The Relationship between Debt and Nontradable Shares in China

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Abstract

This paper investigates the relationship between corporate leverage of Chinese listed firms and the level of non-tradable shares held by the state or state controlled institutions. We document that conflicts of interest arise between holders of non-tradable and tradable shares, whereby holders of non-tradable shares focus on the book value of their investment as opposed to the listed market value. The significant level of non-tradable shareholding in the Chinese stock market leads to a reversed pecking order theory whereby equity is preferred before debt. Our findings add a new dimension to the "twin agency problem" involving the coexistence of the state, corporate insiders and minority investors to explain a firm's capital structure decision.

We also find that leverage is positively related with size and asset tangibility and negatively related to non-debt tax shield, supporting the static or trade-off theory of capital structure; leverage is negatively related with profitability as predicted by the pecking order theory; and leverage is negatively related with TOBIN'S Q, providing support for an agency theory of capital structure.

I. Introduction

Traditional theories of capital structure are based on the static trade-off model and the pecking order hypothesis. Under the static trade-off model an optimal capital structure exists based on the tax advantage to debt offset by the increased risk of bankruptcy and agency costs of leverage (Modigliani and Miller, 1958, 1961; Bradley, Jarrell and Kim, 1984). In contrast, Myers and Majluf (1984) refute the concept of an optimal capital structure, arguing that due to information asymmetry and the signalling effect of debt and equity financing, firms rank their source of financing using a pecking order where retained profits come first, followed by debt and, lastly, equity financing. More recent research by Fama and French (2002, 2005), however, questions the ongoing reliance on both the static trade-off theory and the pecking order hypothesis, arguing that firms utilise the equity market so frequently that it is no longer possible to identify a clear sequence as predicted by theory.

Most prior studies on capital structure are based on evidence in Anglo-Saxon markets and developed economies (see Harris and Raviv, 1991 for a comprehensive review of theoretical and empirical studies on capital structure). More recent empirical studies have sought to enrich our understanding of the capital structure decisions of firms by providing international evidence from diverse jurisdictions and institutional settings and economies at different stages of economic development. For instance, Rajan and Zingales (1995) survey the capital structure in the markets of the G7 industrialised nations and find that institutional characteristics in each country contributed to different capital structures. Booth et al. (2001) investigate ten emerging markets that have completely different institutional settings, again finding evidence that institutional features play an important role in explaining variations of capital structure in these markets. Similarly, Deesomsak, Paudyal and Pescotto (2004) find that the legal, financial and institutional environment influences the capital structure decisions of firms in Australia, Thailand, Malaysia and Singapore in addition to firm specific factors.

This paper contributes to the literature by examining the determinants of capital structure of Chinese listed firms. Prior research on firm capital structure in the Chinese market is limited to a few studies. Chen (2004) finds some evidence that suggest insights of Anglo-Saxon theories on capital structure apply to China. While the data sample in this study was relatively small, containing only 88 listed firms[1]

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[1] The data set is called the Dow – China 88 index, created by Dow-Jones in May 1996.

from 1995 to 2000, the Chinese evidence shows support for equity over debt. Leverage was also negatively related to profitability and positively related to the level of tangible assets in place. However, Chen concluded that neither the trade-off theory nor the traditional pecking order theory provided a convincing explanation for the capital structure choice preference of Chinese firms.

An earlier study by Huang and Song (2002) examined the capital structure of 799 Chinese listed firms over the period 1994 to 2000. They also found that factors affecting firms' leverage in other countries explained leverage of Chinese firms, despite the institutional differences. Leverage was positively related to size, non-debt tax shield and the level of fixed assets and negatively related with profitability. Overall, Huang and Song concluded that the static trade-off model explained the features of capital structure in China better than the pecking order theory. However, Huang and Song also noted that Chinese firms had low levels of long-term debt and to explain this finding suggested that "*Chinese firms prefer and have access to equity financing once they go public as most firms enjoy a favourable high stock price*" (p.21).

In addition to testing the Anglo-Saxon capital structure theories this paper extends prior research on capital structure in the Chinese market by specifically investigating the linkage between the leverage of Chinese listed firms and ownership structure. A unique institutional feature of the Chinese stock market is the level of non-tradable shares (NTS) in listed firms. NTS constitute approximately two thirds of outstanding shares and are predominantly held by the state or state controlled entities. Apart from tradability, however, holders of NTS enjoy the same voting rights and entitlements to dividends as holders of tradable shares. Wu (2004) argues that the significant level of NTS held by the state or state controlled entities creates conflicts of interest between holders of NTS and tradable shares. We posit that holders of NTS seek to maximise the accounting book value of their investment in listed firms through new seasoned equity issues and this can explain why Chinese firms prefer equity to debt.

The unique institutional features of the Chinese market, along with the transitional nature of the economy and a different legal system, make China an interesting country to test if traditional capital structure theories apply to a developing market. We propose that the dominance of state control as holders of NTS adds an interesting new dimension to the debate on the "twin agency problem" (Stulz, 2005) when the role of the state impinges on the activities of the corporate sector in the financing decision. The remainder of the paper is organised as follows. Section II

reviews the institutional background on classes of listed shares and equity financing in China. Section III describes the data and methodology employed in this paper. Section IV discusses the empirical results and Section V concludes the paper.

II. Institutional Features of China's Capital Market

In this section we review the shareholding features of Chinese listed firms and new equity issues in the Chinese market. We argue that both these factors impact on the capital structure decisions of Chinese firms. In the Chinese market shares are initially classified based on the residency of investors: domestic (A shares) and foreign currency (B shares, H shares and N shares). The regulatory body, China Securities Regulatory Commission (CSRC), has ruled that only shares issued to public investors are allowed to be freely traded on the secondary market after a firm's Initial Public Offering (IPO).

