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Information asymmetry and monitoring in equity private placements

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ABSTRACT

This paper systematically examines the factors that determine price discounts and announcement effects of equity private placements conducted by firms in Taiwan from 2002 to 2008. Different with most studies of private placements using available observations as a whole sample, our study separates the whole sample into subsamples by exchange-listed firms and OTC firms. The results for OTC firms corroborate the information hypothesis; the discounts serve as compensation for investor's costs of assessing firms, while abnormal returns reflect the information about firm quality. On the other hand, the empirical results show that some of our findings support an information explanation and some support a monitoring explanation in the case of exchange-listed firms. It seems that there are different motives behind the exchange-listed firms placing equity privately.

1. Introduction

The private placement market has escalated rapidly worldwide during the past few years. For example, the amount of private placements in the US (the United States) dramatically increased from $1.87 billion in 1995 to $51.9 billion in 2009. Taiwan's private placement market has also expanded annually after the enactment of relevant regulations in 2002. In 2009, issuing firms conducted 181 private placements, amounting to $5.46 billion, which accounts for 25.36% of the total amount of private and public placements in Taiwan.[1] These figures indicate that private placement has become an important financing alternative for companies seeking capital.

"Private placement" implies offering equity to a selective number of institutions or high wealth investors. Firms choose private placements primarily because the simplified issuance procedures and lower flotation costs expedite issuance (Anderson, Rose, & Cahan, 2006; Fenn, 2000; Krishnamurthy, Spindt, Subramaniam, & Woidtke, 2005). However, this measure could dilute the ownership of current non-participating shareholders. To safeguard these shareholders' rights, stock exchanges typically enforce specific regulations for private placements (Anderson et al., 2006), including qualification restrictions on investors and resale restrictions on private equity shares. Screening investors may help resolve information asymmetry problems, which are more severe in private placement firms that are new and small, covered by fewer stock market analysts, tending to be listed on the OTC, or deriving most of their value from growth opportunities (Lee & Wu, 2009; Marciukaityte, Szewczyk, & Varma, 2005; Wu, 2004). The private placement resale restrictions affect the pricing of shares. When the majority of block shares are traded at a premium (Barclay & Holderness, 1989; Barclay, Holderness, & Sheehan, 2007; Wayne & Hailu, 1991), private equity has always been offered at a discount. The discounts compensate investors for higher trading costs such as illiquidity (Silber, 1991); thus, investors are able to freely transfer private equity shares only after a holding period of two or three years (lockup period) in most countries. Because investors can't arbitrage by quick turnaround within the lockup period, they must bear the economic risk and thus have the incentives to play the gatekeeping role to monitor firms (Coffee, 1995). This involves the ownership structure hypothesis which suggests that outside blockholders created by private placements offer monitoring services and then increase firm value.

In general, the theories commonly applied to the announcement effects and pricing in private placements include the information hypothesis and the ownership structure hypothesis. However, empirical evidence from different countries or different stock exchanges supports different theories. This makes us wonder

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[1] Data source: http://www.sagientresearch.com (USA), Securities and Future Bureau, Financial Supervisory Commission (Taiwan). Private placements in USA include PIPEs (private investments in public equity), Regulation S transactions and 144-A placements.

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whether the different sample will lead to different results, and which factors influence the results. To explore this, the view of Hertzel and Smith (1993) sheds some light. They suggest that the relative importance between the information hypothesis and the ownership structure hypothesis for private placements depends on firm size. In general, smaller firms tend to be growing, illiquid and with higher managerial ownership, so resolving information asymmetry problems seems more important. In contrast, larger firms are more liquid but with lower managerial ownership, therefore increased monitoring or incentive alignment becomes relatively important.

In Taiwan, there are two main stock markets: centralized market (Taiwan Stock Exchange, TSE) and over-the-counter market (GreTai Securities Market, OTC). Due to the level of listing requirements for securities traded on TSE and OTC being very different, except for the difference in firm size, the governing regulations and the market characteristics between TSE and OTC are also quite different.[2] Therefore, we consider it valuable to explore the differences between TSE and OTC markets, and the empirical results will be more useful for managers' financing decisions in firms listed on different exchanges. While reviewing the literature, though there is ample empirical evidence to support different hypotheses on private placements, no serious attempt has yet been made to examine whether they apply to both centralized markets and OTC markets. The OTC market exhibits a higher level of information asymmetry than that of the centralized market. As private placements may help mitigate information asymmetry, it would be interesting to explore whether this financing tool is more effective for OTC markets or for centralized markets. In literature, we discovered that only Alli and Thompson (1993) cover exchange-listed and OTC firms but they do not conduct a detailed cross-sectional analysis. Moreover, their results are limited by the low number of sample firms and research variables.

