size decreases the probability of failure.

In this study, we also consider the riskiness of each IPO. In finance, risk is the probability of losing some or all of the original investment. Obviously, higher risk

would imply a higher probability of failure. Risk is basically regarded as a calculation of the standard deviation of the historical returns or average returns of a specific investment as providing some historical measure of risk. The measurement of RISK for IPOs is however difficult because there is no historical price data to draw upon. As a consequence, followed by Ritter (1984), and Jain and Kini (1999) the aftermarket standard deviation of daily return during the first year of listing has been frequently used as a proxy for RISK.

Initial return is a strong signal of company quality. Companies with higher IPO initial returns are valued by investors and are expected to provide greater returns in the long-term (Li and Hovey, 2007). Chen, Firth and Kim (2000) reported that the initial returns on A-shares market are extremely high in China and exceed other developed countries. Since shares owned by the government may act as a guarantee of the performance of the company by the state, Chi and Padgett (2002) indicated that the more shares owned by the state, the higher the initial returns would be, due to the public's greater confidence in the companies. This paper expects that the initial return is negatively related to the likelihood of delisting or getting acquired. The initial return of the IPO of stock "i" is defined as: $R_i = (P_{i1} - P_{i0}) / P_{i0}$

where

R_i is the initial return of the IPO of the stock "i", P_{i0} is the IPO offering price of stock "i", and P_{i1} is the first trading day's closing price of stock "i".

3.3 Regression Model

Logistic regression analysis utilizes the coefficients of the independent variables to investigate the probability of occurrence of a dichotomous dependent variable. Specifically, the technique weights the independent variables and creates a score for each company in order to classify it as failure or healthy. Binary logistic regression analysis applies to estimate the impact of determinants attributes on the probability of

three post-IPO company status. Here, the following logistic regression models to test the hypothesized relationships:

$$\begin{aligned} \text{Logit}(MA_{it}=1 \mid X_{it}) = & \alpha_0 + \alpha_1 ROA_{it} + \alpha_2 CUR_{it} + \alpha_3 LEVST_{it} + \alpha_4 BTM_{it} + \alpha_5 AGE_{it} + \alpha_6 SIZE_{it} + \\ & \alpha_7 AGEN_{it} + \alpha_8 DUAL_{it} + \alpha_9 BOARD_{it} + \alpha_{10} INDEP_{it} + \alpha_{11} STATE_{it} + \alpha_{12} LP_{it} + \alpha_{13} INDIV_{it} + \alpha_{14} \\ & ULTI_{it} + \alpha_{15} TECH_{it} + \alpha_{16} OPRA_{it} + \alpha_{17} OCFA_{it} + \alpha_{18} OFFSIZE_{it} + \alpha_{19} RISK_{it} + \alpha_{20} RETURN_{it} + \\ & \varepsilon_{it} \end{aligned} \quad [1]$$

$$\begin{aligned} \text{Logit}(\text{Delisted}_{it}=1 \mid X_{it}) = & \alpha_0 + \alpha_1 ROA_{it} + \alpha_2 CUR_{it} + \alpha_3 LEVST_{it} + \alpha_4 BTM_{it} + \alpha_5 AGE_{it} + \alpha_6 SIZ \\ & E_{it} + \alpha_7 AGEN_{it} + \alpha_8 DUAL_{it} + \alpha_9 BOARD_{it} + \alpha_{10} INDEP_{it} + \alpha_{11} STATE_{it} + \alpha_{12} LP_{it} + \alpha_{13} INDIV_{it} + \\ & \alpha_{14} ULTI_{it} + \alpha_{15} TECH_{it} + \alpha_{16} OPRA_{it} + \alpha_{17} OCFA_{it} + \alpha_{18} OFFSIZE_{it} + \alpha_{19} RISK_{it} + \alpha_{20} RETURN_{it} \\ & + \varepsilon_{it} \end{aligned} \quad [2]$$

