# Internationalization and Market Valuation in an Emerging Economy: Evidence from China

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## Abstract

This study examines whether the market valuation of Chinese firms with international operations differs from that of Chinese firms without such operations. We find that the market valuation of international firms is lower than that of non-international firms. We then investigate whether the nature of ownership, i.e., whether the firm is a state-owned enterprise (SOE) or a non-state-owned enterprise (NSOE), and whether receipt of preferential tax treatment from the government relate to the observed lower market valuation. Our results show that international operations have more negative effects on the market valuation of NSOEs than SOEs, and international firms relying more on the preferential tax treatment from the government have lower market valuations. Collectively, our findings shed light on the market valuation on internationalization in China, and the unique institutional features that affect the valuation.



***Keywords****:* Internationalization; Market valuation; China; Preferential tax treatment

*JEL classification:* F23; G38

# Internationalization and Market Valuation in an Emerging Economy: Evidence from China

## 1. Introduction

How investors value firms with international operations is an issue of much interest in finance, accounting, and international business, as evidenced by the many empirical studies conducted on this topic over the last 30 years. One group of studies highlights that international operations increase market valuation (e.g., Errunza & Senbet, 1984; Morck & Yeung, 1991; Bodner, Tang, & Weintrop, 1999; Gande, Schenzler, & Senbet, 2009). In contrast, other studies report a decrease in market valuation of firms with international operations (e.g., Boatsman, Behn, & Patz, 1993; Denis, Denis, & Yost, 2002). Theoretically, these divergent empirical findings can be attributed to the relative costs and benefits of international operations, and their net effects for firms with and without such operations, which can vary over time and across countries. Extant research on this issue has focused more on the time effect and on developed countries such as the U.S. (e.g., Denis et al., 2002; Christophe, 2002). Very few studies have examined how investors value the international operations of firms in emerging markets, where several firms have recently substantially expanded their foreign operations and, more importantly, where institutional characteristics can differ considerably from those in developed countries. In this study, we attempt to fill this gap in the literature by using the leading emerging economy, China, as the setting to examine this issue.

China is well-suited for studying the valuation of firms with international operations for several reasons. First, China is now the world's third largest outward direct foreign investor (World Trade Organization, 2014; China Ministry of Commerce, 2012).

Intuitively, the benefits of international operations should exceed the costs, and therefore increase the value of firms with international operations relative to those without. However, the rationales for Chinese firms to move abroad, and the institutions that affect these firms are different from those studied in conventional international business theory (Boisot & Myers, 2008). Therefore, the market valuation of international operations is unclear and may be different from the findings of prior studies. For example, unlike conventional international business theory, which suggests that firms expand their operations abroad to utilize their competitive advantages such as leading-edge technology, most Chinese firms entering the international markets rely on their cost advantage to offer cheaper products and avoid the fierce competition in domestic markets. Second, the expropriation of minority shareholders by large shareholders through activities such as tunneling is common in emerging countries like China, and international operations may facilitate such expropriation, thus more than offsetting the advantage of underexploited growth opportunities in international markets (Morck, Yeung, & Zhao, 2008). This issue is especially important given the weak investor protection in China relative to developed economies (Allen, Qian, & Qian, 2005). Third, despite the development of the market system in China, the political economy still plays a major role (Child & Tse, 2001). With the supporting policies of the government, such as lower interest loans from state-owned banks and tax credits from a variety of tax authorities, Chinese firms may benefit from tax savings and government subsidies by going international. However, the realization of these benefits is uncertain because they are subject to administrative approvals and the policies frequently change over time (Child & Rodrigues, 2005).

In this study, we investigate how investors value Chinese firms with international operations relative to those without such operations. As discussed in the next section, both the motivations of Chinese firms to exploit international markets and the institutional characteristics of China are quite unique, making the relative valuation of firms with and without international operations difficult to predict and, therefore, an important empirical issue. Briefly, our results suggest that the market valuation of firms with international operations is lower than that of firms without international operations, and the lower valuation associated with international operations is robust to alternative measures of firm value and of internationalization, as well as to estimation techniques that control for omitted correlated factors and to techniques that control for a firm's endogenous choice to internationalize. We also find a significant decrease in market valuation when firms first become international and an increase (not significant) when firms cease to be international, which further corroborate our main findings.

Lastly, we explore possible reasons why internationalization influences the market valuation. Our results show that international operations have more negative effects on the market valuation of NSOEs than SOEs. We also document that international firms relying more on the government's preferential tax treatment have lower market valuation. One reason for this result is that investors discount the value of government support because firms that internationalize with the advantage provided by a national government could be weakened because they remain beholden to administrative approval and bear a legacy of institutional dependence (Child & Rodrigues, 2005), leading to higher political and policy uncertainty.

Our findings make several contributions to the literature. First, prior studies that

focus on the performance of Chinese firms with international operations have employed perceptual measures of performance gathered from surveys (e.g., Brouthers, O'Donnell, & Hadjimarcou, 2005), or are conducted by case study (e.g., Child & Rodrigues, 2005). The relatively small samples in these studies constrain the generalizability of their findings. By studying a large sample of publicly listed firms from 2003 to 2013, our study provides a more generalizable and rigorous analysis of the relationship between internationalization and market valuation in China.

Second, we contribute to the international finance literature that analyzes the market valuation on international firms from emerging countries, where the institutions that shape the rationales and strategies for internationalization are different from other countries, especially the developed countries for which the conventional international business theories are established. The mainstream perspective in international business assumes that firms will internationalize on the basis of a definable monopolistic competitive advantage that allows them to secure enough return to cover the additional costs and risks associated with international operations (Buckley & Ghauri, 2004; Caves, 1971). However, firms from emerging countries may choose to internationalize for other reasons, such as avoiding fierce domestic competition, acquiring needed assets, and responding to internationalization promotion policies from the government (Child & Rodriguez, 2005; Boisit & Meyers, 2008). Such differences in the rationales for internationalization lead to differential valuation of international operations.

Third, prior research has uncovered several factors that can affect the market valuation of international operations, such as international corporate diversification (Errunza & Senbet, 1984), investment in company-specific skills (Morck & Yeung,

1991), and agency costs (Christophe, 2002). Our study complements this research by considering the government subsidies received by international firms, which are intended to promote internationalization in emerging countries like China, and the impact of these subsidies on the market valuation. In this regard, we deepen understanding of the determinants that affect the valuation of international operations.

The rest of this study proceeds as follows. Section 2 reviews the relevant literature and background information, and develops the hypothesis. Section 3 presents the research design, and Section 4 presents and discusses the results of the empirical analysis and reports the results of robustness tests. Section 5 discusses the results of additional analyses, and Section 6 concludes in the study.

## 2. Institutional Background and Hypothesis Development

This section introduces the institutional background of China's internationalization, reviews the literature on valuation and international operations, and develops our hypothesis regarding the market valuation of international firms relative to non-international firms.

### 2.1 Institutional background

The process of China's deepening reintegration with the global economy began, in the modern era, with the "open door" policies of the late 1970s, in order to reconnect with the world and to attract foreign investment and modern technology (Boisot & Meyer, 2008). Since then, China has been increasingly recognized as a major host country for internationally expanding firms (Child & Rodrigues, 2005). However, a few studies have focused on the "outward" internationalization by Chinese firms (e.g., Child & Tse, 2001; Child & Rodrigues, 2005; Buckely, Clegg, Cross, Liu, & Voss, 2007; Boisot &

Meyer, 2008). In 1979, the share of exports in the Chinese economy was well below the world average, but has increased substantially following China's admission to the WTO in 2001 (Naudé & Rossouw, 2003). Recently, China overtook Germany to become the world's largest exporter according to the 2010 WTO statistics, with exports reaching a record US$1,202 billion in 2009, and became the world's largest export and import trader in 2013.[1] After 30 years of unprecedented economic growth, the traffic through the door is beginning to move in the other direction, with the Chinese government actively encouraging firms to operate abroad and setting up the China Investment Corporation (CIC) to assist in the process (Boisot and Meyer, 2008). The expansion of outward direct investment (FDI) has also grown rapidly to the point where China has become the world's third largest outward direct foreign investor, with a total of US $87.8 billion by the end of 2012 (Ministry of Commerce, 2012).

### 2.2 Related research on internationalization

#### 2.2.1 Reasons for a higher or a lower value for international firms relative to domestic firms

Previous research hypothesizes that internationalization enhances shareholder value by exploiting firm-specific assets, increasing operating flexibility, and satisfying investor preferences for holding globally diversified portfolios (Denis et al., 2002).

The resource-based view argues that international diversification seeks to use a firm's valuable knowledge-based assets, such as technology, marketing abilities, managerial skills, and consumer goodwill, to exploit market imperfections existing across global regions and countries (Hitt, Hoskisson, & Ireland, 1994; Morck & Yeung,

[1] See WTO Press Release: "Trade to expand by 9.5% in 2010 after a dismal 2009", March 26th 2010, and International Trade Statistics 2014, World Trade Organization

1991). This is because the value of such assets does not depreciate through use in other markets and they therefore generate natural economies of scope. Moreover, these assets usually are difficult of codify and transfer (Kogut & Zander, 1993), due to their embeddedness in the people working for an organization.

Internationalization could also increase firm value by creating flexibility within the firm to respond to changes in relative prices, to allow more possibilities for tax avoidance and/or access to relatively low-cost inputs from abroad, especially from less developed countries (Morck & Yeung, 1991; Denis et al., 2002).

The benefits of international operations can also arise from investors' diversification preference because international operations can provide international portfolio diversification services to investors who face differential cost barriers to direct holdings of assets across national boundaries (Errunza & Senbet, 1984). To the extent that corporations can diversify internationally at a lower cost than can individuals, investors will be willing to pay a premium for international diversified firms, ceteris paribus (Morck & Yeung, 1991; Denis et al., 2002).

