
***LEVERAGE, PROFITABILITY AND THE
OWNERSHIP STRUCTURES OF LISTED
FIRMS IN CHINA***

by

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Abstract

The relationship between leverage, profitability and a firm's ownership structure in China is investigated in this paper. It is an exploratory study based on all firms listed on the Shanghai and Shenzhen stock exchanges from 1999 to 2005. The results of the empirical analysis are reported in this paper.

The most significant result is that foreign holdings are found to have a significant relationship with the leverage of listed firms in China. Whereas, somewhat unexpectedly, institutional ownership, through legal person holding companies, state ownership and private holdings are not found to have a significant relationship with the capital structure choices of firms in China. The results also suggest that some firm-specific factors that are relevant for explaining firm leverage generally referred to in studies in developed economies, such as profitability, growth opportunities, size and tax shields, are also relevant in China. The age of the firms and the industry to which they principally belong also has significant bearing. Yet direct government grants and the use of an internationally renowned auditing firm do not show a significant relationship.

Keywords: State-owned enterprises, Ownership structures, Capital Structure, Emerging markets, China.

JEL classifications : P31, L33, G32, G38, O53.

1. Introduction

The relationship between leverage, profitability and a firm's ownership structure is investigated in this paper. It is an exploratory empirical analysis of all firms listed on the Shanghai and Shenzhen stock exchanges from 1999 to 2005. The results of the analysis are reported in this paper.

China has experienced outstanding growth as the economic, market and corporate reforms, which began in the late 1970s, gain momentum. The reforms have been an important aspect of the outstanding economic growth which has been accomplished as China moves towards a "socialist market economy". In the corporate sector the majority of small and medium, and many large, former SOEs, have been privatised or partially privatised.

A focus of this paper is on the interesting ownership mix of the listed firms in China. The greatest proportion of these have ownership of state at an average of about 40%, legal person institutional at around 20%, private at 30%, and foreign holdings at 3%¹. There are also a limited number of management and employee holdings in some firms. Firms may also have other institutional investors, both domestic and foreign. Adding to the complexity, some holdings are nontradable, such as state and legal person holdings, and the rest are tradable. However, some shares (B-Shares) are only tradable in the B-Share market to a select group of investors - to foreign investors or domestic investors with foreign currency assets. These diverse holdings make for a study of how these ownership structures influence the profitability and capital structure, in this case specifically the leverage, of listed firms in China.

¹ See Figure 1. These are discussed in greater detail later in the paper.

The consequence of the capital structure, ownership structure and profitability of China's many and often immense state-owned enterprises (SOEs) will be considerable, especially as the country's progress on the road to a "socialist market economy" gains momentum. SOEs play a central role in that they supply crucial raw materials, and are "pillars" in important large, capital-intensive industries, such as power, steel, machinery and chemicals. Therefore, the success of SOE reform is a significant factor in China's future economic prosperity and ability to contend with mounting social justice issues.

The capital structure literature has focussed on the theoretical models explaining capital structure and empirically testing these models. Over the years, this has fundamentally focussed on large corporations which have publicly traded equity and debt in developed economies (for example see Allayannis, Brown, & Klapper, 2003; Baker & Wurgler, 2002; Berger & Udell, 2004; Berger & Udell, 2006; Bevan & Danbolt, 2004; Brounen, De Jong, & Koedijk, 2006; DeAngelo & Masulis, 1980; Desai, Foley, & Hines, 2004; Fischer, Heinkel, & Zechner, 1989; Hovakimian, 2006; Kale, Noe, & Ramirez, 1991; Kayhan & Titman, 2007; Miao, 2005; Rajan & Zingales, 1995; Ross, 2005; Wald, 1999a). Studies have also been undertaken in developing and transitional economies more recently. For example, in a study of developing countries (Booth *et al.*, 2001), of Central and Eastern European economies (de Haas & Peeters, 2006), a study of the effect of political patronage in Malaysia (Fraser, Zhang, & Derashid, 2006), a study of capital structure in Pakistan (Hijazi & Tariq, 2006), and the influence of the chaebol in South Korea (Kim, Heshmati, & Aoun, 2006). There have also been a few studies focusing on various issues of the capital structure of listed firms in China (Huang & Song, 2006; Tong & Green, 2005; Zhang, Zhang, & Zhao, 2002). Thus, there is just a narrow range of literature and research aimed

at furthering our understanding of capital structures in developing and transitional economies that often have unique institutional structures.