where,

The subscript i indexes companies, t is the year. MA_{it} = the status of being merged and/or acquired, and Delisted_{it} = the status of being delisted. MA_{it} and Delisted_{it} are the dependent dummy variables of two Logit regressions respectively, and estimate the probability of subsequent transition to one of the three post-IPO states for the i^{th} company. Equation 1 means M&A status of post-IPO companies, 0 for healthy companies in the function [1]. Equation 1 means delisting status of post-IPO companies and 0 for healthy companies in the function [2]. X_{it} means a set of characteristics of the listed company i in the year t . The interpretation of logistic regression model results in a value that can be interpreted as the conditional probability of subsequent transition to one of the three post-IPO states. We specify the signification level at 1%, 5% and 10% in this study for a variable entering into the model.

3.4 Descriptive Analysis

Descriptive statistics are provided in Table 3 for the independent variables, which also

include 1499 healthy listed companies, 188 merged and/or acquired (M&A) companies, 63 delisted companies and the whole 1750 stock companies. It should be noted, that financial companies, investment trusts and foreign companies are not included in the dataset and thus are not included in the research results. The descriptive statistics relating to each independent variable are discussed separately in the ensuing sections. Some interesting facts stand out.

Table 3 Descriptive Statistics of Chinese Listed Companies 1998-2008

Variable	Healthy Companies			M&A Companies			Delisted Companies			Total Companies		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
ROA	-0.096	0.033	20.434	0.018	0.034	0.170	-0.311	0.015	1.495	-0.087	0.033	18.753
CUR	1.664	1.273	1.926	1.675	1.333	1.679	1.337	1.067	1.866	1.657	1.275	1.8948
LEVST	0.563	0.284	12.690	0.474	0.270	1.574	0.570	0.277	2.874	0.552	0.282	11.669
BTM	0.726	0.372	2.029	0.377	0.311	0.354	0.094	0.208	1.533	0.663	0.360	1.888
AGE	7.047	7	5.585	8.601	8	5.060	10.413	10	4.628	7.335	7	5.551
SIZE	21.145	21.045	1.098	21.251	21.154	1.036	20.869	20.815	1.138	21.152	21.049	1.093
AGEN	-0.012	-0.008	0.615	-0.012	-0.005	0.104	-0.024	-0.008	0.139	-0.012	-0.007	0.564
DUAL	0.144	0	0.352	0.137	0	0.344	0.166	0	0.372	0.144	0	0.350
BOARD	9.506	9	2.250	9.381	9	2.328	9.841	9	2.593	9.498	9	2.329
INDEP	0.250	0.333	0.156	0.226	0.333	0.162	0.139	0	0.162	0.243	0.333	0.158
ULTI	0.635	1	0.481	0.768	1	0.422	0.490	0	0.501	0.650	1	0.477
TECH	0.145	0	0.353	0.144	0	0.351	0.064	0	0.244	0.142	0	0.349
OPRA	0.123	0.107	0.079	0.471	0.120	3.692	0.104	0.087	0.062	0.160	0.108	1.217
OCFA	0.108	0.100	0.089	0.128	0.141	0.067	0.047	0.047	0	0.109	0.101	0.088
OFFSIZE	17.436	17.500	1.019	17.364	17.370	0.875	17.214	17.220	1.071	17.417	17.500	1.005
RISK	0.463	0.207	1.973	0.450	0.239	0.737	0.613	0.273	0.869	0.468	0.215	1.823
RETURN	2.267	1.164	4.136	2.712	1.311	4.521	3.775	1.753	5.347	2.392	1.203	4.262

where ROA = return on total assets, CUR = current ratio, LEVST = leverage ratio (short-term), BTM = Book-to-Market ratio, AGE = company age, SIZE = company size, AGEN = agency costs, DUAL = duality of position, BOARD = board size, INDEP = the proportion of independent directors in the board, ULTI = ultimate owners, TECH = high-technology, OPRA = Pre-IPO operating return on assets, OCFA = Pre-IPO operating cash flow over assets, OFFSIZE = IPO offering size, RISK = risk of IPO companies, and RETURN = IPO initial returns.