Domestic A shares are restricted to domestic investors and denominated in the local currency, renminbi (RMB). Subsequent to an IPO, domestic A shares that are issued to individual investors and domestic financial institutions can be freely traded in the open market.[2] Most shares retained by the state and government related institutions are, however, classified as NTS that cannot be traded or sold on the open market. NTS include state shares, legal person shares and other non-tradable share classes[3] held by central government, local governments, or 100% government owned State Owned Enterprises ("SOEs"). Legal person shares are held by domestic non-individual legal entities, typically non-bank financial institutions or SOEs that have at least one non-state owner. Most legal person shares are indirectly held under state ownership. For instance, among the 1160 listed firms Qu (2003) surveyed in 2001, 930 listed firms (84%) were under state control, in which 94 firms (8.5%) were

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[2] In a survey on IPOs from 1994 to 1999, Su (2004) shows that on average 28% of shares are issued to the public as tradable A shares. Green (2003) calls the listing of SOEs "one third privatisation", in that approximately one third shares go to private ownership and the rest remain in state control, although the retention of direct state holding in IPOs has declined dramatically in recent years (Li, Foster and Naughton, 2005)

[3] There are many minor non-tradable share classes not included in state shares or legal person share categories, constituting around 1% of outstanding shares in the market.

through direct state ownership and 836 firms (75.6%) indirectly through legal person share ownership. [4]

Foreign Shares primarily comprise B shares, H shares, and N shares. B shares are denominated in foreign currencies, generally in US dollars on the Shanghai Stock Exchange and the Hong Kong dollars on the Shenzhen Stock Exchange. They are issued to foreign investors[5] but traded in domestic markets within China. H shares and N shares are issued to foreign investors and traded in foreign markets, with H shares listed in Hong Kong and N shares in New York (issued as depository receipts).[6] All foreign shares are tradable. Under China's Security Law, all shares (tradable and non tradable, domestic and foreign) are entitled to the same cash-flow rights and voting rights, regardless of ownership characteristics. Table 1 gives a summary of the share classifications in the Chinese market.

Insert table 1 about here

Non Tradable Shares (NTS) and Corporate governance

Tradable shares account for approximately one third of the total issued equity in the Chinese market for listed stocks. This predominant shareholding and control by the holders of the NTS precludes any take-over bid for many Chinese firms including the listed SOEs.

Clarke (2003), Xu and Wang (1999) and Su (2005) argue that state control of many Chinese listed entities leads to non-alignment of interests between state shareholders and minority shareholders. First, government officials, who represent the state and who draw their income from the government payroll are more politically than commercially oriented. These government officials have lesser incentives to increase the value of state assets compared to holders of tradable shares.

Second, legal protection for minority shareholders in China is weak where one shareholder or group of shareholders have a controlling stake in the firm. Thus, state controlled firms have incentives to engage in tunnelling funds from listed firms to controlling parent firms and undertake related party transactions to the determinant of

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[4] According to Sun and Tong (2003), legal person shares are quite similar to state shares in that they are both under government control and not tradable in the open market.

[5] From June 2001, local investors were allowed to own B shares under new CSRC regulations.

[6] In addition a small number of firms have shares issued on other major stock exchanges around the world.

other minority shareholders. Bai et al (2004) find evidence that parent companies expropriate other shareholders through various business dealings with the firm or by connected transactions. Fu (2004) also finds that listed firms engage in tunnelling activities in the form of issuing guarantees for related firms controlled by the same parent firm. In summary, where holders of NTS are the most significant shareholder in a Chinese listed firm, the traditional principal-agent conflicts and debt-equity holder conflicts may give way to more significant conflicts between the state as the controlling shareholders of NTS and the remaining shareholders of tradable shares.

Non Tradable Shares (NTS) and Equity underpricing

A further feature of the Chinese equity market is the significant underpricing of IPOs. For example Su (2004) reports average IPO underpricing of 124.2%. Chen et al (2004) also report significant average IPO underpricing of 298% by issuers of Chinese equity between 1993 and 1998 and an average book to market ratio of 0.24 on the day of listing. This is equivalent to a market listed price of about four times the book value per share immediately subsequent to an IPO.

Wu (2004) argues that the potential to issue new equity at a significant premium to book value creates a conflict of interests where the value of the state shareholding in the listed firm is measured with reference to the accounting book value of the assets and not the listed market value. Under Chinese accounting standards state holders of the NTS recognise the fair value for a long term investment, such as stock investment, at its book value of equity as opposed to the market value. Thus, issuing new equity at a significant premium to book equity value is a mechanism for holders of NTS to increase their wealth or the value of their investment in the listed firm (in book terms) without bearing the downside risk of a share price decline (in market terms). Depending on the extent of the holding and the accounting conventions followed, the holders of NTS will either recognise increased book value in their consolidated financial accounts following a new issue at a premium or identify the increase in the explanatory notes to the accounts.

In the Chinese capital market there are two forms of seasoned equity offerings ("SEOs"), rights issues and public offerings. According to the data from CSRC, Chinese listed firms raised 279 billion RMB in SEOs (212 billion in rights issues and 67 billion in public offerings) from 1990 to 2002, compared with 430 billion RMB through IPOs during the same period. In China most new equity issues are by way of

a rights issue because the requirements for a rights issue are less strict than the requirements for public offerings.

Su and Fleisher (1999) report that 91% of the Chinese firms that went public before July 1994 issued seasoned equity before January 1, 1996. For the 308 issuers in their sample, the size of the SEO was much bigger than the size of the initial IPO. On average, each SEO raised US$114.42 million, compared with US$16.83 million US$ in the IPO. Similarly, Chen et al. (2004) found that the proceeds raised from SEOs in the next two years after an IPO are on average 1.62 times the funds raised in firms' IPOs. Su and Fleisher (1999) also found that issuers with higher underpricing in an IPO are more likely to issue equity through SEOs than issuers with low underpricing.

In a rights issue all shareholders (including the holders of NTS) are offered the opportunity to subscribe for new shares. However, Wu (2004) shows that holders of NTS gave up 84.3% of their rights entitlements in 1999 and 86.3% of their entitlements in 2000. Wu's evidence suggests that holders of NTS typically give up their rights entitlements and do not participate in the new issue, despite the dilution of their proportionate ownership interest.

Under most rights issues by Chinese listed firms the price for new shares is at a premium to the underlying book value per share but at a discount to the listed market price. Yuan (2002) reports that Chinese firms offer the new shares under a rights issue at an average discount of 54% to the closing stock price 30 days prior to the announcement. However, we posit that holders of NTS have incentives not to participate in the new issue despite dilution of their ownership for the following reasons. First, the significant level of IPO underpricing and the low average book to market ratio means the issuance of new equity at a premium to the book value ensures that holders of NTS can increase the book value of their investment in the listed firm without bearing any "transparent risk" of an actual market price decline in the shares.

Second, any new equity subscribed by holders of NTS will continue to be classified as NTS that are unable to be sold freely in the open market. Although not tradable in the open market, NTS can potentially be transferred outside stock exchanges in the form of a private transfer and irregularly scheduled auctions[7] (Chen and Xiong

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[7] The off-exchange transfer does not change the non tradable nature of NTS, which remain not tradable in the open market.