Thus, the relation between leverage, performance and a firm's ownership structure are investigated in this paper. Other factors investigated are growth opportunities, size and age of the firm, dividend/bonus payment, tax shields, tangibility, and the industry to which they principally belong. Other aspects not previously included in studies of China are direct government grants indicating direct state support, the use of internationally renowned "Big Six" auditing firms and a corporate governance dummy variable if the Chair and President is the same person.

The study is based on all firms listed on the Shanghai and Shenzhen stock exchanges from 1999 to 2005. Thus, the study is based on more recent data than earlier studies in China. This is an important distinction in the context of China as the environment is changing significantly over time - the market is maturing, the free market economy is evolving and political involvement in listed firms is diminishing over time.

The results are that leverage has a significant negative relationship with profitability. It also suggests that some firm-specific factors that are relevant for explaining firm leverage generally referred to in studies in developed economies, such as, growth opportunities, size and tax shields, are also relevant in China. A very important result is that foreign holdings are found to have a significant relationship with the leverage of listed firms in China. Whereas, somewhat unexpectedly, institutional ownership, through legal person holding companies, state ownership and private holdings are not found to have a significant relationship with the capital structure choices of firms in China. The age of the firms and the industry to which they principally belong

also has significant bearing. Yet direct government grants and the use of an internationally renowned auditing firm do not show a significant relationship.

The rest of the paper proceeds as follows. Section 2 is a short discussion of SOE ownership in China. Section 3 discusses the data. Sections 4 and 5 discuss the performance and ownership structure study and the descriptive statistics. Sections 6 present the empirical results on SOE performance changes and the relationship between ownership mix and firm performance and Section 7 concludes the paper.

2. SOE Ownership in China

A commitment was made in 1997 to an immense privatization program of the estimated 308,000 (Morrison, 1999) SOEs. The slogan of the program was *zhuada fangxiao*, meaning “protect the large, release the small” (Hong Kong Economic Journal, September 19, 1997, Ho, Bowles, & Dong, 2003). This policy is directed at both concentrating reform energy on 1,000 or so of the largest enterprises, many of which are “pillar industries,” and toward escalating the privatization of numerous small and selected medium SOEs. Through this scheme, vast numbers of small and medium sized SOEs are being merged, sold or allowed to embark on joint venture partnerships. It has resulted in a privatization program of unparalleled proportions. However, the extent of reforms varies considerably. Whilst many smaller SOEs have been privatized, typically large SOEs remain firmly within the control of the state. The bulk of China’s SOEs are now structured as corporations and more than 1,000 enterprises have raised additional capital by issuing new shares to outside shareholders by listing on the Shanghai and Shenzhen stock exchanges. Thus, ownership structures are a key consideration of enterprise reforms in China.

In China, a typical listed firm has a combination of major owners. Ownership structure is typically made up of three primary groups of shareholders – the state, legal persons, and domestic individual investors. Foreign holdings also feature as do employee and offshore shares that are offered by a small number of firms but typically represent only low levels of ownership. In brief, state shares are generally classified as those held by one of the various levels of government, state agents or by SOEs. These are held by the state and state-owned holding companies on behalf of the state. There are three forms of state backed ownership – “direct”, “state shares” and “legal persons.” Generically the first two are simply classified as “state shares” and the last as “legal person” shares.

In the majority of instances state ownership is classified as “state shares” in the data and literature and refers to state ownership which is typically held through state entities other than legal persons. These entities are often SOEs or bodies controlled by various levels of government. The third category mentioned above is legal person ownership. Legal person ownership is state equity held by state domestic institutions or holding firms. These are principally autonomously managed investment institutions that are primarily state-owned government agencies (Gul & Zhao, 2001; Xu & Wang, 1997). Therefore, the ownership structure is a form of pyramid holdings, in this case, primarily by the state (Watanabe, 2002). None of these holdings can be publicly traded. They are thus often classified as “non-tradeable A-shares.” However, they have the same dividend rights and voting rights as other shares. These various classifications make the data difficult to work with, as both “state shares” and legal person ownership are classified as “A-shares” in the Taiwan Economic Journal data used in this study.²

² This is all very confusing at first and takes some unravelling in building the datasets for the study.

There are two forms of tradeable shares - “A” and “B” shares. Tradeable A-shares, are typically simply called “A-shares,” despite the existence of non-tradeable A-shares as mentioned above. “A-shares” are ordinary shares with voting rights of one-share-one-vote and the same dividend rights as other shares. They are traded domestically by primarily domestic individual investors on Shanghai and Shenzhen stock exchanges. Only Chinese citizens, a few domestic institutions and a handful of approved foreign institutions can hold them or trade them - the market has opened to large foreign institutions that are required to follow strict guidelines (Buckley, 2003). “B-shares” are tradeable on the B-share market and denominated in foreign currency: U.S. dollars in Shanghai and Hong Kong dollars in Shenzhen. B-shares have traditionally been held principally by foreign investors and a small number of domestic securities firms with special permission to hold them. The B-share market has now been opened up for trading by domestic Chinese with funds from offshore accounts. As a rule, in the order of only one third of the shares of the typical firm are tradeable and held by individual investors (see Figure 2).