In addition, firms in many emerging markets, such as China, India and Brazil, where the capital, product, and labor markets are underdeveloped, can circumvent disadvantageous domestic conditions, such as regional protectionism, limited access to capital, and poor local infrastructure that resulted from these imperfect markets, to acquire the necessary inputs such as finance, technology and management talent, than can their domestic peers (Child & Rodrigues, 2005).

There are also plausible reasons that international operations could reduce a firm's value. International firms may face additional risks and barriers to entry above and

beyond those faced domestically. Differences in laws, tax policies, languages, culture, and local competition make international operations more difficult to manage and less likely to be successful than domestic operations (Christophe, 2002). As a result, international operations are likely to be associated with relatively higher market entry costs, which make firms less likely to abandon unprofitable operations (Christophe, 2002). International operations may also increase systematic risk, such as political risk and foreign exchange risk, which increase the standard deviation of cash flows of internationalization (Reeb, Kwok, & Baek, 1998).

An internationally diversified organization is more complex than a purely domestic firm (Denis et al., 2002). Thus, along with greater international operations, firms may experience increasing transaction costs, such as the coordination cost which is necessarily incurred to exploit the potential economies of scope with information-based assets between units in different geographic regions (Hitt et al., 1994). These costs are higher for firms with greater international operations as higher information frictions can result from cultural, legal, and geographical dispersion (Mian, 2006).

International operations could also lead to inefficient cross-subsidization of less profitable business units (Denis et al., 2002). For example, controlling owners or managers may misallocate capital, with the cash flow generated by profitable group firms being invested in unprofitable ventures even though this may not be in the best interest of public shareholders; and they may also make suboptimal decisions because of difficulty of acquiring expertise (Khanna & Palepu, 2000).

In addition, the objectives of controlling owners or managers may differ from those of outside shareholders. Because international operations are harder for outside

shareholders to understand and scrutinize, this gives the controlling owner or managers more discretion to act in their own interest at the expense of outside shareholders (Morck & Yeung, 1991; Christophe, 2002). Furthermore, controlling owners or managers may favor international expansion as it reduces firm-specific risk and adds to their prestige. This divergence of interests might *ceteris paribus* reduce the value of international firms relative to domestic ones (Morck & Yeung, 1991).

### 2.2.2 Prior empirical evidence

As noted earlier, the empirical evidence on the benefits of internationalization is mixed. For example, Errunza and Senbet (1984) find a positive relation between market valuation and the firm's degree of internationalization, and interpret their findings as the benefits of providing investors with international diversification opportunities. Likewise, Morck and Yeung (1991) find that international operations measured by the number of foreign subsidiaries have a positive impact on Tobin's *q* for international firms with company-specific skills, but internationalization *per se* is not particularly valued by investors in the absence of these indicators of investment in these skills and may sometimes even be perceived as a liability. Their findings are consistent with the resource-based view. Gande et al. (2009) provide comprehensive evidence that international diversification can increase the value of international firms by providing investors with international diversification opportunities to complete the imperfect market (Errunza & Senbet, 1984) and internal markets for certain of its intangible assets (Morck & Yeung, 1991).

In contrast, other studies find a negative relation between market valuation and international operations. For example, Christophe (1997) finds that international

operations during the 1980s are associated with decreased firm value because of foreign exchange risk. Denis et al. (2002) report an increase in the extent of geographical diversification by firms over time, which is accompanied by a reduction in firm value, and conclude that the costs of global diversification outweigh the benefits. However, using a methodology similar to Denis et al. (2002), Bodnar et al. (1999) find that global diversification is associated with higher firm value.

### 2.3 **Hypothesis development**

Most of the early work on the rationales for internationalization posits that a firm first grows large in the domestic market on the back of some market-based or product-based competitive advantages and then goes abroad, using those advantages such as technology, marketing abilities, managerial skills, or consumer goodwill to compensate for the added costs of operating abroad (Boisit & Meyer, 2008). However, unlike established international firms, the competitive advantages of firms from emerging countries like China, with the exception of a few firms such as Haier, Huawei and Lenovo, are based on price competition, i.e., cost advantage, rather than leading edge technology or product differentiation. Therefore, these firms are unlikely to have monopolistic advantages in international markets (Elango & Pattnaik, 2007). Given the above, the primary rationale for Chinese firms to go international is their cost advantage, which results from the low wages and improved production, as well as the high levels of competition in domestic markets (Child & Rodrigues, 2005), which would enable them to compete in the international markets by presenting them with greater growth opportunities. Consequently, the level of internationalization is quite different between Chinese firms and firms from developed countries. Whereas the former is through

international trade (Chen & Tan, 2012), the latter is through direct investment or active organizational presence (Reeb et al., 1998).

Emerging markets like China are often characterized by a range of disadvantageous domestic conditions: regional protectionism that limits the opportunities otherwise offered by a large domestic market to exploit economies of scale; limited access to capital that prevents investment in plants of optimal scale; lack of developed intellectual property rights that limits access to state-of-the-art technologies; insufficient training and education that limits access to skilled human resources; poor local infrastructure that increases transportation costs; and regional markets that are fragmented by provincial and municipal protectionism (Boisot & Meyer, 2008), and fierce domestic competition. Therefore, firms in China move abroad to avoid a number of competitive disadvantages incurred by operating exclusively in the domestic market, and these firms might enjoy more profits when they enter a market with greater growth opportunities, eventually increasing firm value. In addition, China is also characterized by deeper government intervention. The Chinese government has issued a variety of policies to promote internationalization since the 1990s (Child & Rodrigues, 2005), including lower interest rates, export tax rebates, and other subsidies that can be regarded as direct benefits to the international firms.

However, investors may also place lower market valuation on Chinese internationalizing firms relative to domestic firms because international firms are perceived as more opaque, and the information frictions and monitoring costs are higher due to the cultural and legal environments and geographical dispersion (Mian, 2006; Costello, 2013). These problems are more severe given that China is generally

perceived as a country with a weaker legal environment, lower investor protection, and lower quality of government (Allen et al., 2005).

First, the spatial complexity associated with the geographic dispersion of sales, assets and personnel, and the differences in laws, tax policies, languages and culture may make information gathering and processing more difficult for outside investors. Consequently, the cost and difficulty of monitoring increase as internationalization increases (Roth & O'Donnell, 1996; Costello, 2013). Prior studies (e.g., Thomas, 1999) find that investors do not fully understand (or trust) foreign earnings, and one explanation for their findings is that costs to access databases and analytical tools for average investors are too high, given the relative paucity of information on foreign operations (Callen, Hope, & Segal, 2005).

Second, internationalization can result in an enterprise characterized by localized and specific knowledge (Nohria & Ghoshal, 1994). Differences in laws, tax policies, languages, culture, and local competition make international operations more complex than domestic operations, and increase the difficulty of monitoring or verifying manager behavior because of the information asymmetry between managers and the shareholders (Gomez-Mejia & Balkin, 1992). Information asymmetries are created when agents have more specialized knowledge than principals regarding task performance and a high level of managerial discretion (Gomez-Mejia & Balkin, 1992; Rajagopalan & Finkelstein, 1992). Such knowledge increases information asymmetry between principals and agents, thus compounding the agency problems (Gomez-Mejia & Balkin, 1992).

Third, the complexity of international operations is likely to increase the ambiguity surrounding cause-effect relationships, provide multiple decisions, and thus result in

greater agent discretion (Eisenhardt, 1989; Gerhart & Milkovich, 1990; Hambrick & Finkelstein, 1987; Roth & O'Donnell, 1996). Furthermore, such discretion has been traditionally viewed as a prime source of principal-agent discord (Williamson, 1964). For example, managers may have incentives to adopt and maintain value-reducing diversification strategies, even if doing so reduces shareholder wealth (Denis et al., 2002), because managing a large, multinational firm confers greater power and prestige on the manager (Jensen, 1986), increases the level of managerial compensation (Jensen & Murphy, 1990), and reduces the risk of the manager's relatively undiversified personal portfolio (Amihud & Lev, 1981). Such discretion may also facilitate these firms to manipulate earnings through international business, with the aim of protecting the controlling shareholders' private benefit, even though sometimes at the expense of the minority shareholders (Fan & Wong, 2005). A far-reaching example in the Chinese capital market is the accounting fraud involving YinGuangXia (Stock Code: 000557) in 2001, which increased earnings through fabricating sales through international trade.[2] It was found that from 1998 to 2001, YinGuangXia fabricated sales receipts (with hundreds of millions worth of exports to Germany) and lied to the market about various production facilities that actually never existed.[3] The total amount of faked sales was over 1 billion *yuan* (about US$120 million), which resulted in a nonexistent profit of 770 million *yuan* (Chen, 2003).

One more additional consideration for Chinese international firms is political and policy uncertainty. The very firms that might be expected to internationalize with the

[2] In the case of YinGuangXia, the company had not received any modified audit opinions from its auditors, ZhongTianQin for five consecutive years from 1996 to 2000. This was deemed to be a very serious audit failure by the China Security Regulation Committee, which led to the revocation of ZhongTianQin's license in early 2002 and its eventual demise (Chen, Sun, &Wu, 2010).

[3] See Chen (2006)

advantage of support from the government could be weakened by the way they remain beholden to administrative approval and bear a legacy of institutional dependence (Child & Rodrigues, 2005).[4] On the one hand, this legacy can inhibit strategic action either through promoting a conservative attitude or through more direct constraints (Lewin, Long, & Carroll, 1999), and finally, weaken the international firms' incentives to spend more resources on R&D or advertising-related intangible assets, which are thought to be valued by the investors (Morck & Yeung, 1991). For example, these policies may discourage international firms from innovation to possess cutting-edging technologies by distorting the price of exported goods and maintaining the seemingly high profitability. On the other hand, the benefits from the government's promotion policies on internationalization are not sustainable. For example, Chen, Mai, and Yu (2006) find that China's export tax rebate system has not stayed steady since 1994. The government slashed the rebate rates several times, including in 1995, 1996 and 2004, to alleviate its fiscal burden, whereas in 1997, 1998 and 1999, prompted by the macroeconomic situation, the government increased the rebate rate to encourage exports.