(2001)). However, Chen and Xiong found that the transfer price of NTS is on average only around 20% of the open market share price, implying an 80% liquidity discount (77.93% for auctions and 85.59% for private transfer). Green and Black (2003) in their study of 840 NTS transactions of listed firms on the Shenzhen Stock Exchange from 1994 to 2002 also found the average transfer price ranged from 2.59 RMB (US$0.31) in 1998 to 2.14 RMB (US$0.28) in 2002, compared with an average market listed price of 10 RMB (US$1.25). Holders of NTS therefore do not have incentives to subscribe for new equity where the price of new equity offered under a rights issue or SEO will exceed the "market value" of the NTS if sold by private transfer or auction.

Lastly, similar to other markets, rights and other seasoned equity issues by Chinese listed firms are associated with a negative stock price reaction to the announcement (Han and Li 2002, Zhang and Wang 2001) [8] Sun and Tong (2003) also note that ongoing SEOs by Chinese listed firms lead to a deterioration in the firm's operating performance as measured by the return on assets and return on equity. Any firm underperformance (unless the firm enters into bankruptcy) does not, however, directly impact on the wealth of holders of NTS since their shares are not tradable and firm underperformance does not directly affect the book value of the investment. In contrast tradable shareholders primarily bear the costs of underperformance through a decline in the share price.

In summary we posit that the incentives of holders of NTS to increase their wealth (as recognised by the book value of their equity investment in the listed firm) leads to conflicts of interest whereby holders of NTS prefer the listed entity to issue equity rather than debt to source new funds. Holders of NTS also have incentives for firms to issue new equity to increase the book value of their investment in the firm even where the firm lacks any good project or requires funds for a positive net present value investment. Additional equity finance as opposed to debt funding enables holders of NTS to engage in greater levels of tunnelling activities or related party transactions to the detriment of the holders of tradable shares.

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[8] On the other hand Yuan (2002) reports a positive price reaction to rights issues announcements.

III. Data and Methodology

Data

Data is sourced from the Mainland China Database developed and maintained by Taiwan Economic Journal. The database contains annual financial statements, share prices and ownership data of all listed firms on the Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE) since 1990. We limit our sample to firms that only issued A shares.[9] We also exclude financial and real estate firms from our sample, where specific industry characteristics may influence the firm's capital structure decision compared to other Chinese listed entities.

Our initial sample includes 1179 firms listed on SHSE and SZSE at the end of 2002. We exclude observations before 1994 because of major accounting practice changes in mid 1993 (Sun and Tong 2003).[10] We also exclude 31 observations with negative book value of equity and observations with less than 2 years of continuous data.[11] Our final sample contains 941 firms with 4884 observations from 1994 to 2002.

Dependent Variable – Leverage

Our study uses four measures of leverage: two book measures and two market measures. The book leverage ratios are BTL and BTD. We define BTL as total non-equity liabilities to total assets following Rajan and Zingales (1995). BTD is defined as total book value of debt (including the current and long term portion of debt) to debt plus the book value of equity. In our market measures of leverage we replace the book value of equity by the market value of equity (equal to the total number of NTS and tradable shares outstanding multiplied by the listed share price at the financial year end). In the absence of a tradable market for debt, however, we use book value as a proxy for the market value of debt. Thus, we define MTL as total liabilities divided by total assets less the book value of equity plus the market value of equity. Similarly, we define MTD as current and long term debt divided by the sum of debt plus the market value of equity. Our measures of leverage are summarised in Table 2.

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[9] Because of different rules and requirements of foreign share listing, we believe that firms with foreign ownership (B share, H share and N share) may have different capital structures and thus we exclude these firms from our sample.

[10] In 1993 Deloitte, Touche and Tohmatsu (2000) were also engaged to develop new Chinese accounting standards more consistent with International Accounting Standards.

[11] This is to enable us to undertake panel regression analysis.

Insert table 2 about here

Independent Variables

Our independent or explanatory variables to explain the capital structure of Chinese listed firms are discussed below.

Ownership Variables

We define the variable NTRADE to represent the overall holding of NTS in the firm's ownership structure, and is equal to the total number of NTS over the number of NTS and tradable shares.

We posit that holders of NTS have incentives for listed Chinese firms to issue new equity to holders of tradable shares or other outside investors at a premium to the underlying book value. When issuing new equity, owners of NTS typically do not participate in the issue and thus their overall percentage ownership in the firm after the issue of new shares is diluted. The issuance of new equity will reduce the leverage of the firm, leading to a positive relationship between non-tradable share holding (NTRADE) and leverage. Thus we hypothesise that:

Hypothesis 1a: *Leverage will be positively related to the level of non-tradable share ownership.*

Holders of NTS may, however, have incentives to prevent the listed firm from issuing new equity if this were to result in loss of effective control of the firm. That is, where the holders of NTS do not participate in new equity issues at some critical level of shareholding the loss of effective control of the firm (and the ability to engage in tunnelling activities and other related party transactions) will outweigh any gains from an increase in the accounting book value of their investment in the firm. Thus, to avoid loss of control in the firm, at lower levels of percentage ownership non-tradable shareholders may have incentives for the firm to issue debt rather than additional equity. Participating in any new issue by holders of NTS to maintain effective control and their proportionate shareholding in the firm would still not be an attractive option when any new shares subscribed would still be classified as non-tradable.

Thus, we hypothesize that the relationship between the level of leverage and non-tradable share ownership will be non-linear or "U" shaped. At low levels of non-tradable share ownership, the remaining holders of tradable shares will have greater influence over the investment and financing decisions of the firm. These shareholders will be opposed to new equity issues where this is associated with firm underperformance. That is:

Hypothesis 1b: *Leverage will be positively (negatively) related to the level of non-tradable share ownership when level of non-tradable shareholder ownership is high (low) and holders of NTS have a controlling (non-controlling) interest in the firm.*

To capture any non-linearity in the relationship between leverage and ownership structure we follow a similar approach to that of Mørck, Shleifer and Vishny (1988) and define:

NTRADEHIGH	=	If NTRADE ≥ 50%, then NTRADEHIGH = NTRADE – 0.50; else NTRADEHIGH = 0
NTRADEINT	=	If 20% ≤ NTRADE < 50%, then NTRADEINT = NTRADE – 0.20; else NTRADEINT = 0
NTRADELOW	=	If NTRADE < 20%, then NTRADELOW = NTRADE else NTRADELOW = 0

We use critical break points of 20% and 50% for the following reasons. At less than 50% shareholding holders of NTS lose majority control in the firm and at less than a 20 % stake in the firm we propose that holders of NTS lose significant influence over the activities of the firm.