The mean of ROA in M&A companies is higher than healthy companies. Delisted companies have the lowest level of this ratio, which indicates that the delisted companies on the stock markets are not operating well compared to healthy and M&A companies. It can be found in Table 3 that the average leverage ratio (short-term) in

healthy companies is higher than M&A companies, but it is lower than delisted companies. The high level of leverage ratio suggests that the companies may not be easily able to meet obligations and the probability of being delisted increases. Regarding the Book-to-Market ratio, it appears that this ratio of healthy companies is significantly higher than M&A and delisted companies, indicating that a high Book-to-Market ratio is often interpreted as a value stock and is associated with less uncertainty. The mean and median of BTM in delisted companies is the lowest, which equals to 0.094 and 0.208 respectively.

On average, the age of the acquired companies accounts for roughly 8 years, with a median of 8, which is older than healthy companies. However, the average company age of delisted companies is older compared to healthy and M&A companies, with a median of 10. The mean (median) of company age of the all sampled companies is 7 (7) years old. It appears that older companies tend to have higher probability of being delisted. As can be seen in Table 3, the average $LN(\text{Total Assets})$ of healthy listed companies is 21.145, which is slightly same as the average company size of M&A companies. We did not find any significant differences in company size among the three research groups, and average company size is 21.152 of the total sampled companies.

Agency cost is found to be higher in M&A companies than in healthy and delisted companies. It is rather likely that acquired companies have more serious agency problems than other companies. Nevertheless, it is very striking to see that delisted companies have the lowest average agency costs, which is -0.024 with a median of -0.008. Based on Table 3, 14.4 percent of CEOs in Chinese healthy listed companies are also the chairman, compared to 13.7 percent for M&A companies. Delisted companies have the highest level that 16.6 percent of CEOs are also the chairman. Among the total companies, there are only 14.4 percent of CEOs are also the chairman. It appears that the chairman and CEO positions are not held by the same person in most of stock companies. As regards board size, the average board size in

delisted companies is higher than the other two groups, but there is no significant difference in board size among the sample groups, with a same median of 9. As can be seen from Table 3, it is obvious that healthy companies hold the largest proportion of independent directors, compared with a lowest proportion for delisted companies. This is consistent with our conjecture that healthy companies have high proportion of independent directors, whereas conversely delisted companies have the lowest proportion.

Ownership structure has been shown to significantly related to company performance or value. The relation between ownership structure and post-IPO transition state is also examined by the variable of ultimate owner. According to Table 3, a large majority of M&A companies in China, 76.8% are ultimately owned by the state compared to 63.5 percent for the healthy listed companies, implying that M&A group has more state-controlled companies (SCCs) than healthy group. Less than half of SCCs exist in the group of delisted companies. Overall, there are 65 percent of SCCs among the whole stock companies in China, which indicates that the state is still the majority shareholder in Chinese stock markets. Although the authorities in China have announced that they intend to reduce the holding of the state, there was not a sizeable sell-off of state holdings during our research period. Typically, a sizeable proportion is held back by the state directly or indirectly.

In Chinese stock market, only 14.5% of healthy companies and 14.4% of M&A companies are high-tech companies. Among 63 delisted companies, there are only 4 high-tech companies. High-tech companies just take up 14 percent of the total companies.

The pre-IPO operating performance of healthy companies is slightly higher than for delisted companies. Nevertheless, it is striking that the pre-IPO operating performance of M&A companies is significantly higher than for healthy companies, particularly operating return on assets (OPRA). The mean (median) operating return on assets

(OPRA) for the M&A companies is 0.471 (0.120) compared to 0.123 (0.107) for healthy companies and 0.104 (0.087) for delisted companies. Similarly, the mean (median) operating cash flow over assets (OCFA) for the M&A companies is 0.128 (0.141) compared to 0.108 (0.100) for healthy companies and 0.047 (0.047) for delisted companies. We believe that companies with stronger pre-IPO operating performance have significantly better prospects for post-IPO survival.