The preceding discussion suggests that whether the market valuation of international operations is positive or negative is ex ante unclear. Accordingly, we formulate our hypothesis in null form as follows:

**Hypothesis 1**: *The market valuation of international firms does not differ from the market valuation of non-international firms.*

[4] Extant studies document that firms can gain advantages from the government, usually through political ties, including access to key resources, such as bank loans granted at favorable terms (Charumilind, Kali, & Wiwattanakantang, 2006; Claessens, Feijen, & Laeven, 2008), favorable tax treatment (Faccio, 2006). However, they are also encouraged to take social objectives such as excess employment to please to bureaucrats at the firms' expense (Shleifer & Vishny, 2004; Wu, Wu, & Rui, 2012).

## 3. Research method

### 3.1 Data sources and sample selection

We test our hypothesis on a sample of publicly listed firms on the Shanghai and Shenzhen stock exchanges. Chinese firms began voluntarily reporting financial information for geographic segments beginning in 2000. However, these data are available for most of the firms only after 2002. Therefore, our sample period begins in 2003, when all the firms in the China Securities Market and Accounting Research (CSMAR) database provide detailed information based on which we can identify their ultimate controlling shareholders, and ends in 2013, the most recent year for which we have data. We obtain data on geographic segments from the Wind Information Co., Ltd (WIND) database, and other financial data from the CSMAR database. Because some of our variables, including growth of revenues and standard deviation of return on assets, require two and three years of data, respectively, we use data from as early as 1999.

We eliminate 286 observations for firms from the financial sector, 4,184 observations with insufficient data to calculate growth of total sales and standard deviation of return on assets, and 155 observations for firms whose ultimate controlling shareholder cannot be identified. Following extant research (e.g., He & Ng, 1998; Jorion, 1990), we eliminate 2,797 firm-years in which the total of foreign sales is not within ten percent of total reported firm sales for that year. We also delete 119 observations with missing data. Our final sample includes 12,204 firm-years for 1,900 firms. Panel A of Table 1 summarizes our sample selection procedure.

Our analyses call for separating international firms and non-international firms. We

identify international firms as those firms that have sales outside mainland China, and sales outside mainland China must be at least ten percent of total reported firm sales for that year; non-international firms otherwise.

Table 1, Panel B details the distribution of firm-years across industries and year. It shows that our sample is representative, covering 62.72 percent of the population of CSMAR A-share firms. Overall, the industry composition of firm-years is similar to that of the CSMAR population, with over half the observations (53.69%) representing manufacturing firms. Panel B shows the trend of international firms and non-international firms. As reported in Panel B, the average percentage of international firms is 31.77 percent, and there is an overall increasing trend.

[INSERT TABLE 1 HERE]

### 3.2 Variable measurement and research design

#### 3.2.1 Measuring market value

We use Tobin's *q* (*Tq*), which we measure as market value of common equity plus book value of total liabilities divided by book value of total assets, as our measure of listed firm market valuation. One difficulty with this measure is that a large proportion of the shares of listed firms in China cannot be traded freely, and therefore, do not have market prices during our sample period. Given this constraint, one straightforward approach is to use the price of the tradable shares as a proxy for the price of the non-tradable shares. However, this method is likely to overstate the market value of the firm because non-tradable shares should have a lower price than tradable shares. Thus, following Bai et al. (2004), we define two additional valuation measures: *Tq_70*, which is computed by taking a 70% discount for non-tradable shares, and *Tq_80*, which is

computed by taking an 80% discount.

### 3.2.2 Measuring internationalization

Following prior literature (Denis et al., 2002; Gande et al., 2009), we use an indicator variable to denote a firm's engagement in international operations. This variable, *Intn*, equals 1 if the firm has sales outside mainland China (i.e., international firm), and 0 otherwise (i.e., non-international firm).[5] In the robustness checks, we also measure the extent of internationalization using a continuous variable, *Fsales*, which is the ratio of a firm's sales outside mainland China to its total sales.

### 3.3 Specification of regression model

Our empirical model draws on prior work by Morck and Yeung (1991) and Gande et al. (2009), and facilitates investigating the market valuation of international firms relative to non-international firms. The model specification is as follows:

$$\begin{aligned} Tq = {} & \alpha_0 + \alpha_1 Intn + \alpha_2 Size + \alpha_3 Lev + \alpha_4 Capex + \alpha_5 Ros + \alpha_6 Intang + \alpha_7 Turnover \\ & + \alpha_8 Growth + \alpha_9 Beta + \alpha_{10} Sd\_Roa + \sum \eta_t Year_t + \sum \theta_t Industry_t + \varepsilon \end{aligned} \quad (1)$$

The dependent variable, *Tq*, is Tobin's *q*, and the independent variable of interest is the indicator variable *Intn*, both of which were defined earlier. The coefficient of interest is $\alpha_1$, the coefficient on *Intn.* A significant, positive (negative) value of $\alpha_1$ will indicate that the market valuation of international firms is higher (lower) than that of non-international firms.

We control for several factors that prior research indicates could affect firm value,

[5] Child and Rodrigues (2005) argue that mainland Chinese firms' internationalization is taking place at a number of different levels of engagement. The first level takes the form of exporting, which does not necessarily involve any direct investment or active organizational presence abroad. The second level takes the form of original equipment manufacturing or subcontracting production for foreign companies, and other forms of partnership with them. The third level involves the physical and organizational expansion of Chinese firms into overseas locations funded by outward FDI, and this is a more advanced level of internationalization in the sense that it entails a commitment to manage and organize operations located outside China. The partnership route is a channel for realizing what may be termed "inward internationalization", whereas the first and second routes are ones to fulfill "outward internationalization", and the latter two types of internationalization are what our paper focuses on. However, due to data limitations, we cannot identify the specific level that an "outward internationalization firm" is in.

including size, leverage ratio, capital expenditures-to-sales ratio, operating margin, intangible assets-to-sales ratio,[6] turnover, growth and risk. *Size* is the natural logarithm of book value of total assets; *Lev* is the ratio of book value of debt to book value of total assets; *Capex* is the ratio of capital expenditures to total sales; *Ros* is the ratio of operating profit to total sales; *Intang* is the ratio of book value of intangible assets to total sales; *Turnover* is the ratio of total sales to book value of total assets; *Growth* is average growth in total sales over the last three years; *Beta* is systematic risk reported in the CSMAR database; and *Sd_Roa* is the standard deviation of *Roa* over the last three years, and *Roa* is return on assets. We also include year and industry indicator variables to control for variations of market valuation over time and across industries. We winsorize each continuous variable at its 1st and 99th percentiles to mitigate the undue influence of extreme values.

## 4. Results

### 4.1 Descriptive statistics

Table 2 provides descriptive statistics for the full sample (Panel A) and the subsamples of international and non-international firms (Panel B). As shown in Panel A, the mean of Tobin's *q* is 2.2282 if non-tradable shares are not discounted, and 1.8359 and 1.7796 if non-tradable shares are discounted at 70% and 80%. These results are consistent with prior studies on Chinese capital markets (e.g., Bai et al., 2004). Various performance and risk measures such as *Lev* and *Ros* indicate that our sample firms are financially healthy.

[6] Prior studies (e.g., Morck & Yeung, 1991; Gande et al., 2009) use R&D and advertising expenditures as proxies for investment in intangibles. However, because the disclosure of R&D and advertising expenditures is not mandatory in China, the missing data of R&D expenditures and advertising expenditures prevent us from doing so. Thus, we use the ratio of book value of intangible assets to total sales as an alternative measure.

In Table 2, Panel B, we present the mean and median for each variable used in model (1), separately for the international and the non-international firms. As shown in this panel, except for the median of *Tq_70* and *Tq_80*, the mean and median of Tobin's *q* for the international firms are significantly lower than the corresponding values for the non-international firms. These univariate comparison results indicate a lower valuation for international firms relative to non-international firms, which is in line with the findings of Denis et al. (2002) and Christophe (2002). Generally, international firms are larger (*Size*), less leveraged (*Lev*), have higher capital expenditures (*Capex*), higher turnover (*Turnover*), lower sales growth (*Growth*), higher *Beta*, and lower volatility of return on assets (*Sd_Roa*), and are more likely to be NSOEs. The results show that when compared to non-international firms, international firms have higher mean *Ros* and lower mean *Intang*, but lower median *Ros* and higher median *Intang*, likely due to the skewed distributions of these variables.

[INSERT TABLE 2 HERE]

**4.2 Univariate correlations**

Table 3 shows correlations among the variables for the full sample. Consistent with the descriptive statistics in Table 2, *Intn* is significantly negatively correlated with Tobin's *q*, regardless whether non-tradable shares are discounted. Consistent with prior research (e.g., Bai et al., 2004), *Size*, *Capex*, *Ros*, and *Beta* are negatively associated with Tobin's *q*, and *Lev*, *Intang*, *Growth*, and *Sd_Roa* are positively associated with Tobin's *q*. Furthermore, we also find that the association between *Turnover* and Tobin's *q* is positive but insignificant at conventional levels.

[INSERT TABLE 3 HERE]

### 4.3 Regression results

#### 4.3.1 Main results

As a firm can appear several times in our sample and the residuals may be correlated over time and across firms, we report t-values for regression coefficients on an adjusted basis using standard errors clustering at the firm and year levels throughout the paper. Table 4 presents the regression results using the three variants of Tobin's *q* as dependent variables. As shown in the table, the coefficient on *Intn* is negative and significant at the 1% level, and point estimates from Table 4 place the discounts for international firms at 0.12, 0.10 and 0.10 when using *Tq*, *Tq_70* and *Tq_80*, respectively, as dependent variables. These results suggest that the costs of internationalization exceed the benefits, resulting in a lower valuation for international firms.