Asset Tangibility

We define asset tangibility (TANG) as total fixed assets divided by total assets. The static trade-off theory of capital structure suggests that firm leverage should be inversely related with the possibility of bankruptcy. Firms with high tangible assets should have low bankruptcy risk, in that tangible assets could have high liquidation value during bankruptcy and allow more debt, implying a positive relationship between leverage and asset tangibility. Agency theory (Jensen 1986) makes the same prediction, suggesting that tangible assets could serve as good collateral in time of bankruptcy, thus incurring lower agency costs for debt. Thus, we expect that

firms with more fixed assets in place can get easier access to debt financing, and will use more debt in their capital structure. We therefore predict a positive relationship between TANG and leverage.

Hypothesis 2: Leverage is positively related with asset tangibility (TANG).

Size

We define size (SIZE) as the natural logarithm of total assets to proxy for firm size.

Under the static trade-off model of capital structure, size could proxy for bankruptcy costs (Kim 1978) in that bigger firms have lower risks of bankruptcy and can get more access to debt. In addition bigger firms in China usually get more political support from the government, have better access to financial support and soft loans from state own banks, leading to high leverage. Thus, we hypothesise:

Hypothesis 3   Leverage is positively related with firm size (SIZE).

Profitability

Profitability (ROA) is defined as the operating income or earnings before interest and tax ("EBITDA") scaled by total assets, as in Rajan and Zingales (1995) and Booth et al. (2001). As predicted by the pecking order theory of Myers (1977), profitable firms will use less debt in their capital structure, suggesting a negative relationship between profitability and leverage. Empirical studies, both in the US (Friend and Lang 1998) and other markets (Rajan and Zingales 1995; Booth et al 2001) show that profitability is negatively related with leverage, supporting the pecking order theory of capital structure. However, the tax-based trade-off model of Kim (1978) predicts the opposite: profitable firms should issue more debt to utilise the tax benefits of debt, leading to a positive relationship between profitability and leverage.

In China the CSRC has imposed rules that allow issues of new equity by profitable firms only. In part these rules were introduced in response to the significant equity raising through SOEs subsequent to an IPO.[12] Thus, only profitable firms can issue new equity and reduce their leverage, leading to an inverse relationship between

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[12] To qualify for a rights issue, listed firms must now achieve a minimum three year average return on equity (ROE) of 10%. Subsequent to the introduction of these new rules Chen and Yuan (2004) found that there was a concentration of ROEs just above the 10% mark. They also show that such ROEs were mainly achieved through earnings management.

profitability and leverage. This inverse relationship between leverage and profitability is supported by Chen (2004). Therefore, we predict the same negative relationship between profitability and leverage, but for reasons in addition to the pecking order hypothesis.

Hypothesis 4   Leverage is negatively related with profitability (ROA).

Effective Tax rate

We define the effective tax rate (EFTAX) as tax expense divided by earnings before tax. As tax is a critical determinant in western capital structure theory, we include this variable to see if the same impact will be found in China. However, the tax system in China is different from that in western countries, and is continuing to undergo major reforms as part of wider economic reforms (Lin 2004). Historically corporate tax was not an important revenue source for the Chinese government when the majority of economic activities were carried out by controlled SOEs. Profits from SOEs, as opposed to corporate taxes, provided most of the revenue for government. However, with increasing corporatization and private ownership revenue from corporate tax has become a more significant issue for the government. On the other hand local Chinese government authorities have established Special Economic Development Zones to encourage outside investment with beneficial tax policies which has further complicated the effective tax rate across different firms (Lin 2004). This may explain why Chen (2004) found no significant relationship between the effective tax rate and leverage. Thus, while we include this variable in our regressions, we do not make any specific predictions.

Hypothesis 5   There is no significant relationship between leverage and the effective tax rate (EFTAX).

Non Debt Tax Shield

Following, Wald (1999) we define the non debt tax shield (NDTXSH) as depreciation expense to total assets. As predicted by the static trade off theory of capital structure, the value of the tax shield from debt should be worth less if firms employ other non-debt tax shield, such as depreciation. This suggests an inverse relationship between leverage and non-debt tax shield. However, consistent with hypothesis 5, we do not make specific predictions.

Hypothesis 6 There is no significant relationship between leverage and non debt tax shield (NDTXSH).

Growth Variable

Following, Rajan and Zingales (1995), we define growth (TOBIN'S Q) as total assets minus the book value of equity plus the market value of equity divided by total assets. Agency theory (Jensen 1986, Stulz 1990) suggests that a firm's growth could be negatively related with leverage. When firms have strong growth prospects, the agency cost of debt will be significant, making debt expensive to firms and leading to greater reliance on equity to finance growth opportunities. This expectation is supported empirically by US evidence (Lang et al. 1996) and internationally (Rajan and Zingales 1995, Booth et al. 2001).

In the Chinese market TOBIN'S Q could proxy for overvaluation of assets in place of the firm based on the listed market price. Thus, firms with higher TOBIN'S Q may be more likely to issue new equity to take advantage of an overvalued share price, which will bring down leverage. Therefore, we forecast a negative relationship between leverage and TOBIN'S Q.

Hypothesis 7 Leverage is negatively related with TOBIN'S Q.

Table 3 gives a summary of the independent variables and our empirical predictions.

Insert table 3 about here

Regression Models

Our basic empirical model is a regression of our measures of leverage (LEV) against the independent variables, including the ownership variable (NTRADE), and the variables asset tangibility, size, profitability, effective tax rate, non-debt tax shield and TOBIN'S Q.

$$LEV = \alpha + \beta_1 NTRADE + \beta_2 TANG + \beta_3 SIZE + \beta_4 ROA + \beta_5 EFTAX + \beta_6 NDTXSH + \beta_7 TOBIN'S\ Q + \varepsilon \tag{1}$$

To investigate the non-linearity between leverage and ownership structure we also replace the variable NTRADE in the above model as follows:

$$LEV = \alpha + \beta_1 NTRADEHIGH + \beta_2 NTRADEINT + \beta_3 NTRADELOW + \beta_4 TANG + \beta_5 SIZE + \beta_6 ROA + \beta_7 EFTAX + \beta_8 NDTXSH + \beta_9 TOBINSQ + \varepsilon \qquad (2)$$

Because our sample contains data across firms and over a time period of 9 years we report Newey West (1987) adjusted t-statistics in our pooled OLS regressions. We also employ the panel data methodology using the fixed effects model.