Moreover, differences in regulations among countries also modify empirical results in private placements. Except for resale restrictions, private placement regulations on private equity investors, amount, or discounts are stricter in Singapore than in Taiwan and the US, thus altering the empirical results. For example, there are no limits on private placement amount and discounts in Taiwan and in the US. Empirical results reveal that the maximum equity fraction placed, average discounts, and private placement abnormal returns in these two countries are higher than in Singapore (Chen, Ho, Lee, & Yeo, 2002a; Hertzel & Smith, 1993; Jang, Tsai, & Kuo, 2010; Wruck, 1989). This study divides the entire sample into two subsamples – exchange-listed and OTC firms, and examines the factors that determine private placement discounts and the manner in which investors respond to private placement announcements. Hence, we hope this research will contribute to the literature on private placements in the case of Taiwan.

In conclusion, our results corroborate the information hypothesis in OTC firms. The discounts serve as compensation for the investor's costs of assessing the firm, while abnormal returns reflect the information about firm quality. On the other hand, the empirical results show that some of our findings support an information explanation and some support a monitoring explanation in the case of the TSE firms. The discounts compensate investors for both information costs and expected monitoring services, while announcement effects reflect both the information about firm quality and the benefits of increased monitoring. Intending to pursue control benefits, single investors participate in private placements in order to obtain control premium. The evidence substantiating this claim is fairly conclusive in exchange-listed firms.

In addition to introduction, the paper is organized as follows: Section 2 presents the regulatory environment and market characteristics in Taiwan. Section 3 reviews the relevant literature on private placements. Section 4 details research methodology. Section 5 contains the sample descriptions and empirical results, and conclusions are presented in Section 6.

2. Regulation environment and market characteristics in Taiwan

2.1. The regulatory environment for private placements

Regulations for private placements in Taiwan primarily follow the pattern of private placements in the US. In contrast to the non-exclusive regulations in the US, regulations for private placements in Taiwan are exclusive. Private placement shares are offered at discounts in most countries; however, they are often sold at a premium in Singapore (Tan, Chng, & Tong, 2002). We thus begin by comparing regulations for private placements in these countries. The primary regulations governing private placements are the Securities and Exchange Act (from Article 43-6 to Article 43-8) in Taiwan, the Regulation D and Rule 144A in the US,[3] and the Listing Manual of the Singapore Exchange.

In Taiwan, a public company may conduct a private placement with "accredited investors" only upon shareholder approval. After the date of the shareholders' resolution, the private placement may be conducted by instalments within one year. Accredited investors include financial institutions (banks, bills finance corporation, mutual funds and insurance companies, etc.), wealthy investors (natural persons, juristic persons, or funds meeting the specified wealth standards), and insiders (directors, supervisors, and managerial officers of the company or its affiliated enterprises). There are no limitations on the number of financial institutions, but the number of other investors is limited to 35. In the US, a private placement of securities can be sold to an unlimited number of "accredited investors" and up to 35 "sophisticated investors". However, the restrictions in Singapore are stricter and firms cannot sell shares to their directors and existing blockholders (Anderson et al., 2006; Chen et al., 2002a).

As for the pricing of private placements, the US has no restriction on the size of discount. This was the case in Taiwan before 2005. However, starting from 2005, if the price of privately placed shares was lower than 80% of the reference price,[4] the offering company had to seek and disclose an independent expert's opinion on the reasonableness of the amount of discount. After 2010, the price of private placement securities was further restricted to 80% of the reference price if insiders were to participate in private placements. In Singapore, the size of the discount is restricted to 10% of the current market price. In addition, in Taiwan and the US,

[2] In Taiwan, both TSE and OTC use electronic screen trading. If a public company intends to have its shares listed, it may apply for listing either on TSE or on OTC. Compared to TSE, OTC was established to enable firms not meeting the criteria for listing on TSE to access direct financing. Therefore, the requirements for listing on TSE and OTC are different. For example, minimum paid-in capital (NT$50 million on OTC/NT$600 million on TSE), no less than two full fiscal years after having completed company registration (OTC/three years on TSE) and requirements for profitability and dispersion of shareholdings. (NT$ denotes New Taiwan Dollar. US$1 is around NT$30 in November, 2012).