The coefficient estimates for the control variables are similar to those documented in prior studies (e.g., Bai et al., 2004). Market valuation is significantly positively related to *Capex*, *Turnover*, and *Growth* (in column (1)), and significantly negatively related to *Size*, *Lev* (in column (1)), and *Beta*, while insignificantly related to *Ros*. We also find that *Intang* is insignificantly associated with Tobin's *q*. One reason for this insignificant relation is that only a small proportion of R&D expenditures is recognized as intangible assets under Chinese accounting standards; as a result, *Intang* is a poor measure of the investment in intangibles. The coefficient on *Sd_Roa* is positive and statistically significant.

[INSERT TABLE 4 HERE]

#### 4.3.2 Alternative measure of internationalization

As defined earlier, we take the percentage of a firm's sales outside mainland China to its total sales (*Fsales*) as an alternative measurement of internationalization. The regression results are presented in Table 5. We find that the coefficient on *Fsales* is negative and statistically significant at the 1% level, which corroborates our main findings.

[INSERT TABLE 5 HERE]

**4.3.3 The valuation effect of changes in internationalization**

To complement our cross-sectional analysis, following Denis et al. (2002), we also examine whether changes in international status are associated with changes in market value. From the full sample, we identify the years in which a firm first appears as an international firm and ceases to be an international firm. After imposing this sample selection procedure, we obtain 313 firms that first became international and 119 firms that ceased to be international. The results of the univariate tests for these two kinds of firms are presented in Panels A and B, respectively, of Table 6. As shown in Panel A, on average, a firm's size and leverage is significantly greater in the year in which it becomes international. More importantly, it experiences significant decreases in market valuation. These results are consistent with Denis et al. that changes in international status are associated with substantial changes in the firms' asset structure.

In Panel B of Table 6, we find that firms that ceased to be international firms exhibit increases, albeit insignificant, in market valuation when using the mean of *Tq*, *Tq_70* and *Tq_80*, and the median of *Tq_80*.

[INSERT TABLE 6 HERE]

**4.4 Robustness checks**

We report the results of additional analyses to assess the robustness of our findings in

this section.

### 4.4.1 Endogeneity

One major concern is that firm valuation and the decision to go international may be endogenously related. In other words, firm valuation and the decision to internationalize could be driven by omitted correlated factors. To address this concern, following Bova, Kolev, Thomas, and Zhang (2014), we include the lagged value of the dependent variable as an additional control variable. To the extent that the effects of omitted correlated variables are relatively stable, they can be captured by lagged values of the dependent variable (*Lag_Tq*, *Lag_Tq_70* and *Lag_Tq_80*). One concern with this methodology is that the lagged dependent variable might suppress the contribution of included regressors, if those regressors are also relatively stable over time, which would bias against finding support for our hypothesis (Bova et al. 2014). Untabulated results show that the coefficient on *Intn* remains significant in the presence of controls for lagged value of the dependent variable, indicating that our main results are robust to controlling for endogeneity.

In addition, following Gao, Ng, and Wang (2008), we employ Heckman's two-stage estimation procedure to address the concern with endogeneinty. In the first step, we use a probit model relating the probability of a firm going international to the explanatory variables firm size (natural logarithm of total assets), leverage (total liabilities over the total assets), profitability (EBIT over revenues), capital expenditure (capital expenditure over revenues), intangibility (intangible assets over total assets), age (natural logarithm of the years since a firm went public). We then use a firm's inverse Mill's ratio as an additional independent variable in the second-stage regression.

The results, reported in Table 7, are similar to those reported in Table 4, suggesting that international firms still have a significantly lower market valuation than non-international firms.

[INSERT TABLE 7 HERE]

### 4.4.2 Degree of internationalization

We next examine whether the degree of internationalization, measured as the percentage of a firm's sales outside mainland China to its total revenues (*Fsales*), is associated with the previously documented (see Table 4) lower market valuation of international firms. We do so by estimating model (1) using a sample in which a firm's *Fsales* is greater than zero (i.e., the firm has international operations). Untabulated results show that the coefficient on *Fsales* is negative and statistically significant at the 10%, 5%, and 5% level when using *Tq*, *Tq_70*, and *Tq_80* as the dependent variable respectively for the sample of international firms.

### 4.4.3 Alternative Estimation Technique

Denis et al. (2002) argue that the pooling of cross-sectional and time-series data creates a lack of independence in the regression model errors, which results in deflated standard errors and, therefore, inflated t-statistics. To control for this potential bias, we follow Denis et al. and estimate the regression models separately for each of the twelve years in our sample, and then use the mean and standard error of the estimated coefficients from these twelve regressions to test our hypothesis. The untabulated results are similar to our previous findings; the mean coefficient on *Intn* is negative and statistically significant at the 1% level. Additionally, the eleven of the twelve yearly coefficients on *Intn* are negative and five of those eleven coefficients are statistically

significant; and we also notice that the coefficients on *Intn* are negative in all eleven years and statistically significant in five of the eleven years.

### 4.4.4 Alternative measure of size

We control for firm size in the multivariate regressions using the natural logarithm of total assets. The logic for doing so is that we are attempting to control for those factors that could affect Tobin's *q*, but do not necessarily have anything to do with internationalization. As shown in the correlation matrix, firms with international operations tend to be larger than those without. Considering that there are unobserved factors that affect a firm's valuation, the influence of these factors will be picked up in the firm size variable (Denis et al. 2002). Thus, we re-estimate the multivariate regressions using two other size variables: the natural logarithm of total sales and market value of common equity. The untabulated results show that *Intn* is still significantly negatively related to Tobin's *q*.

### 4.4.5 Including observations with a lower degree of internationalization

As noted earlier, our definition of internationalization is based on sales from international operations. In the previous tests, we eliminated 2,797 observations with total foreign sales less than ten percent of total reported firm sales for that year. To test the robustness of our findings, we include these observations in our sample, and find qualitatively similar results. The untabulated results show that the coefficient on *Intn* is significantly negative.

### 4.4.6 Alternative measure of Tobin's *q*

Christophe and Pfeiffer (2002) construct Tobin's *q* estimates at the end of the first

quarter following the fiscal year end, because this is when annual reports are required to be publicly available. Following their approach, we measure Tobin's *q* as the market value of total equity at the end of April following the fiscal year end when the annual reports should be publicly available in China, plus book value of total liabilities, and scaled by book value of total assets. We also define two additional valuation measures of Tobin's *q* by taking the 70% and 80% discount for non-tradable shares, respectively. The untabulated results show that our findings are insensitive to this alternative definition of Tobin's *q*. *Intn* is significantly negatively associated with Tobin's *q*.

## 5. Further analyses

Give that the results presented in Section 4 provide strong evidence that international operations result in a decrease in valuation, we next attempt to conduct cross-sectional analyses to identify reasons for the observed decrease in valuation. As discussed earlier, investors assign a lower market valuation for international firms than their domestic counterparts because they are more concerned about the information asymmetry, agency costs, and political uncertainty associated with international operations. We therefore examine the following two factors related to these concerns, firm ownership and government support.

### 5.1 The interactive effects of internationalization and state ownership on firm valuation

A unique feature of firms in China is that they have two distinct ownership types: state-owned enterprises (SOEs) and non-state-owned enterprises (NSOEs) that differ in the nature of their ownership and agency relationships. Information asymmetry and agency problems are likely to be less severe for the international operations of SOEs

because managers in SOEs have weaker incentives to manage earnings (Chen, Chen, Lobo, & Wang, 2010). Although the government has granted significant control rights to managers of SOEs during the SOE reform, it has retained the decision rights to appoint CEOs (Fan, Wong, & Zhang, 2007). Besides the profit-maximizing goals, SOEs in China are often required to meet social or political objectives (Chen et al, 2010; Lin & Li, 2008). The appointment of political CEOs of SOEs is typically linked to these objectives, such as retaining excess workers to maintain social stability during the SOE reform (Lin & Li, 2008), even though those objectives are not always consistent with firm value maximization. The trade-off between economic and political objectives is reflected in SOE CEOs' compensation contracts, which typically place relatively less weight on accounting performance than the compensation contracts of CEOs of profit-maximizing NSOEs. Therefore, compared to NSOEs, CEOs of SOEs have relatively weaker incentives to manage accounting performance (Chen et al. 2011). As a result, we predict that lower valuation of firms with international operations is attenuated for SOEs.

Before testing this prediction, we first examine the association between earnings management and state ownership. Following Chen et al. (2011), we use the absolute value of discretionary accruals, *absDacc*, as a measure of earnings management. We estimate discretionary accruals using the cross-sectional variation of the Jones (1991) accruals estimation model and the Modified Jones model (Dechow, Sloan, & Sweeny, 1995) and use the absolute value of the estimated discretionary accruals as the dependent variable in the following multivariate regression:

$$absDacc_{it} = \beta_0 + \beta_1 SOE_{it} + \beta_2 Big4_{it} + \beta_3 Beta_{it} + \beta_4 Lev_{it} + \beta_5 Size_{it} + \beta_6 Cfo_{it} + \beta_7 Crl_{it} + \beta_8 Owner_{it} + \beta_9 Growth + \beta_{10} Indir_{it} + \sum Year + \sum Ind + \varepsilon_{it} \quad (2)$$

where *absDacc* is absolute value of discretionary accruals estimated using Jones model (*absDacc1*) and modified Jones model (*absDacc2*); *SOE* equals 1 if the firm is a SOE and 0 if the firm is a NSOE; *Big4* equals 1 for Big 4 client firms and 0 for non-Big 4 client firms; *Beta* is systematic risk reported in CSMAR; *Size* is log of market value of equity; *Cfo* is cash flow from operations divided by beginning total assets; *Crl* equals 1 if a firm also issues B-shares or H-shares, or both , and 0 otherwise; *Owner* is percentage of ownership held by the ultimate shareholder; *Growth* is average growth in total sales over the last three years; *Indir* is percentage of independent directors on the board, and *Year* and *Ind* are dummy variables that are included to control for potential year and industry fixed effects.