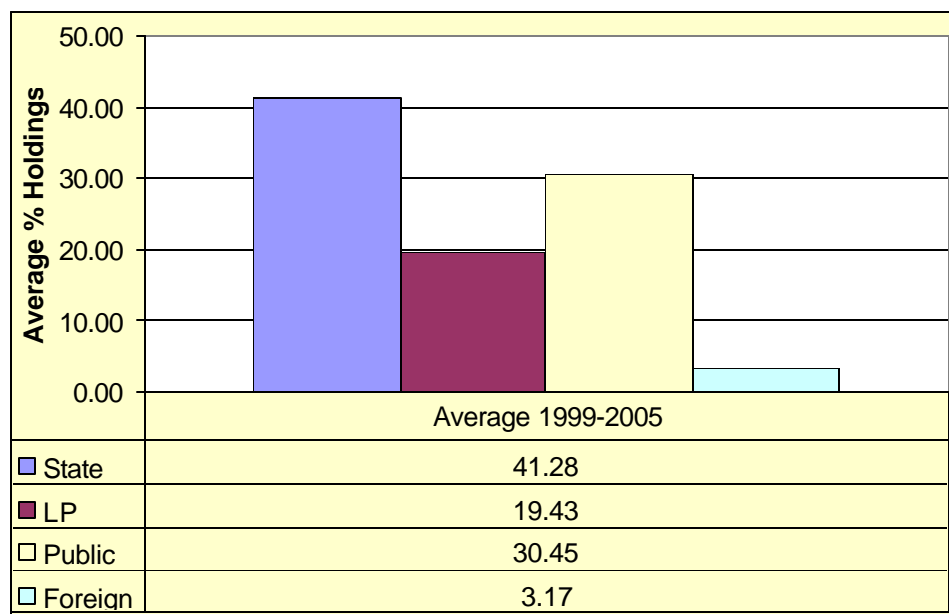
Employee shares are collectively held by employees of a firm and are usually issued at a discount before the firm goes public (Chen & Gong, 2000). At the time of listing, they are non-tradeable shares, although they can be converted into tradeable A-shares 3 years after listing, with approval from the authorities. Typically, employee shares are not a performance incentive, but are compensation for past association with a firm. On average, they account for a small percentage of firm ownership (see Figure 2).

Cross-listed holdings are held in a number of international exchanges such as Hong Kong, New York, Japan, London, Frankfurt and other European exchanges. Most common are “H” and

“N” shares which are listed in Hong Kong or New York respectively. Cross-listing in Singapore (“S” shares) are also relatively common. Red Chips’ are stocks issued by Hong Kong firms that receive substantial backing from Chinese institutions. ‘China Plays’ are Taiwan and Hong Kong firms, listed on home exchanges, but that have substantial business interests in China. There are presently fourteen Chinese firms listed on the New York Stock Exchange (NYSE), however, interestingly, not all of these are listed on the domestic exchanges in China. Some firms are also listed on other foreign stock exchanges. For example, China Eastern Airlines Corporation Ltd is listed on the Berlin, Frankfurt, Hong Kong, Munich, New York, Stuttgart, XETRA Electronic Trading and Shanghai stock exchanges (Hovey & Hovey, 2004).

Figure 1 below depicts the average holdings of listed firms in China for all the years 1999-2005. As can be observed State held an average of 41.28% of equity in listed firms in China during this period, whereas LP holdings were 19.43%. Thus overall the state had a significant influence, if not control, of an average of 60.71% holdings during this period - this could readily be classified as a supermajority interest. Private ownership was made up of Public Shares at an average of 30.45% and Foreign Shares at just 3.17%. Therefore, even though these are partially privatised firms, the average private holdings were just 33.62% during this period.