[3] Private placements to investors outside the US are regulated by the Regulation S.

[4] The reference price is the higher of the following two calculations: (a) the firm's average stock price for either the one, three, or five business days before the price determination date, or (b) the firm's average stock price for the thirty business days before the price determination date. (Before 2010, the reference price was only restricted to condition (a).)

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there are no restrictions on the amount of a private placement. In Singapore, except in specific circumstances, the volume of shares issued through private placement is restricted to 10% of the shares outstanding (Anderson et al., 2006; Chen et al., 2002a).

In Taiwan, after the sale of privately placed shares, the offering firms must disclose the relevant information as required under the Market Observation Post System (MOPS) within 15 days. This disclosure includes information on the number of shares offered, the offering price, the purpose and investors of the offering. In the US, there are similar regulations for each new offering; the issuer must file a notice of sale with the Securities and Exchange Commission containing the information required by Form D not later than 15 calendar days from the first sale of the securities. In Singapore, the regulation requires immediate disclosure by an issuer to keep the shareholders and the Singapore Exchange informed of the private sale of a significant amount of additional securities.

In addition, there are resale restrictions in Taiwan and the US, but there are no such restrictions in Singapore. In Taiwan, the investors cannot resell privately placed securities within three years as a matter of principle. If the investors intend to transfer the securities within three years, there are restrictions on the buyers and the number of shares that can be transferred. After the three-year holding period, if the company intends to register the privately placed shares, it has to file with the competent authority for retroactive handling of public issuance procedures. In the US, there are two types of private placements, registered (unrestricted) and unregistered (restricted) (Wu, 2004). Investors cannot sell the restricted privately placed securities for at least six months or one year, depending on whether the investors are affiliates or non-affiliates of the issuer (Securities Act Rule 144). However, the securities can be sold to "qualified institutional buyers" or in specified conditions (e.g., notice requirements) without adhering to the holding period (Securities Act Rule 144A). In the latter case, the buyer could be acting in place of an underwriter, with the intention of re-selling the placement.

In summary, private placement of shares in Taiwan can be sold only to accredited investors, the size of the discount is restricted, and the lockup period is longer. Thus, the development of private placements in Taiwan is more restricted than in the US.

2.2. Market characteristics in Taiwan

Several market characteristics unique to Taiwan have made research on its private placements very important. First, compared with firms in developed countries, most firms in Taiwan are rather small. According to data from the Small and Medium Enterprise Administration of Ministry of Economic Affairs, there were 1.23 million small and medium-sized enterprises in Taiwan in 2009, accounting for 97.91% of all business enterprises. Further, since small businesses often consider the higher fixed issuing costs as a barrier to financing and information asymmetry in small firms is also more severe, private placements have become vital for small firms to raise capital (Carpentier, L'Her, & Suret, 2008).

Second, the ratio of family controlled businesses in Taiwan is rather large. According to Lin and Chang (2009), from 1998 to 2006, 57% of the listed firms in Taiwan are family-controlled businesses. Cronqvist and Nilsson (2005) find that family controlled firms avoid conducting private placements because introducing new blockholders may threaten the family's control. However, on the topic of corporate control, Sharpe and Woo (2005) suggest that founders with a low shareholding level will prefer placing their private placement shares with shareholders who share a common interest. Therefore, we conjecture that if family-controlled firms aim to raise funds but are not willing to lose their control rights, the most effective method will be to issue private placement shares to friendly investors, e.g., the family members. Lin and Chang (2009) also find that family firms in Taiwan are less prone to fraud because the interests of the controlling families and family firms are aligned. In general, the management teams of family firms are often formed by family members[5] (Yeh, Lee, & Woidtke, 2001). Further, based on the incentive alignment effect, the controlling families also play the gatekeeper role in monitoring firms and thus help reduce the likelihood of fraud.