As observed in Table 3, although the mean (median) of IPO offering size of healthy group is slightly higher than M&A and delisted groups respectively, there is no significant difference in IPO offering size for the three groups, and average offering size is 17.417 for the total sampled companies, with the median of 17.5. This result appears that Chinese listed companies should reach an efficient scale at the time of the IPO to improve its opportunity of keeping healthy status. Compared with the groups of healthy and M&A companies, delisted group has a higher average RISK, which is 0.613 with a median of 0.273. It therefore appears that delisted companies tend to have higher risk healthy and M&A companies. Higher risk reduces the chance of survival. Further, it can be seen from the results that the IPO initial returns are very high in Chinese stock market. According to Beatty and Ritter (1986), good issuers use underpricing to signal their quality to investors who cannot easily distinguish between good and bad issuers. In Chinese stock market, IPO initial returns capture too much uncertainty in the valuation of the IPO, therefore M&A companies and delisted companies more likely to have high IPO returns than healthy companies.

4. Logit Regression Results

The logit regression results are reported in Table 4. The table shows the estimated coefficients and their “z-ratios” in parentheses. We will discuss the effect of each variable on the transition to the eventual state.

Table 4 Logit Regression Results of Post-IPO State

Independent Variables	Dependent Variable	
	<i>Logit</i> (MA _{it} =1 X _{it})	<i>Logit</i> (Delisted _{it} =1 X _{it})
Constant	-12.3042 (-2.92)	-11.1490 (-2.19)
ROA	1.5438 (1.09)	-1.1844 (-1.28)
CUR	-0.2240** (-2.45)	-0.1325 (-1.12)
LEVST	0.1599** (2.37)	0.0224 (0.43)
BTM	-0.3663 (-0.88)	-0.1787 (-1.4)
AGE	0.0198*** (3.11)	-0.0556 (-1.15)
SIZE	0.0761*** (3.56)	-0.1641 (-0.93)
AGEN	0.5298** (2.12)	1.3361 (0.41)
DUAL	-0.0823 (-1.12)	0.1944 (0.41)
BOARD	-0.0527 (-0.66)	0.0336 (0.44)
INDEP	-0.9123*** (-5.61)	-3.0620*** (-2.71)
ULTI	1.2059*** (2.85)	-1.2081** (-2.25)
TECH	0.0645 (0.92)	-3.2068*** (-3.79)
OPRA	3.5996 (1.83)	-17.3403** (-2.05)
OCFA	1.8497 (1.52)	-33.6966 (-0.92)
OFFSIZE	-1.3076*** (-4.87)	-0.4665* (-1.88)
RISK	7.7670*** (3.41)	0.2640** (2.06)
RETURN	-1.5368*** (-3.73)	0.0811** (2.11)
Log likelihood	-73.6224	-284.6653
LR chi2(17)	53.09	19.47

where ROA = return on total assets, CUR = current ratio, LEVST = leverage ratio (short-term), BTM = Book-to-Market ratio, AGE = company age, SIZE = company size, AGEN = agency costs, DUAL = duality of position, BOARD = board size, INDEP = the proportion of independent directors in the board, ULTI = ultimate owners, TECH = high-technology, OPRA = Pre-IPO operating return on assets, OCFA = Pre-IPO operating cash flow over assets, OFFSIZE = IPO offering size, RISK = risk of IPO companies, and RETURN = initial IPO returns.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