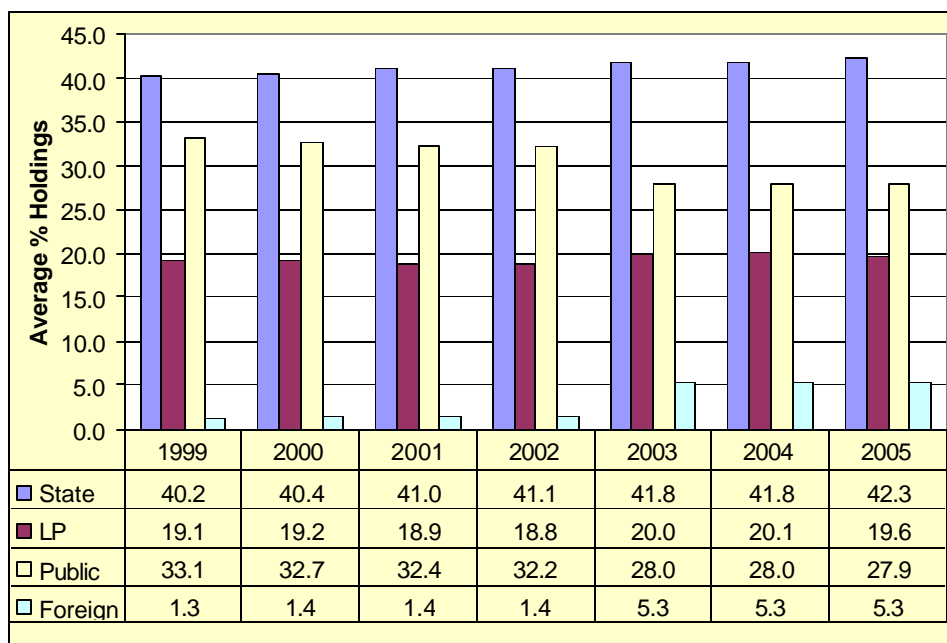
Figure 1: Average Holdings (%) 1997-2005



Data Source: TEJ (2006).

Note: The balance = Other Founder, Preferred and Employee shares.

Figure 2 shows the year-by-year break up of the average ownership structure of listed firms in China for each for the years 1999-2005. As can be observed, interestingly state holdings have increased overall from 40.2% to 42.3%. LP holdings were at their lowest at 18.8% in 2002 and at their peak of 20.1% in 2003, but have declined back to 19.6% in 2005. Private holdings (Public) have actually decreased from 33.1% in 1999 to 27.9% in 2005, whilst, Foreign holdings have increased from 1.3% in 1999 to 5.3% in 2005.

Figure 2 Ownership Structure 1997-2004 Year-by-Year Averages (%)

Data Source: TEJ (2006).

Note: The balance = Other Founder, Preferred and Employee shares.

3. Data

The study is based on a dataset compiled from the Taiwan Economic Journal (henceforth TEJ) Greater China Database of firms listed on both the Shanghai and Shenzhen stock exchanges from 1999 to 2005. Thus, the study is based on more recent data than earlier studies in China. Financial institutions are not included in this study. The market values, accounting and ownership data used in this research is obtained from various TEJ databases for China and is used in the valuation of all shares, consistent with prior studies. The industrial classifications were sourced separately.

In all, the pooled dataset is made up of a total of 6,222 observations. The availability of financial data is used as a basis for the selection as to which firms are included in the dataset. Some data are missing for some firms, thus when the model is run these firms are dropped. The

results show the number of observations in each case. On average each run consisted of 1,673 observations, given the lack of data for dividends.

One of the problems faced in the study of enterprises of China is that the publicly available data is restricted to the relatively few listed firms. Furthermore, perhaps better-managed firms comply with disclosure requirements and submit timely reports and thus their data is available. Therefore, the sample may not be truly representative and thus it is acknowledged that the study suffers from a data selection bias.

4. The Empirical Analysis

In this analysis, the linkage between the leverage, ownership structure and firm profitability is investigated. If profitability is irrelevant, it would be expected to be insignificant in regressions on leverage. If ownership structure is irrelevant, the percentage of holdings of each category of ownership would be expected to be insignificant in regressions on leverage. Regression analysis is used to examine the relative importance of ownership mix and structure in predicting the financial performance of listed enterprises in China tested by estimating the following equation:

$$\begin{aligned} LEV_i = & a + b_1EO_i + b_2ROA_i + b_3SIZE_i + b_4GRTH_i + b_5TAX_i + b_6TANG_i + b_7DIV_i \\ & + b_8AGE_i + b_9GRANT_i + b_{10}CH_PR_i + b_{11}ACC_i + b_{12}INDD_i + e \end{aligned} \quad (1)$$

Where:

- LEV = The leverage of the firm taken as the total debt to equity ratio.
- EO = The equity ownership fraction of State Shares, Legal Person Shares, Public Shares and Foreign Shares.
- ROA = The return on assets applying the EBIT/total assets model.
- SIZE = Size is taken as the natural log of the market value.