[INSERT TABLE 8 HERE]

Table 8 shows the estimation results of model (2). [7]In columns (1) and (2), the coefficient on *SOE* is negative and significantly, as expected, indicating that, *ceteris paribus*, earnings management is lower for SOEs than for NSOEs. These results validate the empirical setting used in this test.

Given that SOEs exhibit less earnings management compared to NSOEs, we compare the coefficient on internationalization for the group of SOEs to the group of NSOEs. The regression results for the SOEs and NSOEs are reported in Table 9. As shown in the table, the coefficient on *Intn* is -0.0625 and insignificant for the group of SOEs, while it is -0.2372 and significant at the 1% level for NSOEs when *Tq* is used as the measure of market value. These results indicate that the market valuation of SOEs

[7] 251 firm-year observations are missed due to the missing data of variables in regression model (2).

with international operations id not reliably different from that of non-international SOEs. By contrast, the market valuation of international NSOE is significantly lower that than of their non-international counterparts. Our results are consistent when use *Tq_70* and *Tq_80* as measures of market valuation, and when we use an alternative measure of internationalization.

[INSERT TABLE 9 HERE]

**5.2 The interactive effects of internationalization and preferential taxes on firm valuation**

In this section, we examine whether international firms enjoy more preferential tax treatment than do non-international firms. We focus on two aspects of preferential tax polices: corporate income taxes and refunds of taxes. As discussed previously, the firms that expect to internationalize with the advantage of support the government could be weakened by the way they remain beholden to administrative approval and bear a legacy of institutional dependence (Child & Rodrigues, 2005).

**5.2.1 Corporate income taxes**

If investors are concerned about political or policy uncertainty, we predict that international firms relying heavily on the preferential tax treatment from the government will have lower market valuation. Considering that the Chinese government often provides favorable corporate income tax rates to specific firms, we measure a firm's corporate income tax rate as the nominal income tax rate (*NTR*), which is computed as the equal-weighted average of nominal income tax rates disclosed by a firm.[8] We collect the corporate income tax rates from CSMAR, which contains

[8] In 1994, the government launched a comprehensive tax reform that required all domestic enterprises to pay income tax at a flat rate of 33%. In March 2007, China leveled the playing field for domestic and foreign companies by

varieties of tax rates for listed firms since 2007. After eliminating observations with missing data, we obtain a final sample of 8,189 firm-year observations (1,051 in 2007, 1,048 in 2008, 1,035 in 2009, 1,116 in 2010, 1,141 in 2011, 1,275 in 2012, and 1,523 in 2013).

To examine the interactive effect of international operations and corporate income taxes, we conduct multivariate tests by dividing the sample based on the median of *NTR* each year. In addition, we also include ownership as a control variable as SOEs serve as a channel for the government to achieve political and social objectives, and consequently, are favored by preferential tax policies (Allen et al., 2005; Morck et al., 2008).

The regression results for the subsamples of low and high nominal tax rate are reported in Table 10. As shown in the table, the coefficient on *Intn* is -0.1433 and is significant at the 5% level for the low-tax group, while it is -0.1166 and insignificant for the high-tax group when *Tq* is used to measure of market valuation. These results suggest that for the group of low nominal income tax firms, international firms have lower market valuation than non-international firms. This result indicates that international operations have more negative effects on firms with lower corporate income taxes, which is consistent with our predictions. Our results are qualitatively similar when we use *Tq_70* and *Tq_80* as measures of market valuation, and we use an

equalizing the rate to 25%, effective January 1, 2008 (See Chan, Lin, & Mo, 2010). However, except for a flat rate of 33% (25% after 2008), the central government provides more favorable tax incentives to various regions. For example, there are favorable tax rates of around 15% in the five special economic zones, 32 economic and technology development zones, 13 free trade zones, and 52 high-tech development zones (Wu &Yue 2009). Therefore, a firm's nominal income tax rate may be lower than the flat rate. In addition, Chinese firms are more likely to organize into groups in which their subsidies may have lower nominal income tax rates either because they locate in certain areas or because they belong to certain industries. So it is possible that a firm has different levels of nominal income tax rates. We do not know the exact weight for each nominal income tax rate within a firm; therefore, we use the aggregated nominal income tax rate, which is computed as the equally weighted average of nominal income tax rates.

alternative measure of internationalization.[9]

[INSERT TABLE 10 HERE]

### 5.2.2 Refund of taxes

Using the setting of China, Chen et al. (2006) document that when export rebate rates are raised, the output of final goods for export by domestic firms increases, as does the profit. Thus, in this section, we attempt to examine the interactive effects of internationalization and refund of taxes on firm value.[10] Typically reported as part of "Refund of taxes", in the cash flow statement, these funds represent the benefits that a firm obtains from the government from export tax rebates and other tax credits,. We scale Refund of taxes by total assets and denote it as *Rtax*. After eliminating observations with missing data of *Rtax* , we obtain a final sample of 10,609 firm-year observations from 2003 to 2013 (542 in 2003, 590 in 2004, 626 in 2005, 633 in 2006, 1,060 in 2007, 1,048 in 2008, 1,036 in 2009, 1,117 in 2010, 1,148 in 2011, 1,283 in 2012, 1,526 in 2013).

To examine the interactive effects of international operations and refund of taxes on firm value, we conduct multivariate tests by dividing the sample based on the median of refund of taxes each year. In addition, we also include ownership as a control variable. The regression results for the subsamples of low and high refund of taxes are reported in Table 11. As shown in the table, the coefficient on *Intn* is -0.0768 and is significant at the 10% level for the group of high tax rebates, whereas it is -0.0032 and insignificant for the group of lower tax rebates when *Tq_70*

[9] Our results (untabulated) continue to hold when we use the percentage of sales outside mainland China to total sales (*Fsales*) as an alternative measure of internationalization.

[10] Except for corporate income tax, refunds of taxes include other tax preferential such as value-added tax, consumption tax and sales tax, which are considered to be the major tax sources of the Chinese government.

is used as the measure of market valuation, suggesting that for the high refund of taxes group, international firms have lower market valuation than non-international firms. This result indicates that international operations have more negative effects on firms with higher tax refunds, which is consistent with our predictions. Our results are qualitatively similar when we use *Tq* and *Tq_80* as measures of market valuation, and when we use an alternative measure of internationalization.[11]

[INSERT TABLE 11 HERE]

## 6. Conclusions

While knowledge and empirical studies on how investors value international operations have been limited to developed economies, little is known for the rest of world, in particular, the emerging countries where many firms are seeking international markets. In this paper, we attempt to examine this issue by using the leading emerging country, China as our setting. As discussed previously, with an exception of a few firms, the rationales that the majority of Chinese firms are to avoid a range of disadvantageous domestic conditions, to gain competitive strength, to obtain support from the government, and to take the advantages of price competition. Moreover, international markets may also present additional risks and barriers to entry above and beyond those faced domestically. Therefore, it is an empirical question to examine how investors value firms with international operations relative to those without. We find that the market valuation of international firms is lower than that of non-international firms. Further, we investigate the reasons that lead to valuation decreasing. Our results show international operations have more negative effects on the market value of NSOEs than

[11] Our results (untabulated) show the coefficients on internationalization are more significant when we use the alternative measure of internationalization, *Fsales*.

SOEs, and international firms relying more on the preferential taxes from government have a lower market valuation.

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**Appendix A** Variable Definition

| Variable | Definition |
|---|---|
| Tq | Tobin's *q*, defined as firms' market value of common equity plus debt book value, over total assets. |
| Tq_70 | Modified Tobin's *q*, defined as firms' market value of common equity by taking a 70% discount for non-tradable shares, plus debt book value, over total assets. |
| Tq_80 | Modified Tobin's *q*, defined as firms' market value of common equity by taking an 80% discount for non-tradable shares, plus debt book value, over total assets. |
| Fsales | The percentage of a firm's sales outside mainland China to its total sales. |
| Intn | A dummy variable that equals one if the firm has revenues outside mainland China, and its *Fsales* is larger than ten percent, and zero otherwise. |
| Size | The natural logarithm of market value of common equity or book value of total assets. |
| Size_sales | The natural logarithm of total sales. |
| Lev | The total liabilities over the total assets. |
| Capex | The capital expenditures over the total sales. |
| Ros | The operating income over total sales. |
| Intang | The book value of intangible assets over total sales. |
| Turnover | The total sales over total assets. |
| Growth | The average growth in total sales over the last three years. |
| Beta | The systematic risk reported in CSMAR. |
| Sd_Roa | The standard deviation of Roa in the last three years. |
| SOE | A dummy variable equals 1 if a firm owned by state asset management bureaus or other SOEs controlled by the government, and 0 otherwise. |
| NTR | The equal-weighted average of nominal income tax rates |
| Rtax | The refund of taxes over total assets |
| Year | A dummy variable equals one if the firm went public during that year, and zero otherwise. |
| Industry | The classification of industry follows the CSRC document, Guidance on Listed Firms' Industries, issued on April, 2001. There are altogether 13 industries coded from A to M, and 10 subindustries under C. We classify all the listed firms into 22 industries as we treat the 10 subindustries under manufacturing as distinct industries. |

**Table 1** Descriptive information on sample selection, industry and year distribution

| Panel A: Sample selection | |
|---|---|
| Total firm-year observations available on CSMAR from 2003-2013 | 19,745 |
| Less: | |
| Observations of firms in the financial industry | 286 |
| Observations with insufficient data to calculate growth of total sales and standard deviation of return on assets | 4,184 |
| Observations for firms whose ultimate controlling shareholder cannot be identified | 155 |
| Observations in which the total of foreign sales are not with ten percent of total reported firm sales | 2,797 |
| Observations with missing data to calculated variables | 119 |
| Final sample | 12,204 |