IV. Empirical Findings

Descriptive Statistics

Table 4 presents the descriptive statistics of leverage and independent variables. Chinese firms have much lower leverage compared with those in other countries. The mean BTL is only 38.04%, while in Rajan and Zingales (1995) BTL ranged from 57% (United Kingdom) to 72% (Germany). The mean BTD is 9.10%, well below the US (37%), Germany (39%), and United Kingdom (29%). The market leverage is even lower based on our measure of market capitalization. The mean MTL is 15.24%, compared with 44% in the US, 56% in Germany and 42% in the U.K. Mean MTD is even lower at only 3.30%, compared with 32% in the U.S. and 23% in the U.K. Our results are similar to that of Huang and Song (2002) and Chen (2004), although such studies used smaller samples and relate to earlier periods than covered in this study.

The non tradable ownership variable (NTRADE) has a mean of 64.06%, meaning that on average holders of NTS effectively control listed firms. Mean return on assets (ROA) is 3.11%, suggesting that on average operating performance is poor for Chinese firms. However, average TOBIN'S Q is high with a mean of 3.27.[13]

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[13] We also tested for the correlation between all variables in our regression model. The book and market measures of leverage are significantly correlated with each other, with a correlation coefficient between BTL and MTL at 0.69, and between BTD and MTD of 0.72. The independent variables display some correlation with leverage, with ROA significantly and positively correlated with leverage (BTL), and SIZE negatively with leverage (MTL). The correlations between the independent variables are low, except that NDTXSH is correlated with TANG with a coefficient of 0.53, and size is negatively correlated with TOBIN'S Q with a coefficient of -0.43.

Insert table 4 about here

Regression results

Table 5 presents our regression results. As predicted, NTRADE is positively related to leverage in most models. In the pooled OLS regressions NTRADE is positively related to leverage at the 10% level when leverage is measured by BTL (Panel A of Table 5). In the fixed effects models, NTRADE is positively related to all variables proxying for leverage (Panels A to D), with the coefficients are significant at the 1% level. When the variable NTRADE is split into NTRADEHIGH, NTRADEINT and NTRADELOW, leverage as measured by BTL and MTL is positively and significantly related (at the 10% level or better) to NTRADEHIGH in the pooled OLS models (Panels A and C of Table 5). In the fixed effects model NTRADEHIGH is significantly and positively related to all four measures of leverage (Panels A to D).

The positive relationship between NTRADE, NTRADEHIGH and leverage provides support for the prediction that Chinese firms with high levels of non-tradable share ownership tend to follow reverse pecking order and issue new equity in preference to retained earnings or debt finance. Issuing new equity lowers leverage but dilutes the non-tradable share ownership, leading to a positive relationship between leverage and ownership structure.

At lower levels of ownership by holders of NTS (as proxied by the variables NTRADEINT and NTRADELOW) there is no strong evidence of any relationship between ownership structure and leverage. Only in the fixed effects model the relationship between leverage and NTRADEINT is negative and significant at the 10% level or better when leverage is proxied by BTD and MTD (Panels B and D of Table 5).

In general, all measures of leverage are positively and significantly related with TANG and SIZE, and negatively and significantly related with ROA and TOBIN'S Q (except in the case of TOBIN'S Q with BTL and BTD as the dependent variable in the fixed effects model, Panels A and B of Table 5). EFTAX is insignificant, as predicted. However, NDTXSH is significantly negative in all regressions, except with leverage proxied by BTL in the fixed effects model (Panel A of Table 5). These results are largely consistent with predictions based on prior theoretical and empirical studies. The positive and significant relationship between TANG, SIZE and leverage supports both the trade-off and agency theories of capital structure. If size is a proxy for

bankruptcy costs (Kim 1978), it should be positively related with leverage, as bigger firms will have lower bankruptcy costs and can carry more debt than smaller firms. As noted, however, in the Chinese market larger firms may have greater access to the debt market and soft loans due to political and other influence by the state. The negative relationship between ROA and leverage supports the pecking order theory of capital structure where profitable firms have less debt. The variable TOBIN'S Q also displays a strong negative relationship with leverage, consistent with agency cost theory.

The insignificant relationship between EFTAX and leverage is consistent with the prediction that tax is not a determinant of capital structure for Chinese firms due to the complicated and inconsistent tax regime in China. However, the negative relationship between NDTXSH (proxy for non-debt tax shield) and leverage seems to contradict this argument. This result would seem to support the tax based theory of optimal capital structure, indicating that firms with higher non debt tax shield have low leverage (Kim 1978 and Wald 1999).

Insert table 5 about here

Further Tests

To further examine the relationship between leverage and ownership structure we construct "semi-market" leverage variables following Chen and Xiong (2001), and repeat our regression analysis. Since the intrinsic value of NTS is lower than the open market listed share price, the market capitalization of the firm is overstated by simply multiplying the number of shares outstanding by the closing share price. Following, Chen and Xiong (2001), we assume that the market value of NTS will be around one fifth the open market price. A "semi-market" capitalization composed of the tradable market capitalization (total tradable shares times by the listed share price) and an estimated market capitalization of NTS (20% of the listed share price times by the total number of NTS) is constructed to proxy for the true market value of the firm. Thus, we construct two new semi-leverage variables, semi market total liabilities (SMTL) and semi market total debt (SMTD), by replacing the market capitalization with semi-market capitalization in MTL and MTD used in previous regressions. We also construct a measure of TOBIN'S Q (SEMITOBIN'S Q) using the semi-market definition of the listed firm's market capitalization to proxy for the true market capitalization of the firm.

Table 6 gives the regression results using SMTL and SMTD as proxies for market leverage. Our results largely confirm the regression analysis in Table 5. In the pooled OLS and the fixed effects model the non tradable ownership variable (NTRADE) is positively and significantly related to both SMTL and SMTD, with the exception of the OLS model where leverage is measured by SMTD (Panel B of Table 6). The variable NTRADEHIGH is also significantly and positively related to SMTL and SMTD under both the OLS and fixed effects models. This supports our prediction that firms with higher NTS ownership have greater leverage. The variable NTRADELOW is significantly and negatively related to SMTL for both the OLS and fixed effects model (Panel A of Table 6) and significantly and negatively related to SMTD in the OLS model (Panel B of Table 6). In Panel B of Table 6 SMTD is significantly and negatively related to NTRADEINT. These results provide some support for the non-linearity in the relationship between ownership structure and leverage, suggesting that low levels of non-tradable share ownership is associated with higher firm leverage. Consistent with our results in Table 5 SMTL and SMTD is positively related to asset tangibility and size and negatively related to profitability, the level of non-debt tax shield and SEMITOBIN'S Q.