4.1 Accounting Indicators

The ratio of ROA is positively related with probability of being acquired, yet it is found to be insignificant. However, ROA is negatively related with probability of being delisted, which suggests that it reduces the tendency toward failure, although the coefficient is not significant at traditional levels (coefficient significance at the 5% level). Next, higher current ratio reduces the probability of being acquired (coefficient significant at the 5% level), and high current ratio also decreases the likelihood of getting delisted although the coefficient is not significant at traditional levels. Our research measures leverage ratio as short-term (or current) debt over total equity. It can be seen from Table 4, higher leverage ratio increases the possibility of being acquired relative to the possibility of surviving (or healthy status), yet we could not explain the relationship between leverage ratio and likelihood of delisting. As expected, high book-to-market companies tend to be in poor financial healthy, as reflected by their low stock prices and poor earnings performance. However, the result appears that book-to-market ratio does not seem to have any impact on the relative probabilities of the three transition states.

4.2 Company Characteristics

As shown in Table 4, company age is positively related to the risk of being acquired and it is significant (coefficient significant at the 1% level), implying that older companies are more likely to get acquired compared to younger companies. The one possible reason is the old companies are more likely to operate in relatively old and unattractive industries. Table 4 reports that company age is negatively related to the

likelihood of being listed, yet it is insignificant in explaining delisting status. One possible reason is that most of older companies are state-controlled enterprises. In China, it is an important feature that the government protects SOEs in terms of the context of Chinese economy (see Section 2). Moreover, the larger the size of listed companies, the higher is the probability of being acquired relative to healthy state, and the coefficient is significant at the 1% level. However, we find that larger companies are less likely not to survive relative to surviving, although the coefficient is not significant. It may be due to the fact that larger companies have better access to capital markets for equity refinancing and loans because of their reputation in the stock markets, especially large SOEs are helped by favorable financing arrangements. In China, larger companies are much more likely to obtain bank loans than smaller competitors and less subject to liquidity constraints posed by the bank lending agreements. We therefore find that larger listed companies are more likely to be merged or acquired relative to being delisted. The results are consistent as we expected. Companies with greater amounts of free cash flow have potentially greater agency costs of equity, as managers can use the free cash flow in ways that could reduce stockholder wealth.

4.3 Governance Attributes

We use one efficiency ratio that frequently appears in the accounting and financial economics literature: free cash flow over total assets as a proxy variable to measure agency costs in order to analyse the possible impact of agency costs on the likelihood of post-IPO transition state in Chinese listed companies. We find that higher agency costs imply that the IPO companies are more likely to get acquired and/or not to survive than to keep healthy status. The variable of duality of position is defined as a dummy variable taking the value 1 if the chairman and CEO positions are held by the same person; 0 otherwise. It can be seen from Table 4, the results are mixed. Duality of position is associated with a decrease in the likelihood of getting acquired, but with an increase in the risk of being delisted. The coefficients of both logit regressions are not significant. In addition, board size has a negative influence on the probability of

being acquired or merged, even though the coefficient of this variable is not significant. Nonetheless, larger board size results in higher probability of being delisted, yet the coefficient is also insignificant. Against our expectations, the findings indicated that the board size has no significant effects on the possibility of the three transition states. Further, the higher is the proportion of independent directors in the board, the lower is the likelihood of the IPO companies getting acquired and not surviving relative to surviving (coefficient significant at the 1% level). This evidence suggests that independent directors could provide a meaningful counterweight and constraint power to company performance.

4.4 Ownership Structure – Ultimate Owner

Table 4 reveals the importance of ownership structure in the post-IPO transition state. The presence of ultimate control of a listed company by the state induces a highly significant, positive influence on the probability of being acquired (coefficient significant at the 1% level), indicating that state-controlled companies (SCCs) have higher possibility to be acquired relative to non-SCCs. The finding also shows that ultimate owner is negatively related to the probability of being delisted (coefficient significant at the 5% level), implying that if ultimate owner of a listed company is the state, the company is less likely to be delisted. The ultimate control and power of the state in Chinese listed companies is typically used to further the political agenda and government policies, rather than simply improving company performance, so that companies in China with state dominance show evidence of unsound productivity overall. However, basically SCCs remain stable development relative to non-SCCs because of the protection of the local governments to SCCs. The government is unlikely to disregard SCCs undergoing failure. Some managerial control and political direction must be executed to hinder the problematic companies from getting delisted.