**Panel B:** Sample composition by industry

| Industry group | # of firm-years on CSMAR | # of firm-years in sample | Coverage (%) | % of firm-years in sample |
|---|---|---|---|---|
| Agriculture, forestry & fishing | 408 | 256 | 62.75 | 2.10 |
| Mining | 434 | 242 | 55.76 | 1.98 |
| Manufacturing | 11,594 | 6,552 | 56.51 | 53.69 |
| Utilities | 711 | 611 | 85.94 | 5.01 |
| Construction | 428 | 238 | 55.61 | 1.95 |
| Transportation | 740 | 573 | 77.43 | 4.70 |
| Information & Technology | 1419 | 719 | 50.67 | 5.89 |
| Wholesale trade | 1132 | 914 | 80.74 | 7.49 |
| Real estate | 980 | 858 | 87.55 | 7.03 |
| Services | 596 | 449 | 75.34 | 3.68 |
| Entertainment | 204 | 131 | 64.22 | 1.07 |
| Conglomerates | 813 | 661 | 81.30 | 5.42 |
| Total | 19,459 | 12,204 | 62.72 | 100.00 |

**Panel C:** Trend of Internationalization of All Publicly Listed Firms: 2003-2013

| Year | International firms | % of firm-years in sample | Non-international firms | % of firm-years in sample | Total |
|---|---|---|---|---|---|
| 2003 | 193 | 21.61 | 700 | 78.39 | 893 |
| 2003 | 226 | 24.12 | 711 | 75.88 | 937 |
| 2004 | 278 | 27.86 | 720 | 72.14 | 998 |
| 2005 | 303 | 29.25 | 733 | 70.75 | 1,036 |
| 2006 | 339 | 31.36 | 742 | 68.64 | 1,081 |
| 2007 | 344 | 31.94 | 733 | 68.06 | 1,077 |
| 2008 | 323 | 30.53 | 735 | 69.47 | 1,058 |
| 2009 | 390 | 34.15 | 752 | 65.85 | 1,142 |
| 2010 | 412 | 35.12 | 761 | 64.88 | 1,173 |
| 2011 | 461 | 35.93 | 822 | 64.07 | 1,283 |
| 2013 | 608 | 39.84 | 918 | 60.16 | 1,526 |
| Total | 3,877 | 31.77 | 8,327 | 68.23 | 12,204 |

Panel A explains the sample selection process. Panel B reports the industry distribution of the sample. Industry groups are based on the China Securities Regulatory Commission's classification. Panel C reports the trend of internationalization of all listed firms from 2003 to 2013

**Table 2** Descriptive Statistics

**Panel A**: Full sample (n=12,204)

| Variables | Mean | Median | Std. Dev | Q1 | Q3 |
|---|---|---|---|---|---|
| Tq | 2.2282 | 1.6767 | 1.6541 | 1.2541 | 2.4992 |
| Tq_70 | 1.8359 | 1.3855 | 1.3497 | 1.0427 | 2.0710 |
| Tq_80 | 1.7796 | 1.3368 | 1.3175 | 1.0079 | 2.0169 |
| Intn | 0.3177 | 0.0000 | 0.4656 | 0.0000 | 1.0000 |
| Size | 21.6150 | 21.5153 | 1.2191 | 20.7950 | 22.3052 |
| Lev | 0.5302 | 0.5234 | 0.2555 | 0.3701 | 0.6605 |
| Capex | 0.0539 | 0.0363 | 0.0551 | 0.0128 | 0.0763 |
| Ros | 0.0146 | 0.0511 | 0.3846 | 0.0098 | 0.1218 |
| Intang | 0.0480 | 0.0277 | 0.0633 | 0.0084 | 0.0600 |
| Turnover | 0.6510 | 0.5351 | 0.4811 | 0.3204 | 0.8298 |
| Growth | 1.3252 | 1.1608 | 0.9280 | 1.0518 | 1.3039 |
| Beta | 1.0835 | 1.0912 | 0.2559 | 0.9352 | 1.2425 |
| Sd_Roa | 0.0419 | 0.0165 | 0.0827 | 0.0074 | 0.0394 |
| SOE | 0.6335 | 1.0000 | 0.4819 | 0.0000 | 1.0000 |

**Panel B**: International firms vs. non-international firms

| Variables | International firms (n=3,877) | | Non-international firms (n=8,327) | | Test for difference | |
|---|---|---|---|---|---|---|
| | Mean | Median | Mean | Median | Mean | Median |
| Tq | 2.0573 | 1.6555 | 2.3078 | 1.6874 | -0.2505*** | -0.0319*** |
| Tq_70 | 1.7246 | 1.3940 | 1.8877 | 1.3800 | -0.1631*** | 0.0140 |
| Tq_80 | 1.6770 | 1.3500 | 1.8273 | 1.3297 | -0.1503*** | 0.0203 |
| Size | 21.7300 | 21.5788 | 21.5614 | 21.4692 | 0.1686*** | 0.1096*** |
| Lev | 0.5085 | 0.5078 | 0.5403 | 0.5323 | -0.0318*** | -0.0245*** |
| Capex | 0.0602 | 0.0445 | 0.0510 | 0.0326 | 0.0092*** | 0.0119*** |
| Ros | 0.0222 | 0.0385 | 0.0110 | 0.0583 | 0.0112 | -0.0198*** |
| Intang | 0.0416 | 0.0307 | 0.0510 | 0.0256 | -0.0094*** | 0.0051*** |
| Turnover | 0.7548 | 0.6533 | 0.6026 | 0.4625 | 0.1522*** | 0.1908*** |
| Growth | 1.2388 | 1.1572 | 1.3654 | 1.1632 | -0.1266*** | -0.0060*** |
| Beta | 1.1212 | 1.1185 | 1.066 | 1.0766 | 0.0552*** | 0.0419** |
| Sd_Roa | 0.0347 | 0.0164 | 0.0453 | 0.0165 | -0.0106*** | -0.0001** |
| SOE | 0.6023 | 1.0000 | 0.6480 | 1.0000 | -0.0457*** | 0.0000*** |

Panel A provides descriptive statistics for the full sample. Panel B presents descriptive statistics for the subsamples of international firms and non-international firms. All variables are as defined in the Appendix A.

T-tests are used to test differences between the international firms and non-international firms means. Wilcoxon two-sample tests are used to test differences between the international firms and non-international firms medians.

*, **, and *** indicate the 0.1, 0.05, and 0.01 levels of significance, respectively.

**Table 3** Correlation matrix

| | Tq | Tq_70 | Tq_80 | Intn | Size | Lev | Capex | Ros | Intang | Turnover | Growth | Beta | Sd_Roa |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tq | | | | | | | | | | | | | |
| Tq_70 | 0.956*** | | | | | | | | | | | | |
| Tq_80 | 0.939*** | 0.998*** | | | | | | | | | | | |
| Intn | -0.070*** | -0.056*** | -0.053*** | | | | | | | | | | |
| Size | -0.449*** | -0.414*** | -0.404*** | 0.064*** | | | | | | | | | |
| Lev | 0.049*** | 0.085*** | 0.092*** | -0.058*** | 0.050*** | | | | | | | | |
| Capex | -0.072*** | -0.086*** | -0.087*** | 0.077*** | 0.183*** | -0.106*** | | | | | | | |
| Ros | -0.175*** | -0.194*** | -0.195*** | 0.0140 | 0.272*** | -0.430*** | 0.147*** | | | | | | |
| Intang | 0.118*** | 0.121*** | 0.121*** | -0.069*** | -0.116*** | 0.018** | 0.074*** | -0.088*** | | | | | |
| Turnover | 0.002 | 0.009 | 0.011 | 0.147*** | 0.057*** | 0.026*** | -0.00700 | 0.067*** | -0.081*** | | | | |
| Growth | 0.061*** | 0.029*** | 0.022** | -0.064*** | 0.027*** | 0.059*** | -0.024*** | 0.073*** | -0.020** | 0.025*** | | | |
| Beta | -0.288*** | -0.230*** | -0.217*** | 0.101*** | 0.160*** | -0.122*** | -0.00800 | 0.072*** | -0.059*** | -0.025*** | -0.022** | | |
| Sd_Roa | 0.392*** | 0.379*** | 0.374*** | -0.060*** | -0.328*** | 0.460*** | -0.125*** | -0.490*** | 0.115*** | -0.067*** | 0.083*** | -0.195*** | |

This table reports Pearson correlation matrix for the full sample. All variables are as defined in the Appendix A. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively (two–tailed test).

**Table 4** The effect of internationalization on firm value

| Variables | (1) | (2) | (3) |
|---|---|---|---|
| | Tq | Tq_70 | Tq_80 |
| Intercept | 14.1932*** | 11.2494*** | 10.8206*** |
| | (10.54) | (8.73) | (8.42) |
| Intn | -0.1232*** | -0.1009*** | -0.0975*** |
| | (-3.05) | (-3.06) | (-3.01) |
| Size | -0.5465*** | -0.4465*** | -0.4320*** |
| | (-9.30) | (-8.13) | (-7.93) |
| Lev | -0.2608 | 0.0563 | 0.1043 |
| | (-1.33) | (0.37) | (0.71) |
| Capex | 1.2789*** | 0.9380*** | 0.8944*** |
| | (3.65) | (2.77) | (2.64) |
| Ros | 0.0138 | -0.0491 | -0.0577 |
| | (0.17) | (-0.79) | (-0.96) |
| Intang | -0.2623 | -0.2204 | -0.2183 |
| | (-0.65) | (-0.68) | (-0.69) |
| Turnover | 0.1358** | 0.1197*** | 0.1181*** |
| | (2.48) | (3.04) | (3.12) |
| Growth | 0.0648* | 0.0066 | -0.0022 |
| | (1.76) | (0.20) | (-0.07) |
| Beta | -1.1398*** | -0.7929*** | -0.7401*** |
| | (-6.66) | (-6.51) | (-6.32) |
| Sd_roa | 5.0861*** | 3.6483*** | 3.4461*** |
| | (10.43) | (10.81) | (11.04) |
| Year | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.493 | 0.496 | 0.493 |
| F | 130.15 | 147.39 | 151.06 |
| Number of obs. | 12204 | 12204 | 12204 |

Numbers in parentheses represent t-values are adjusted using standard errors corrected for clustering at firm and year levels. All variables are as defined in the Appendix A.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively (two–tailed test).