Insert table 6 about here

V. Summary and Conclusions

The Chinese market has some unique institutional and legal features. This includes a less developed debt market and a significant level of NTS held directly or indirectly by the state. It is therefore interesting to test if capital structure theories developed in the Anglo-US environment apply to China.

Our empirical results show that Chinese firms are less leveraged than their foreign counterparts. Overall, however, our other empirical results are in line with the predictions of western capital structure theories. Leverage is positively related with size and asset tangibility and negatively with non-debt tax shield, supporting the static trade-off theory of capital structure; leverage is negatively related with profitability as the pecking order theory would predict; and leverage is negatively related with TOBIN'S Q, providing support for the agency cost theory of capital structure.

The institutional setting of China, nevertheless, suggests that we should treat these findings with caution. First, the significant level of NTS held directly or indirectly by the state may lead to different financing decisions in Chinese stock markets where equity is the preferred form of finance. We argue that holders of NTS have incentives for listed firms to issue further equity subsequent to an IPO to increase both the book value of their investment in the firm and to obtain more funds to engage in tunnelling activities and other related party transactions. Our empirical results suggest that this positive relationship between state ownership and leverage leads to a reverse pecking order, where at high levels of non-tradable share ownership, new equity finance is preferred to retained earnings and debt finance. This dominance of state control as holders of NTS adds an interesting new dimension to the debate on the "twin agency problem" (Stulz, 2005) where the role of the state impinges on the activities of the corporate sector in the financing decision.

The Chinese market is also characterised by significant underpricing of IPOs. Our proxy for growth (TOBIN'S Q) could therefore represent over-valuation of assets in place. Existing shareholders and managers of firms with over-valued assets in place have incentives to issue new over-valued equity to outside shareholders which reduces leverage. This may also explain the observed negative relationship between leverage and TOBIN'S Q. The positive relationship between firm size and leverage may also result because of political and other state support which makes it easier for

big firms to obtain loans and soft debt finance and not due to bankruptcy considerations (Kim 1978). Lastly in the Chinese market only profitable firms are permitted under CSRC regulations to issue new equity. This legislative feature of the Chinese market may explain the negative relationship between leverage and profitability.

In summary, further research is warranted into the capital structure of firms in other markets where non-tradable shares comprise a significant proportion of the firm's equity. Also of further research interest is an examination of future trends in the leverage of Chinese firms if the State transfers its holdings into tradable shares and a corporate debt market develops.

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Table 1

Share Category	Share Class	Investor Residence	Share Tradability	Venue of Listing	Currency Denominated	Typical Shareholders
A Share	State Share	Domestic	Not Tradable	China	RMB	Central and local government
	Legal Person Share	Domestic	Not Tradable	China	RMB	Domestic Institutions
	Other Unlisted Share	Domestic	Not Tradable	China	RMB	Other Institutions (Non - Individual)
	Tradable A share	Domestic	Tradable	China	RMB	Individual Investors
B share		Foreign	Tradable	China	US$ or HK$	Foreign Investors
H Share		Foreign	Tradable	Hong Kong	HK$	Foreign Investors
N Share		Foreign	Tradable	New York	US$	Foreign Investors

Table 2
Dependent variable definitions

Leverage ratio (Abbreviation)	Definition
Book Total Liabilities (BTL)	total liabilities / total assets
Book Total Debt (BTD)	current and long term portion of debt/ current and long term portion of debt + book value of equity
Market Total Liabilities (MTL)	total liabilities / total assets-book value of equity + market value of equity
Market Total Debt (MTD)	current and long term portion of debt/ debt + market value of equity

All variables are determined at the financial year end over the years 1994 to 2002.

Table 3
Independent variable definitions and empirical predictions

Independent Variables (Abbreviation)	Definition	Empirical Prediction
Ownership Variable (NTRADE)	% of total non-tradable shares in total shares outstanding	+ve
(Ownership Variable) NTRADEHIGH	If NTRADE ≥ 50%, NTRADEHIGH = NTRADE – 0.50; else NTRADEHIGH = 0	+ve
(Ownership Variable) NTRADEINT	If 20% ≤ NTRADE < 50%, NTRADEINT = NTRADE – 0.20; else NTRADEINT = 0	?
(Ownership Variable) NTRADELOW	If NTRADE < 20% NTRADELOW = NTRADE; else NTRADELOW = 0	-ve
Asset Tangibility (TANG)	fixed assets / total book value of assets	+ve
Size (SIZE)	natural logarithm of total assets	+ve
Profitability (ROA)	operating income (EBITDA) / total assets	-ve
Effective Tax rate (EFTAX)	income tax expenses / earnings before tax	?
Non-debt tax Shield (NDTXS)	depreciation expenses / total assets	?
Growth Variable (TOBIN'S Q)	(book value of total assets - book value of equity + market value of equity) / book value of total assets	-ve

Table 4
Descriptive Statistics of Leverage and Independent Variables

The table presents the descriptive statistics for the firms in the sample over the period 1994 to 2002. Book total liabilities (BTL) is total liabilities divided by total assets; Book total debt ratio (BTD) is the book value of debt (current and long term portion of debt) to debt plus the book value of equity; Market total liabilities (MTL) is total liabilities divided by total assets minus the book value of equity plus the market value of equity (share price times by the total number of non-tradable and tradable shares outstanding); Market total debt (MTD) is the book value of debt to debt plus the market value of equity.