- GRTH = Growth potential taken as the market to book value ratio.
- TAX = The tax shield – the proxy used in this study is the tax deduction for depreciation over total assets.
- Tang = Tangibility - the proxy used in this study is tangible assets over total assets.
- DIV = Dividend - the proxy used in this study is dividend and bonus payments over gross profits.
- AGE = Total age of the firm taken as number of years the firm has been in operation.
- GRANT= Government Grants scaled by total assets.
- CH_PR = A dummy variable taken as 1 if the Chairman and President are the same person and 0 if they are not.
- AUDT = A dummy variable taken as 1 if the auditing firm used is a “Big Six” international accounting firm.
- INDD = Twenty-one industry control variables.
- α = the intercept, β = the regression coefficients; and ε = the error term.

Employing the data for all listed companies 1999-2005 with available data, a series of linear regressions are run as well as an unbalanced panel data set. The detail of these variables is provided below.

4.1 Leverage

In the regressions, the dependent variable is financial leverage (LEV), which is the debt to equity ratio of each firm as measured by the book value of total debt divided by the equity. Consistent with the risk associated with higher levels of debt and with pecking order theory, debt is typically negatively correlated to the profitability of the firm. However, the “policy lending” regime during this period in China (Park & Sehart, 2001) may give rise to higher levels of debt having quite a differently effect. In China, higher leverage may imply the availability of state funding for corporate operations (Chow & Fung, 1998).

After listing, obviously SOEs have access to private equity. Thus their leverage would be expected to decrease compared to prior to listing. As SOEs did not have access to private equity prior to listing, the only source of funds apart from government grants, were borrowings from the state owned banks. Thus SOEs had a high level of leverage. Furthermore, the cost of debt was low as they borrowed from state owned banks and had either implicit or explicit government guarantees. Adding to this, often SOEs did not expect to repay the loans leading to a high proportion of non-performing loans for the state owned banks (Hovey, 2001). Typically, SOEs had low or negative profitability (Aivazian, Ge, & Qiu, 2005; Cull & Xu, 2005), thus retained earnings were not generally available.

However, in China debt levels would be expected to remain high even after listing because of the quota system for listing which continued until February 2000. The quota system limited the amount of capital allowed to be raised, as well as limiting the number of firms that could list publicly. The government placed a quota on the of capital raised by IPOs nationally each year, which was administered by provincial governments which typically allocate the quota to firms based on various criteria, some listed poorly performing firms, preventing individual SOEs from raising as much equity capital as needed (Neoh, 1999).

Even though the quota system has been removed, still firms cannot raise all the capital they require at IPO and often have to rely on other sources of funds. They also typically raise further funds through rights issues after IPO (Chen & Yuan, 2004; Wang, Wei, & Pruitt, 2006). All in all, debt, especially Bank loans, is still a significant and necessary source of capital.

The pressure on capital allocations is also increased as often unprofitable SOEs have been encouraged to merge with, or be acquired by, profitable SOEs (Cooper & Zheng, 1998; Dirks,

1998). During a restructure, better performing SOEs may be merged with poorly performing SOEs to save that SOE, to the detriment of the better performing SOE.

4.2 Equity Ownership

Equity ownership (EO) is the average percentage holdings by the various categories of ownership. Specifically, it is the equity ownership fraction of State Shares, Legal Person Shares, Public Shares and Foreign Shares. As state ownership and LP ownership are highly correlated, at -84.98%, the regressions are run separately for them. State ownership has been found to be negatively correlated to performance in the literature (Hovey & Naughton, 2007) (see for example, Chen & Gong, 2000; Gul & Zhao, 2001; Hovey, Li, & Naughton, 2003; Wei & Varela, 2003; Xu & Wang, 1999), however the influence of state holdings on leverage is unknown. It is expected to be negative as the higher the state ownership, the less availability to equity capital and the higher level of implied guarantee. Prior research on legal person holdings suggests that LP ownership is positively correlated with performance (Hovey & Naughton, 2007) (see for example, Chen & Gong, 2000; Gul & Zhao, 2001; Hovey *et al.*, 2003; Xu & Wang, 1999), however the influence of state holdings on leverage is unknown. Public Shares is equity ownership of publicly held tradable A-shares. The higher the level of publicly held equity the less the requirement for debt, thus it is expected to reduce the reliance on debt. However, the supermajority ownership of the state and low levels of individual holdings may reduce any effect. Foreign Shares is the total of foreign individual and institution holdings. Chhibber and Majumdar (1999) found that foreign ownership at concentrations of 51 percent or higher has a positive influence on performance in India. However, the effect on debt is unknown, but again is expected to reduce the reliance on debt.