4.5 Industry Control

We measure the variable high-technology company as a dummy variable with a value of 1 for a listed company in the high-technology industries, and the high-technology

industries are defined in terms of the SIC codes. In China, five sectors have been defined as high-tech: Pharmaceutical, Aircraft and spacecraft, Electronic and telecommunication equipment, Computers and office equipments, and Medical equipments and meters manufacturing. We find that the probability of being acquired is higher if the listed company is a high-tech company, yet the coefficient is not significant. The result also shows that high-tech makes it significantly less likely that the company will get delisted relative to remaining healthy state. The link between high-technology and business has become stronger. High-technology companies have more incentive to invest more resources on R&D to produce more R&D outputs and lead to better financial performance, therefore it helps high-technology companies get rid of delisting status.

4.6 Pre-IPO Operating Performance

Pre-IPO performance is a good predictor of aftermarket survival. The pre-IPO operating performance measured as pre-IPO operating return on assets (OPRA) is able to influence the post-IPO transition state. Specifically, higher pre-IPO operating performance implies a lower probability of being delisted. The pre-IPO operating performance measured as pre-IPO operating cash flow over assets (OCFA) also presents a negative relation with the likelihood of getting delisted, but the coefficient is insignificant. On this basis, it can be inferred that better pre-IPO operating performance reduces the possibility of being delisted, but it does not seem to have any impact on the possibility of getting acquired. Due to a large number of missing data of pre-IPO period, the results are not good as we expected.

4.7 Offering Characteristics

IPO offering size is measured as the logarithm of the offering size in RMB. According to Table 4, large IPO offering size reduces the probability of being acquired and/or being delisted relative to remaining healthy state. Our results support the common perception that entrepreneurs need to develop and grow their business to a certain efficient scale before attempting to issue and IPO. Moreover, we consider the effect of

company risk as measured by the aftermarket standard deviation of daily return during the first 30-day of listing. Higher risk implies that the IPO companies are more likely to be acquired and to be delisted (coefficients significant at the 1% and 5% levels, respectively). These results are consistent with our hypothesis that high risk IPO companies have high probability of financial risk (being acquired and/or being delisted) relative to remaining healthy status. Further, the IPO initial returns equal to the percentage change between the offer price of new issues and the first closing price, all scaled by the offer price. We find that the probability of being acquired is lower if the IPO initial returns are higher (coefficient significant at the 1% level). On the contrary, IPO initial returns are significantly positively related to the possibility of being delisted. We thus suggest that higher IPO initial returns reduce the probability of being acquired relative to remaining healthy and increase the probability of being delisted. Due to the mixed results, we believe that the variable of IPO initial returns may not be the most important factor to determine the transition of post-IPO state, as the volatility of the pricing errors has reflected in IPO initial returns are extremely large in China, especially in the first trading day, for the companies with high information asymmetry.

5. Discussion and Conclusion

Not many studies so far have explored the determinants of transition to the three basic post-IPO states in Chinese stock market. This study is one of the first to investigate Chinese IPO issuing companies and the determinants of transition to the three basic post-IPO status through adopting an integrated and comprehensive approach. We also develop models by utilizing information available prior to the IPO to analyse the probability of subsequent transition to the three post-IPO states. Empirical results emerge from the above discussion that the different independent variables, including accounting indicators, company characteristics, governance attributes, ownership structure, industry control, pre-IPO operating performance and IPO offering characteristics. The study incorporates recent data pertaining to Chinese listed companies in a carefully constructed dataset.