**Table 5** The effect of internationalization on firm value: Alternative measure of internationalization

| Variables | (1) | (2) | (3) |
|---|---|---|---|
| | Tq | Tq_70 | Tq_80 |
| Intercept | 14.2774*** | 11.3186*** | 10.8874*** |
| | (10.58) | (8.73) | (8.43) |
| Fsales | -0.2554*** | -0.2127*** | -0.2060*** |
| | (-3.01) | (-3.02) | (-2.97) |
| Size | -0.5504*** | -0.4497*** | -0.4351*** |
| | (-9.36) | (-8.15) | (-7.94) |
| Lev | -0.2631 | 0.0544 | 0.1025 |
| | (-1.34) | (0.36) | (0.69) |
| Capex | 1.2780*** | 0.9379*** | 0.8944*** |
| | (3.65) | (2.77) | (2.63) |
| Ros | 0.0132 | -0.0497 | -0.0582 |
| | (0.16) | (-0.80) | (-0.97) |
| Intang | -0.2687 | -0.2263 | -0.2242 |
| | (-0.66) | (-0.70) | (-0.71) |
| Turnover | 0.1378** | 0.1214*** | 0.1198*** |
| | (2.53) | (3.08) | (3.15) |
| Growth | 0.0657* | 0.0073 | -0.0015 |
| | (1.78) | (0.22) | (-0.05) |
| Beta | -1.1451*** | -0.7971*** | -0.7442*** |
| | (-6.65) | (-6.49) | (-6.30) |
| Sd_roa | 5.0916*** | 3.6528*** | 3.4504*** |
| | (10.41) | (10.79) | (11.02) |
| Year | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.493 | 0.496 | 0.493 |
| F | 130.21 | 147.55 | 151.22 |
| Number of obs. | 12204 | 12204 | 12204 |

Numbers in parentheses represent t-values are adjusted using standard errors corrected for clustering at firm and year levels. All variables are as defined in the Appendix A.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively (two–tailed test).

**Table 6** Market value and Changes in Internationalization

| Variables | Number of firms | Year: -1 | | Year: 0 | | Test for difference | |
|---|---|---|---|---|---|---|---|
| | | Mean | Median | Mean | Median | Mean | Median |
| **Panel A**: Appearance as an international firm | | | | | | | |
| Tq | 313 | 2.7544 | 2.2011 | 2.2421 | 1.8643 | -0.5123*** | -0.3368*** |
| Tq_70 | 313 | 1.8001 | 1.4697 | 1.5566 | 1.2868 | -0.2435*** | -0.1829*** |
| Tq_80 | 313 | 1.6633 | 1.4084 | 1.4585 | 1.2099 | -0.2048*** | -0.1985*** |
| ln(total assets) | 313 | 21.1114 | 21.0249 | 21.2637 | 21.1595 | 0.1523** | 0.1346*** |
| ln(total sales) | 313 | 20.4114 | 20.3386 | 20.6104 | 20.577 | 0.1990*** | 0.2384*** |
| Lev | 313 | 0.4863 | 0.4647 | 0.499 | 0.4963 | 0.0127* | 0.0316*** |
| **Panel B**: Cease to be an international firm | | | | | | | |
| | | Year: 0 | | Year: 1 | | | |
| Tq | 119 | 2.8304 | 2.0203 | 2.8682 | 1.9903 | 0.0378 | -0.0300 |
| Tq_70 | 119 | 2.048 | 1.4972 | 2.1058 | 1.4507 | 0.0578 | -0.0465 |
| Tq_80 | 119 | 1.936 | 1.3666 | 1.997 | 1.3886 | 0.0610 | 0.0220 |
| ln(total assets) | 119 | 21.0985 | 20.9581 | 21.1966 | 21.0991 | 0.0981*** | 0.1410*** |
| ln(total sales) | 119 | 20.4128 | 20.5549 | 20.2916 | 20.5158 | -0.1212 | -0.0391 |
| Lev | 119 | 0.5852 | 0.5334 | 0.5993 | 0.5146 | 0.0141 | -0.0188 |

Panel A provides descriptive statistics for firms that identified the first appearance as international firms. Panel B presents descriptive statistics for firms that identified the first cease as international firms

T-tests are used to test differences of means. Wilcoxon two-sample tests are used to test differences of medians.

P values are in the parentheses. *, **, and *** indicate the 0.1, 0.05, and 0.01 levels of significance, respectively.

**Table 7** Heckman two-stage regression

| Variables | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Tq | Tq _70 | Tq _80 | Tq | Tq _70 | Tq _80 |
| Intercept | 11.0632*** | 7.5628*** | 7.0671*** | 11.1607*** | 7.6399*** | 7.1411*** |
| | (6.68) | (5.77) | (5.57) | (6.67) | (5.75) | (5.55) |
| Intn | -0.1146*** | -0.0904*** | -0.0867*** | | | |
| | (-2.86) | (-2.88) | (-2.84) | | | |
| Fsales | | | | -0.2290*** | -0.1810*** | -0.1736*** |
| | | | | (-2.69) | (-2.70) | (-2.65) |
| Size | -0.4409*** | -0.3238*** | -0.3072*** | -0.4451*** | -0.3271*** | -0.3104*** |
| | (-6.48) | (-5.93) | (-5.81) | (-6.50) | (-5.93) | (-5.81) |
| Lev | -0.3522* | -0.0496 | -0.0041 | -0.3537* | -0.0507 | -0.0052 |
| | (-1.69) | (-0.30) | (-0.03) | (-1.69) | (-0.31) | (-0.03) |
| Capex | 1.4154*** | 1.0872*** | 1.0438*** | 1.4119*** | 1.0845*** | 1.0413*** |
| | (4.36) | (3.67) | (3.54) | (4.35) | (3.65) | (3.53) |
| Ros | 0.0394 | -0.0399 | -0.0513 | 0.0389 | -0.0403 | -0.0516 |
| | (0.49) | (-0.65) | (-0.87) | (0.49) | (-0.66) | (-0.87) |
| Intang | -1.5401** | -1.7028*** | -1.7222*** | -1.5372** | -1.7006*** | -1.7201*** |
| | (-2.31) | (-3.90) | (-4.17) | (-2.31) | (-3.89) | (-4.15) |
| Turnover | 0.1299** | 0.1118*** | 0.1100*** | 0.1314** | 0.1131*** | 0.1112*** |
| | (2.44) | (2.90) | (2.96) | (2.47) | (2.92) | (2.98) |
| Growth | 0.0606* | 0.0038 | -0.0049 | 0.0614* | 0.0044 | -0.0043 |
| | (1.69) | (0.12) | (-0.16) | (1.71) | (0.14) | (-0.13) |
| Beta | -1.1142*** | -0.7811*** | -0.7300*** | -1.1194*** | -0.7852*** | -0.7339*** |
| | (-6.60) | (-6.41) | (-6.21) | (-6.59) | (-6.39) | (-6.19) |
| Sd_roa | 5.1704*** | 3.7087*** | 3.4972*** | 5.1768*** | 3.7137*** | 3.5020*** |
| | (10.09) | (10.33) | (10.50) | (10.09) | (10.32) | (10.48) |
| Inverse mills | 0.7200*** | 0.8819*** | 0.9008*** | 0.7152** | 0.8780*** | 0.8971*** |
| | (2.59) | (4.30) | (4.44) | (2.56) | (4.24) | (4.37) |
| Year | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.493 | 0.499 | 0.496 | 0.493 | 0.499 | 0.496 |
| F | 130.52 | 148.45 | 152.55 | 130.50 | 148.53 | 152.65 |
| Number of obs. | 12064 | 12064 | 12064 | 12064 | 12064 | 12064 |

Numbers in parentheses represent t-values are adjusted using standard errors corrected for clustering at firm and year levels. All variables are as defined in the Appendix A.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively (two–tailed test).

**Table 8 The effect of state ownership on earnings management**

| Variables | (1)<br>absDacc1 | (2)<br>absDacc2 |
|---|---|---|
| Intercpet | 0.2462***<br>(10.71) | 0.2421***<br>(9.21) |
| SOE | -0.0084***<br>(-2.84) | -0.0103***<br>(-4.16) |
| Big4 | 0.0045<br>(0.85) | 0.0042<br>(0.83) |
| Beta | -0.0139**<br>(-2.48) | -0.0115**<br>(-2.12) |
| Lev | 0.0837***<br>(10.62) | 0.0899***<br>(10.54) |
| Size | -0.0110***<br>(-10.27) | -0.0110***<br>(-9.07) |
| Cfo | -0.0401**<br>(-2.20) | -0.0821***<br>(-4.11) |
| Crl | 0.0006<br>(0.15) | 0.0011<br>(0.30) |
| Owner | 0.0186***<br>(2.59) | 0.0256***<br>(2.94) |
| Growth | 0.0034**<br>(2.08) | 0.0054***<br>(3.83) |
| Indir | 0.0427**<br>(2.30) | 0.0376**<br>(2.29) |
| Year | Yes | Yes |
| Industry | Yes | Yes |
| Adjusted $R^2$ | 0.168 | 0.164 |
| F | 28.57 | 25.05 |
| Number of obs. | 11953 | 11953 |

Numbers in parentheses represent t-values are adjusted using standard errors corrected for clustering at firm and year levels.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively (two–tailed test).