In China, the percentage of shares held by employees, managers, directors and supervisory board members is relatively insignificant. Accordingly, it is considered that their overall influence is inconsequential. Hence, they are not included in the analysis. Support for this comes from Gul and Zhao (2001) who found that the percentage of shares held by directors and supervisory board members are not significant in regressions of firm performance in China.

4.3 Profitability

In the regressions, the profitability instrument that is applied is return on assets (ROA), which is an independent variable. The return on assets is applied is the EBIT over total assets model, rather than the typical net income over over total assets. As EBIT represents operating profit, EBIT over total assets should give a better estimate of performance regardless of the leverage or any favored tax treatment.

A number of empirical studies have been conducted studying the relationship between leverage and profitability. For example, leverage is found to be negatively correlated with profitability in both the US and Japan (Kester & Kolb, 1991), in developed economies (see for example Bevan & Danbolt, 2004; Rajan & Zingales, 1995), and in developing economies (see for example Booth *et al.*, 2001; Fraser *et al.*, 2006). Studies so far in China find a negative correlation between leverage and profitability (Huang & Song, 2006; Tong & Green, 2005; Zhang *et al.*, 2002). Never the less, in China, it is possible that the higher the proportion of state holdings to debt, being an indication of state capital assistance via policy lending, which is an indicator of state benevolence and support, and a reduced cost of debt and the opportunity for higher firm performance (Chen & Gong, 2000). Despite this possibility, it is expected that a negative correlation between leverage and profitability will be found.

4.4 Size

The next independent variable applied is firm SIZE which controls for the size effect. Fama and French (1995), found that size is a factor in the returns of a firm. In the case of China, bigger SOEs have potentially greater government control and evoke more bureaucracy and agency problems, and increased redundancy.

By and large, empirical studies in developed economies have found leverage to be positively related to company size (see for example Booth *et al.*, 2001; Rajan & Zingales, 1995; Wald, 1999a; Wald, 1999b). In a study of firms in China, Huang and Song (Huang & Song, 2006) found that leverage increases with size.

While there are many different proxies for size, in this study, the natural logarithm of market value of the firm is used.

4.5 Growth

Growth represents the growth opportunities of a firm. Generally, empirical studies in developed economies have found leverage to be positively related to company growth opportunities (see for example Booth *et al.*, 2001; Rajan & Zingales, 1995; Smith & Watts, 1992; Wald, 1999a; Wald, 1999b).

While there are many different proxies for growth opportunities, this study follows Booth *et al.* (2001) and others and use the market-to-book ratio of equity to proxy for future growth opportunities.

4.6 Tax Shield

Tax or more precisely tax shields, represents the non-debt tax shields for the firm. The proxy used in this study is the tax deduction for depreciation over total assets. It is suggested that

tax shields are a proxy for the tax benefits that debt financing provides (DeAngelo & Masulis, 1980). Thus, a firm with a greater proportion of tax shields is predicted to employ less debt. The ratio of depreciation to total assets is applied by Wald (1999), and this study follows this and uses depreciation over total assets to represent tax shields, and following previous studies, expect to find that leverage is negatively correlated with tax shields.

4.7 Tangible assets

The variable Tangible Assets represents the tangibility of the firm and tests the relationship between tangibility and leverage. The proxy used in this study is tangible assets over total assets. It is suggested in the literature that tangibility should be correlated positively to capital structure (Jensen & Meckling, 1976). Generally, empirical studies in developed economies have found leverage to be positively related to tangibility (see for example Rajan & Zingales, 1995; Wald, 1999a; Wald, 1999b). It is unknown as to how this relationship will be played out in China, however tangibility is expected to have a similar relationship.

4.8 Dividend

The variable Dividend represents the dividend and bonus payments of the firm and tests the relationship between leverage and dividends and bonuses. Following Fama and French (2002), the proxy used in this study is dividend and bonus payments data, as provided by TEJ, over total assets.

The literature suggests that firms with higher investments have long-term dividend payouts that are lower (Fama & French, 2002). According to the agency theory, dividends and debt may control perquisite consumption by management arising from free cash flow. How this

impacts on the situation in China is not clear, however higher dividends payments are expected to be correlated negatively with leverage.

4.9 Age

Age represents the total age of firm taken as number of years the firm has been in operation. The variable follows Zou and Xiao (2006) who suggest that the age of the firm may influence its leverage in China.

4.10 Government Grants

The variable grant is Government Grants scaled by total assets and is included to test the significance of Government Grants and thus direct state support on the leverage of listed firms in China. The sign is expected to be negative as the more state support is provided the less the reliance on debt capital.