First of all, empirical evidence showed in this chapter points to the efficient relationship between the measures of financial ratios from balance sheet and income statement and post-IPO transition status. The ratio of return on assets (ROA) is positively related with probability of being acquired relative to remaining healthy status but high ROA reduces the probability of being delisted. As regards the liquidity ratio, we employ the most popular measure of liquidity - current ratio. Higher current ratio helps to avoid M&A and delisting relative to healthy status. We define leverage ratio as short-term (or current) debt over total equity. Consistent with our research hypothesis, higher leverage ratio increases the probability of being acquired and delisted. This study also takes into account book-to-market ratio, but we find that book-to-market ratio does not seem have impact on the relative probabilities of the three transition states.

Secondly, company characteristics consist of company age and company size. Age and size are found to be significantly and positively correlated to the probability of being acquired. Our results also present that the probability of being delisted is lower if company age and company size increase, although the coefficients are insignificant.

Thirdly, we especially investigated the impact of governance attributes. We find that companies with higher agency costs are more likely to be acquired or delisted. Serious agency problems with high free cash flow do harm corporate financial condition. Apart from agency costs, we also use duality of position and board size. However, these two board composition variables are not significant. Additionally, independent director is found to be a significant determinant. A higher proportion of independent directors may lead to lower probability of being acquired and delisted relative to healthy state. As expected, our empirical results so far show that the determinants of post-IPO transition status could be largely accounted for by corporate governance variables. Good corporate governance practices mitigate agency problems, especially agency conflicts between the large shareholders and the minority shareholders, which

often takes the form of tunneling in the Chinese context.

Fourthly, the structure of shareholdings is then investigated, implying that ownership structure has important effects on the transition of three basic post-IPO states. The findings suggest that although state-controlled companies (SCCs) are more likely to get acquired compared to non-SCCs, state ownership may be helpful to hinder the problematic companies from getting delisted because of the administrative control and political intervention of the state. Moreover, state ownership could control free-rider problem more effectively compared to non-state ownership.

Fifthly, industry control refers to high-technology. We find evidence to suggest that high-tech industry has a mix impact on the probability of the IPO companies entering a specific transition states. The coefficient of high-tech industry is not significant, but it appears to show a positive effect on the probability of being acquired. In contrast, companies in high-tech sectors reduce the probability of being delisted, and it is highly significant. These results are not too surprising and are consistent with the notion that high-tech decreases the probability of failure relative to the other two states.

Sixthly, higher pre-IPO operating performance reduces the possibility of being delisted, yet increases the probability of being acquired. Nevertheless, due to a large number of missing pre-IPO data, pre-IPO operating performance seems do not have a strong intention to influence on the relative possibilities of the three post-IPO transition states.

Last but not least, we evaluate the relationship between IPO offering characteristics and the probability of post-IPO transition state via IPO offering size, risk of IPO companies, and IPO initial returns. The result shows that large offering size reduces the likelihood of being acquired and delisted relative to remaining healthy status, which is consistent with the notion that companies need to grow the business to a

sufficient scale before issuing IPO. Strong empirical evidences have deduced that higher company risk increases the possibility of being acquired and even being delisted. We define IPO initial returns as the percentage change between the offer price of new issues and the first closing price, all scaled by the offer price. High IPO initial returns reduce the probability of be acquired but increase the probability of being delisted. The coefficients for both research groups are highly significant. The mix results are not too surprising because much uncertainty of first day offering price exist in Chinese listed companies. We conjecture that alternative price-discovery mechanisms, such as auction methods, could result in much more accurate price discovery in the pre-trading period for IPO companies.

While a large body of research examines different aspects of the post-IPO performance, we fill an important gap in the literature through identifying factors that influence the transition into three post-IPO states - healthy status, getting acquired or merged, and delisting. However, some issues still deserve further study. For example, pre-IPO operating performance is supposed to be a significant factor to predict the transition into three post-IPO states. However, most of pre-IPO data of listed companies are missing in our dataset, we did not obtain the good results. Therefore further research should be devoted to the effect of pre-IPO performance on post-IPO company performance when the pre-IPO data is more unabridged so as to present a greater interpretation.

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