Variable	Mean	Median	Std Dev	Minimum	Maximum
BTL	0.3804	0.3727	0.1753	-0.0012	0.9954
BTD	0.0910	0.0327	0.1274	0.0000	0.9644
MTL	0.1524	0.1219	0.1217	-0.0003	0.9954
MTD	0.0330	0.0080	0.0640	0.0000	0.9560
NTRADE	0.6406	0.6628	0.1181	0.0000	0.9702
TANG	0.2806	0.2548	0.1900	0.0000	0.9344
SIZE	13.6549	13.6345	0.7991	10.7988	17.9344
ROA	0.0311	0.0321	0.0743	-2.6553	0.4449
EFTAX	0.1206	0.1218	0.2584	-2.0465	11.3010
NDTXSH	0.0162	0.0129	0.0177	-0.0219	0.7215
TOBIN'S Q	3.3222	2.8761	1.9044	0.2345	43.6686

Table 5
Regression Results

Panel A reports the results for book total liabilities (BTL), defined as total liabilities divided by total assets as the dependent variable; Panel B reports the results for book total debt ratio (BTD), defined as the book value of debt (current and long term portion of debt) to debt plus the book value of equity as the dependent variable; Panel C reports the results for market total liability (MTL), defined as total liabilities divided by total assets minus the book value of equity plus the market value of equity as the dependent variable; Panel D reports the results for market total debt (MTD), defined as debt to debt plus the market value of equity as the dependent variable. The independent variables are defined in Table 3. Results from pooled OLS and fixed effects models are presented (with t-statistics in parentheses).

Independent Variable	Predicted Sign	Pooled OLS	Fixed Effects	Pooled OLS	Fixed Effects
Panel A: BTL as dependent variable					
Intercept	?	0.2811	-1.0366	0.3860	-0.9122
		(3.00)***	(-11.83)***	(3.59)***	(-9.93)***
NTRADE	+ve	0.0007	0.0023		
		(1.96)*	(7.41)***		
NTRADEHIGH	+ve			0.0911	0.2409
				(1.78)*	(6.26)***
NTRADEINT	?			-0.0089	-0.0564
				(-0.15)	(-1.60)
NTRADELOW	-ve			-0.3318	0.0126
				(-1.25)	(0.07)
TANG	+ve	0.0908	0.1436	0.0918	0.1426
		(2.98)***	(8.41)***	(3.02)***	(8.34)***
SIZE	+ve	0.0099	0.0905	0.0093	0.0894
		(1.65)*	(18.24)***	(1.56)	(17.99)***
ROA	-ve	-0.7973	-0.3185	-0.7985	-0.3198
		(-4.86)***	(-12.74)***	(-4.88)***	(-12.75)***
EFTAX	?	-0.0132	-0.0022	-0.0130	-0.0020
		(-1.14)	(-0.37)	(-1.14)	(-0.33)
NDTXSH	?	-0.7990	-0.0688	-0.7986	-0.0691
		(-2.43)**	(-0.54)	(-2.44)**	(-0.54)
TOBIN'S Q	-ve	-0.0198	-0.0011	-0.0201	-0.0013
		(-4.97)***	(-1.04)	(-5.06)***	(-1.19)
F Statistic		123.2***			
F test for no fixed effects			11.10***		11.08***
R^2		0.150	0.769	0.151	0.769
No. of Obs.		4844	4844	4844	4844

*, **, *** denotes significance at 10%, 5% and 1% level, respectively

Independent Variable	Predicted Sign	Pooled OLS	Fixed Effects	Pooled OLS	Fixed Effects
Panel B: BTD as dependent variable					
Intercept	?	-0.1310	-0.4999	-0.1552	-0.4886
		(-2.26)**	(-7.01)***	(-2.48)**	(-6.54)***
NTRADE	+ve	-0.0150	0.0763		
		(-0.65)	(3.05)***		
NTRADEHIGH	+ve			-0.0243	0.0556
				(-0.76)	(1.78)*
NTRADEINT	?			0.0139	-0.0538
				(0.33)	(-1.88)*
NTRADELOW	-ve			0.0743	0.1830
				(0.65)	(1.26)
TANG	+ve	0.2374	0.1872	0.2375	0.1782
		(9.70)***	(12.83)***	(9.73)***	(12.80)***
SIZE	+ve	0.0158	0.0380	0.0160	0.0376
		(4.11)***	(9.40)***	(4.15)***	(9.29)***
ROA	-ve	-0.3896	-0.1201	-0.3878	-0.1179
		(-4.62)***	(-5.90)***	(-4.59)***	(-5.78)***
EFTAX	?	-0.0001	0.0062	-0.0001	0.0061
		(-0.01)	(1.28)	(-0.01)	(1.26)
NDTXSH	?	-0.6296	-0.3847	-0.6244	-0.3878
		(-3.20)***	(-3.69)***	(-3.19)***	(-3.72)***
TOBIN'S Q	-ve	-0.0084	-0.0008	-0.0082	-0.0008
		(-4.35)***	(-.91)	(-4.21)***	(-0.87)
F Statistic		135.8***		105.9***	
F test for no fixed effects			7.812***		7.82***
R^2		0.163	0.711	0.163	0.711
No. of Obs.		4844	4844	4844	4844

*, **, *** denotes significance at 10%, 5% and 1% level, respectively

Independent Variable	Predicted Sign	Pooled OLS	Fixed Effects	Pooled OLS	Fixed Effects
Panel C: MTL as dependent variable					
Intercept	?	0.0255	-0.5358	0.0560	-0.4846
		(0.45)	(-10.21)***	(0.84)	(-8.81)***
NTRADE	+ve	0.0375	0.1300		
		(1.62)	(7.07)***		
NTRADEHIGH	+ve			0.0698	0.1320
				(1.96)**	(5.73)***
NTRADEINT	?			0.0440	-0.0273
				(1.33)	(-1.29)
NTRADELOW	-ve			-0.0614	0.1165
				(-0.53)	(1.09)
TANG	+ve	0.0583	0.0851	0.0583	0.0853
		(3.35)***	(8.33)***	(3.36)***	(8.32)***
SIZE	+ve	0.0162	0.0461	0.0158	0.0454
		(4.16)***	(15.52)***	(4.01)***	(15.24)***
ROA	-ve	-0.4602	-0.2226	-0.4607	-0.2222
		(-15.80)***	(-14.87)***	(-15.86)***	(-14.79)***
EFTAX	?	-0.0053	0.0013	-0.0052	0.0014
		(-1.52)	(0.36)	(-1.51)	(0.38)
NDTXSH	?	-0.4593	-0.1467	-0.4613	-0.1482
		(-2.46)**	(-1.91)*	(-2.47)**	(-1.93)*
TOBIN'S Q	-ve	-0.0339	-0.0230	-0.0340	-0.0230
		(-13.92)***	(-36.33)***	(-13.79)***	(-36.22)***
F Statistic		423.9***		330.5***	
F test for no fixed effects			10.81***		10.77***
R^2		0.379	0.828	0.380	0.828
No. of Obs.		4844	4844	4844	4844