4.11 Chairman and President

The variable Chairman and President is a dummy variable taken as 1 if the Chairman and President are the same person and 0 if they are not. In the corporate governance literature if the chairman and president's positions are not separated, it is an indication of relatively poorer corporate governance and thus impact on the performance of a firm (Palmon & Wald, 2002). In this study it is included to determine if there is any relationship with the leverage of a firm in China.

4.12 Auditing Firm

Consistent with agency theory and the monitoring of firms, prior studies have found a relationship between high quality auditing firms, leverage and audit committee activity (Collier &

Gregory, 1999). In this study it is a dummy variable taken as 1 if the accounting firm used is a high quality “Big Six” international auditing firm.

4.13 Industry

The industry variable is included to control for the industry in which the firm is involved. Lindenberg and Ross (1981), suggest that the industrial organization has a significant bearing upon the performance of firms because they are affected by similar economic and business conditions and risks. In all, there are 21 similar industries observed (see the list provided under Descriptive Statistics, Table 2).

5. Descriptive Statistics

The descriptive statistics are shown in Table 1 below. As observed, there is a wide variation in leverage, the maximum being 200,261.50 and a minimum of -8,754.55. Of the independent variables, State Shares averaged 41.28%, Legal Person Shares averaged 19.43, Public Shares averaged 30.45 and Foreign Shares 3.17%.

Tax Shield and Government Grants over Assets had the lowest standard deviation whereas Leverage was exceptionally high and Dividends and Bonus Payment over Assets was also high.

Table 1: Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
Leverage	136.83	48.64	200,261.50	-8,754.55	3,027.85	6204
State Shares (%)	41.28	45.38	100.00	0.00	25.94	6220
Legal person Shares (%)	19.43	10.76	100.00	0.00	22.71	6220
Public Shares (%)	30.45	30.32	100.00	0.00	15.42	6220
Foreign Shares (%)	3.17	0.00	99.00	0.00	9.55	6220
ROA-EBIT	2.12	3.19	51.17	-215.96	10.85	6204
Growth (MBV)	0.65	0.31	40.93	0.03	1.05	6204
Size	13.05	12.83	18.43	10.84	1.12	6220

Div Bonus Payment	-1.66	0.00	3,333.62	-1,617.56	99.47	1678
Tax Shield	0.03	0.02	1.26	-0.04	0.03	5224
Tangibility	0.97	0.99	1.04	0.20	0.06	6204
Gov Grants	0.00	0.00	0.42	0.00	0.01	6204
Total Age of Firm	22.58	13.94	104.13	5.08	18.23	6220
Industry	4.80	6.00	9.00	1.00	2.13	6220
Chair&PresSame	0.09	0.00	1.00	0.00	0.28	6220
AUDT Big6	0.08	0.00	1.00	0.00	0.27	6220

Table 2 below lists the industry classifications as applied in this study in alphabetical order and provides the descriptive statistics and the industry code used. The largest number of firms is in *Chemicals*, with the least number in *Telecom*. *Others* is the largest sector with a market value of Rmb 7,728,114 million and *Utilities* is next with Rmb 4,526,094 million. *Others* also has the highest average market value at Rmb 4,526,094 million and *Wire & Cable* is next with Rmb 156,072 million.

Table 2: Industry Statistics as at 31 December 2003

Industry Classification	Industry Code used in this Study	Number of Firms in Industry	MV of Industry (Rmb Mill.)	Average MV (Rmb Mill.)
Automobile	1	26	116,795	7,582
Cement	3	15	113,728	4,492
Chemicals	4	102	1,331,130	11,687
Conglomerate	5	12	140,243	41,232
Construction	6	62	1,424,923	28,267
Electrical Appliances	7	82	1,881,221	91,316
Electronic Technology	8	98	2,858,327	46,201
Foods	9	79	2,236,197	38,737
Glass/Ceramics	10	11	453,548	13,050
Plastics	11	28	1,084,637	87,709
Pulp/Paper	12	20	565,333	22,983
Retailing	13	62	1,999,784	22,942
Steel	14	34	2,275,818	32,255
Telecom	15	10	913,160	28,306
Textile	16	80	3,885,285	66,936
Tourism	17	20	924,014	29,167
Transportation	18	40	4,224,656	48,566
Utilities	19	29	4,526,094	105,616
Wire & Cable	20	16	1,403,346	156,072
Others	21	39	7,728,114	198,157

Data Source: Collated from Industrial classifications listed in the media and provided by TEJ (2003).

6. Results of the Study

Various tests are run to check for normal distribution, heteroscedasticity, correlation and multicollinearity. The variables are relatively normally distributed and a Pearson Correlation test indicates that state and LP ownership are highly correlated at -84.98%, otherwise no variables are significantly correlated in the regressions as run. As state ownership and LP ownership are highly correlated, the regressions are run separately for these variables. Collinearity tests show no significant multicollinearity.