**Table 9** The interactive effects of internationalization and ownership on firm value

| Variables | SOEs | | | NSOEs | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Tq | Tq_70 | Tq_80 | Tq | Tq_70 | Tq_80 |
| Intercept | 11.9709*** | 9.3787*** | 8.9954*** | 17.4981*** | 14.0951*** | 13.6118*** |
| | (19.22) | (20.49) | (20.39) | (18.96) | (18.57) | (18.29) |
| Intn | -0.0625 | -0.0375 | -0.0333 | -0.2372*** | -0.2084*** | -0.2047*** |
| | (-1.26) | (-0.97) | (-0.89) | (-2.99) | (-3.24) | (-3.25) |
| Size | -0.4496*** | -0.3683*** | -0.3562*** | -0.7027*** | -0.5747*** | -0.5570*** |
| | (-15.06) | (-16.66) | (-16.70) | (-15.17) | (-15.16) | (-14.99) |
| Lev | -0.3161 | -0.0014 | 0.0432 | -0.1104 | 0.1655 | 0.2133 |
| | (-1.59) | (-0.01) | (0.27) | (-0.53) | (0.99) | (1.31) |
| Capex | 0.6925** | 0.6153*** | 0.6048*** | 2.0636*** | 1.2591*** | 1.1551*** |
| | (2.48) | (2.92) | (2.97) | (3.85) | (2.93) | (2.74) |
| Ros | 0.1481 | 0.0480 | 0.0357 | -0.0682 | -0.0972 | -0.1019 |
| | (1.43) | (0.58) | (0.44) | (-0.67) | (-1.25) | (-1.36) |
| Intang | -0.2864 | -0.3030 | -0.3019 | -0.1859 | 0.0350 | 0.0511 |
| | (-0.68) | (-0.98) | (-1.01) | (-0.26) | (0.06) | (0.10) |
| Turnover | 0.1026* | 0.1001** | 0.1008** | 0.1811* | 0.1363* | 0.1300* |
| | (1.76) | (2.22) | (2.30) | (1.93) | (1.78) | (1.74) |
| Growth | 0.1195** | 0.0614 | 0.0518 | 0.0358 | -0.0248 | -0.0332 |
| | (2.15) | (1.35) | (1.18) | (1.07) | (-0.96) | (-1.31) |
| Beta | -0.8992*** | -0.5861*** | -0.5385*** | -1.3911*** | -1.0290*** | -0.9730*** |
| | (-9.64) | (-8.28) | (-7.89) | (-8.73) | (-7.89) | (-7.63) |
| Sd_roa | 4.7558*** | 3.2376*** | 3.0292*** | 4.6324*** | 3.3868*** | 3.2017*** |
| | (7.45) | (6.53) | (6.31) | (8.44) | (7.48) | (7.20) |
| Year | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.453 | 0.462 | 0.461 | 0.527 | 0.521 | 0.516 |
| F | 47.62 | 45.71 | 46.42 | 43.17 | 43.42 | 43.29 |
| Number of obs. | 7731 | 7731 | 7731 | 4473 | 4473 | 4473 |

Numbers in parentheses represent robust t-values are adjusted using standard errors corrected for clustering at firm and year levels. All variables are as defined in the Appendix A.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively (two–tailed test).

**Table 10** The interactive effects of internationalization and corporate tax rates on firm value

| Variables | Lower nominal income tax | | | Higher nominal income tax | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Tq | Tq_70 | Tq_80 | Tq | Tq_70 | Tq_80 |
| Intercept | 14.6419*** | 11.9124*** | 11.4958*** | 18.3122*** | 15.3415*** | 14.9239*** |
| | (19.36) | (20.84) | (20.72) | (22.79) | (23.04) | (22.78) |
| Intn | -0.1433** | -0.1195** | -0.1154** | -0.1166 | -0.0906 | -0.0868 |
| | (-2.31) | (-2.43) | (-2.39) | (-1.44) | (-1.32) | (-1.28) |
| Size | -0.4665*** | -0.3954*** | -0.3845*** | -0.6633*** | -0.5707*** | -0.5581*** |
| | (-12.72) | (-13.56) | (-13.46) | (-17.88) | (-18.69) | (-18.59) |
| Lev | -0.9020*** | -0.3689** | -0.2902* | 0.0179 | 0.0895 | 0.1044 |
| | (-4.45) | (-2.16) | (-1.73) | (0.09) | (0.53) | (0.63) |
| Capex | 0.8919** | 0.4884 | 0.4368 | 0.4040 | 0.2873 | 0.2749 |
| | (2.22) | (1.43) | (1.30) | (0.73) | (0.67) | (0.65) |
| Ros | 0.5428** | 0.4571** | 0.4400** | -0.0296 | -0.1625 | -0.1836* |
| | (2.37) | (2.55) | (2.52) | (-0.22) | (-1.45) | (-1.67) |
| Intang | -0.6454 | -0.5212 | -0.5175 | 0.5332 | 0.4113 | 0.3932 |
| | (-1.19) | (-1.13) | (-1.14) | (0.98) | (0.97) | (0.96) |
| Turnover | 0.0191 | 0.0506 | 0.0565 | 0.1716* | 0.1449** | 0.1410* |
| | (0.27) | (0.91) | (1.04) | (1.92) | (1.97) | (1.96) |
| Growth | 0.1632** | 0.0421 | 0.0267 | 0.0363 | -0.0206 | -0.0292 |
| | (2.11) | (0.62) | (0.40) | (1.07) | (-0.73) | (-1.04) |
| Beta | -1.4894*** | -1.0668*** | -1.0004*** | -1.0223*** | -0.6978*** | -0.6499*** |
| | (-8.50) | (-7.60) | (-7.29) | (-7.45) | (-6.17) | (-5.85) |
| Sd_roa | 6.6235*** | 4.9950*** | 4.7669*** | 5.8136*** | 4.1219*** | 3.9140*** |
| | (7.05) | (6.65) | (6.53) | (8.47) | (7.46) | (7.19) |
| SOE | -0.1155* | -0.0526 | -0.0452 | -0.1337 | -0.1248* | -0.1233* |
| | (-1.70) | (-0.95) | (-0.83) | (-1.64) | (-1.86) | (-1.87) |
| Year | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.462 | 0.430 | 0.420 | 0.540 | 0.522 | 0.514 |
| F | 43.2890 | 36.9764 | 36.1021 | 38.4458 | 37.3902 | 36.5154 |
| Number of obs. | 4268 | 4268 | 4268 | 3921 | 3921 | 3921 |

Numbers in parentheses represent robust t-values are adjusted using standard errors corrected for clustering at firm levels. All variables are as defined in the Appendix A.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively (two−tailed test).

**Table 11** The interactive effects of internationalization and tax rebates on firm value

| | Lower tax rebates | | | Higher tax rebates | | |
|---|---|---|---|---|---|---|
| Variables | (1) | (2) | (3) | (4) | (5) | (6) |
| | Tq | Tq_70 | Tq_80 | Tq | Tq_70 | Tq_80 |
| Intercept | 15.6617*** | 12.7700*** | 12.3499*** | 12.3523*** | 9.9688*** | 9.6266*** |
| | (20.05) | (20.48) | (20.21) | (20.25) | (19.72) | (19.48) |
| Intn | -0.0260 | -0.0032 | 0.0008 | -0.0803 | -0.0768* | -0.0764* |
| | (-0.36) | (-0.05) | (0.01) | (-1.60) | (-1.90) | (-1.94) |
| Size | -0.6198*** | -0.5172*** | -0.5026*** | -0.4438*** | -0.3715*** | -0.3611*** |
| | (-16.28) | (-17.13) | (-17.02) | (-15.45) | (-15.67) | (-15.58) |
| Lev | -0.2720 | -0.0148 | 0.0303 | -0.5954*** | -0.1888 | -0.1318 |
| | (-1.33) | (-0.09) | (0.18) | (-3.34) | (-1.38) | (-1.00) |
| Capex | 1.0345** | 0.7678** | 0.7330** | 1.1278*** | 0.7550*** | 0.7032** |
| | (2.51) | (2.34) | (2.29) | (3.12) | (2.61) | (2.48) |
| Ros | 0.0170 | -0.0815 | -0.0971 | 0.5646** | 0.4241** | 0.4037** |
| | (0.14) | (-0.85) | (-1.04) | (2.51) | (2.39) | (2.34) |
| Intang | -0.0004 | 0.0070 | 0.0029 | -0.0548 | -0.0924 | -0.0969 |
| | (-0.00) | (0.02) | (0.01) | (-0.11) | (-0.23) | (-0.25) |
| Turnover | 0.2951*** | 0.2317*** | 0.2242*** | -0.0204 | 0.0145 | 0.0191 |
| | (3.70) | (3.60) | (3.55) | (-0.41) | (0.36) | (0.49) |
| Growth | 0.0722** | 0.0148 | 0.0071 | 0.0428 | -0.0516 | -0.0650 |
| | (1.98) | (0.48) | (0.23) | (0.80) | (-1.25) | (-1.61) |
| Beta | -1.2598*** | -0.9214*** | -0.8704*** | -1.0320*** | -0.7040*** | -0.6563*** |
| | (-9.07) | (-8.10) | (-7.79) | (-9.64) | (-8.49) | (-8.18) |
| Sd_roa | 6.1202*** | 4.3487*** | 4.1168*** | 5.1614*** | 3.7285*** | 3.5287*** |
| | (9.75) | (8.40) | (8.08) | (6.71) | (6.35) | (6.20) |
| SOE | -0.1005 | -0.0903 | -0.0889 | -0.1163** | -0.0662 | -0.0590 |
| | (-1.38) | (-1.54) | (-1.55) | (-2.24) | (-1.52) | (-1.38) |
| Year | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes | Yes | Yes | Yes |
| Adjusted $R^2$ | 0.534 | 0.531 | 0.526 | 0.439 | 0.430 | 0.426 |
| F | 40.5060 | 40.3080 | 39.9945 | 39.3384 | 38.5773 | 38.9054 |
| Number of obs. | 5306 | 5306 | 5306 | 5303 | 5303 | 5303 |

Numbers in parentheses represent robust t-values are adjusted using standard errors corrected for clustering at firm level. All variables are as defined in the Appendix A.

***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively (two−tailed test).