*, **, *** denotes significance at 10%, 5% and 1% level, respectively

Independent Variable	Predicted Sign	Pooled OLS	Fixed Effects	Pooled OLS	Fixed Effects
Panel D: MTD as dependent variable					
Intercept	?	-0.0655	-0.2554	-0.0594	-0.2337
		(-2.07)**	-(6.64)***	(-1.65)*	(-5.80)***
NTRADE	+ve	0.0039	0.0540		
		(0.33)	(4.01)***		
NTRADEHIGH	+ve			0.0135	0.0448
				(0.76)	(2.66)***
NTRADEINT	?			0.0212	-0.0375
				(1.08)	(-2.42)**
NTRADELOW	-ve			-0.0237	0.0528
				(-0.46)	(0.67)
TANG	+ve	0.0942	0.0847	0.0942	0.0842
		(7.62)***	(11.31)***	(7.61)***	(11.23)***
SIZE	+ve	0.0079	0.0177	0.0078	0.0175
		(3.62)***	(8.15)***	(3.55)***	(8.03)***
ROA	-ve	-0.1571	-0.0472	-0.1570	-0.0466
		(-9.31)***	(-4.31)***	(-9.27)***	(-4.24)***
EFTAX	?	-0.0020	0.0024	-0.0021	0.0024
		(-0.68)	(0.92)	(-0.67)	(0.91)
NDTXSH	?	-0.2855	-0.2254	-0.2852	-0.2267
		(-2.76)***	(-4.01)***	(-2.76)***	(-4.04)***
TOBIN'S Q	-ve	-0.0087	-0.0043	-0.0087	-0.0044
		(-7.75)***	(-9.34)***	(-7.65)***	(-9.35)***
F Statistic		153.2***		119.4***	
F test for no fixed effects			6.04***		6.04***
R^2		0.180	0.667	0.180	0.667
No. of Obs.		4844	4844	4844	4844

*, **, *** denotes significance at 10%, 5% and 1% level, respectively

Table 6
Regression results for Semi Market Leverage

The table shows the regression results using two semi-market leverage ratios - SMTL and SMTD. Panel A reports the results for semi-market total liability (SMTL), defined as total liabilities divided by total assets minus the book value of equity plus semi-market equity capitalization (the number of tradable shares times closing price plus non tradable shares time 1/5 of closing price); Panel B reports the results for semi market total debt (SMTD), defined as debt to debt plus semi-market equity capitalization (number of tradable shares times closing price plus non-tradable shares time 1/5 of closing price). SEMITOBIN'S Q is defined as book total assets less book value of equity plus semi-market equity capitalization divided by book total assets. Results from pooled OLS and fixed effects models are presented (with t-statistics in parentheses).

Independent Variable	Predicted Sign	Pooled OLS	Fixed Effects	Pooled OLS	Fixed Effects
Panel A: SMTL as dependent variable					
Intercept	?	-0.1269	-0.9127	0.0863	-0.6760
		(-1.68)*	(-12.99)***	(0.85)	(-9.16)***
NTRADE	+ve	0.0850	0.0150		
		(2.78)***	(12.56)***		
NTRADEHIGH	+ve			0.1582	0.3518
				(3.44)***	(11.30)***
NTRADEINT	?			0.0545	-0.0435
				(1.32)	(-1.55)
NTRADELOW	-ve			-0.7796	-0.2603
				(-2.48)**	(-1.80)*
TANG	+ve	0.0986	0.1279	0.0986	0.1253
		(4.26)***	(9.38)***	(4.27)***	(9.17)***
SIZE	+ve	0.0356	0.0741	0.0338	0.0719
		(7.25)***	(18.87)***	(6.99)***	(18.28)***
ROA	-ve	-0.6369	-0.2962	-0.6424	-0.3021
		(-10.35)***	(-14.89)***	(-10.71)***	(-15.15)***
EFTAX	?	-0.0072	0.0006	-0.0071	0.0010
		(-1.30)	(0.13)	(-1.30)	(0.21)
NDTXSH	?	-0.7026	-0.1748	-0.7066	-0.1723
		(-2.48)**	(-1.71)*	(-2.51)**	(-1.69)*
SEMITOBIN'S Q	-ve	-0.0860	-0.0652	-0.0883	-0.0667
		(-14.94)***	(-37.67)***	(-16.14)***	(-38.13)***
F Statistic		430.3***		341.1***	
F test for no fixed effects			10.72***		10.64***
R^2		0.383	0.828	0.387	0.829
No. of Obs.		4844	4844	4844	4844

*, **, *** denotes significance at 10%, 5% and 1% level, respectively

Independent Variable	Predicted Sign	Pooled OLS	Fixed Effects	Pooled OLS	Fixed Effects
Panel B: SMTD as dependent variable					
Intercept	?	-0.2214	-0.4988	-0.1496	-0.4213
		(-4.20)***	(-8.75)***	(-2.34)**	(-7.03)***
NTRADE	+ve	0.0191	0.1421		
		(1.03)	(6.99)***		
NTRADEHIGH	+ve			0.0519	0.1466
				(1.78)*	(5.80)***
NTRADEINT	?			0.0406	-0.0540
				(1.46)	(-2.36)**
NTRADELOW	-ve			-0.2909	0.0010
				(-2.13)**	(0.01)
TANG	+ve	0.1689	0.1416	0.1687	0.1402
		(8.86)***	(12.80)***	(8.86)***	(12.65)***
SIZE	+ve	0.0207	0.0331	0.0200	0.0326
		(5.98)***	(10.37)***	(5.80)***	(10.21)***
ROA	-ve	-0.2670	-0.0786	-0.2690	0.0800
		(-6.46)***	(-4.87)***	(-6.55)***	(-4.94)***
EFTAX	?	-0.0027	0.0046	-0.0027	0.0047
		(-0.47)	(1.20)	(-0.46)	(1.220
NDTXSH	?	-0.4941	-0.3763	-0.4958	-0.3758
		(-2.93)***	(-4.54)***	(-2.95)***	(-4.53)***
SEMITOBINSQ	-ve	-0.0241	-0.0140	-0.0249	-0.0144
		(-7.33)***	(-9.95)***	(-7.55)***	(-10.14)***
F Statistic		183.4***		144.1***	
F test for no fixed effects			7.08***		7.07***
R^2		0.209	0.708	0.210	0.709
No. of Obs.		4844	4844	4844	4844

*, **, *** denotes significance at 10%, 5% and 1% level, respectively