The results of the regressions against leverage as previously described are presented in Table 3 and Table 4 below which reports the variable coefficients and the statistics for each regression, as well as the adjusted R².

Table 3: Results Including Legal Person Shares

	Coefficient	Std. Error	t-Statistic	Prob.
C	251.63	97.30	2.59	0.98%
Legal person Shares (%)	0.16	0.17	0.95	34.32%
Public Shares (%)	0.14	0.27	0.50	61.90%
Foreign Shares (%)	1.85	0.65	2.85	0.44%
ROA-EBIT	-3.43	0.44	-7.72	0.00%
Growth (MBV)	-145.77	28.93	-5.04	0.00%
Size	-11.45	5.58	-2.05	4.03%
Div Bonus Payment	0.01	0.04	0.19	84.80%
Tax Shield	-322.39	199.62	-1.62	10.65%
Tangibility	-2.62	68.71	-0.04	96.96%
Gov Grants/Assets	-309.88	738.31	-0.42	67.48%
Total Age of Firm	0.49	0.19	2.55	1.09%
Industry	4.37	1.68	2.59	0.97%
Chair&Pres-Same	-12.50	12.79	-0.98	32.85%
Audt Big6	-12.49	14.21	-0.88	37.97%
Adjusted R-squared	5.84%		n	1673

Table 4: Results Including State Shares

	Coefficient	Std. Error	t-Statistic	Prob.
C	271.03	94.35	2.87	0.41%
State Shares (%)	-0.09	0.16	-0.58	56.52%

Public Shares (%)	0.07	0.29	0.24	81.28%
Foreign Shares (%)	1.77	0.67	2.65	0.81%
ROA-EBIT	-3.42	0.44	-7.70	0.00%
Growth (MBV)	-143.17	28.73	-4.98	0.00%
Size	-12.21	5.49	-2.22	2.62%
Div Bonus Payment	0.01	0.04	0.17	86.64%
Tax Shield	-328.75	199.72	-1.65	9.99%
Tangibility	-3.67	68.82	-0.05	95.74%
Gov Grants/Assets	-322.97	738.84	-0.44	66.21%
Total Age of Firm	0.47	0.19	2.47	1.35%
Industry	4.37	1.69	2.59	0.96%
Chair&Pres-Same	-12.28	12.79	-0.96	33.71%
Audt Big6	-12.80	14.31	-0.89	37.13%
Adjusted R-squared	5.80%		n	1673

As indicated by the results of the regressions using unbalanced panel data, the evidence holds that the profitability does have explanatory power as profitability is strongly negatively correlated with leverage.

As to ownership, the variable that is showing significance is Foreign Shares, which is positive and highly significant in both runs, showing that leverage is found to decrease with foreign ownership. Public ownership is positive also, whereas state is negatively related, but these are not significant.

The additional matters that are identified in the empirical analysis are that growth is relevant and highly significant, as high growth firms are found not to carry as much debt. Size is relevant and significant also, in that leverage increases with size in these firms listed in China. The tax shield is shown to be negative and significant at the ten percent level. The total age of firm is relevant and significant also, showing that leverage decreases with older firms. The industry is also found to be relevant and significant.

7. Conclusion

China has experienced outstanding growth as the reforms which began in the late 1970s gain momentum. As China moves towards a “socialist market economy” the reforms have been an important aspect of the outstanding economic growth that has been accomplished. In the corporate world the majority of small and medium and many large former SOEs have been privatised or partially privatised. The focus of this paper is on the interesting ownership mix of the listed firms, and the relationship between leverage, performance and a firm’s ownership structure. It is an exploratory study based on listed firms in China. The results of an empirical analysis of all firms listed on the Shanghai and Shenzhen stock exchanges from 1999 to 2005 are reported in this paper.

The most significant result is that foreign holdings are found to have a significant relationship with the leverage of listed firms in China. Whereas, somewhat unexpectedly, institutional ownership, through legal person holding companies, state ownership and private holdings are not found to have a significant relationship with the capital structure choices of firms in China. The results also suggest that some firm-specific factors that are relevant for explaining firm leverage generally referred to in studies in developed economies, such as profitability, growth opportunities, size and tax shields, are also relevant in China. The age of the firms and the industry to which they principally belong also has significant bearing. Yet direct government grants and the use of an internationally renowned auditing firm do not show a significant relationship. Generally, it is shown that better explanatory power is provided with the more recent data used in this study, suggesting that the Chinese markets may be maturing.

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