Third, in contrast to the US market, which mainly consists of institutional investors, most participants in the Taiwanese stock markets are individual investors (66% of all investors in 2011). Institutional investors form expert teams to analyze the operations of private placement firms and are active in firm affairs. In contrast, in a country like Taiwan where family control is prevalent, individual investors are less likely to hold high levels of ownership and influence major firm decisions. Therefore, many private placements are offered to controlling shareholders and specific conglomerates. This reduces the probability of introducing blockholders to monitor the management through private placements (Hsieh & Wu, 2010).

3. Literature review

3.1. Private placement discounts

In most studies, private placements are issued at a discount (Alli & Thompson, 1993; Barclay et al., 2007; Hertzel, Lemmon, Linck, & Rees, 2002; Hertzel & Smith, 1993; Krishnamurthy et al., 2005; Wruck, 1989; Wruck & Wu, 2009; Wu, 2004). It is widely accepted in the literature that discounts reflect the compensation to investors. Based on the information hypothesis, since investors expend more effort when experiencing difficulties in assessing the firm's value, they correspondingly require higher discounts. For example, Hertzel and Smith (1993) show that the discounts compensate investors for information acquisition costs. Wruck and Wu (2009) suggest that the discounts could also compensate investors for bearing firm-specific risks. Additionally, the certification hypothesis provides an alternative explanation. Because private equity is usually offered to wealthy individuals or institutions that have expertise in valuing firms, when these private investors agree to buy a block of shares (Hertzel & Smith, 1993) or even to buy equity at a premium (Tan et al., 2002), it implies that the issuing firms are worth investing in. Therefore, discounts represent the costs of certification. However, Hertzel et al. (2002) offer a different explanation, which suggests that discounts reflect the investors' assessments of the firm's true (lower) value through observed post-issue stock-price underperformance. Marciukaityte et al. (2005) document that the discounts offered by firms reflect the compensation for purchasing overvalued shares, which is known to investors; therefore, discounts are negatively related to market reactions. Krishnamurthy et al. (2005) argue that when private investors are overoptimistic about a firm's prospects, they purchase the firm's shares at a price that includes the market's valuation on the post-issue stock prices, leading to discounts.

Furthermore, the ownership structure hypothesis offers different views. In private placement studies, the ownership structure hypothesis is often linked with the monitoring argument, suggesting that outside blockholders formed by private placements offer monitoring services and increase firm value. Wruck (1989), Hertzel and Smith (1993) and Wruck and Wu (2009) suggest that the discounts of private placements reflect the compensation to investors for their estimated expert advice and monitoring services.

[5] Claessens et al. (2000) find that controlling family appoints management in 79.8% of listed firms in Taiwan.

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In general, when firms form stronger governance relationships with investors through private placements, their price discounts are larger, because the discounts compensate the investors for their participation in the governance process. Barclay et al. (2007) show that discounts reflect the compensation to passive buyers as they seldom participate in the affairs of the firm. This decreases the opportunities for investors to obtain private benefits and indirectly entrenches managers. On the other hand, unlike the case of passive investors entrenching managers, the investors in block transactions willingly buy the shares at a premium for their private benefits of control. The possible reason is that the buyers anticipate receiving benefits that the other shareholders cannot enjoy (e.g., obtaining board seats and participating in firm decision-making) (Barclay & Holderness, 1989).

Finally, in agency theory, managerial self-dealing is a common practice. The hypothesis of managerial self-dealing is that managers appropriate shareholder benefits by buying the firms' shares at low prices or entrenching themselves in private issues (Wu, 2004). Wu and Wang (2005) show that managers may pursue their self- interested wealth, including security benefits (i.e., equity claims) and private benefits (e.g., self-dealing), in addition to the controlling stockholders. When a wedge appears between the control and cash flow rights, issues of private benefits of control arise. In many countries, the managers often hold a small percentage of company shares but remain allied with friendly blockholders, so that they seem to have more power than the dispersed shareholders. In addition, the controlling shareholders may also have the selfish motive of expropriating outside shareholders. In case the interests of minority shareholders are not protected, larger private benefits will be easily obtained (La Porta, Lopez-de-Silanes, & Shleifer, 1999; Shleifer & Vishny, 1997). Wu (2004) shows that if the managers pursue self-dealing, they will buy the shares at low prices and sell them at high prices to transfer the shareholders' wealth to themselves. This is also one of the reasons for private placement discounts.

3.2. Private placement announcement effect

3.2.1. The information effect

When information asymmetry exists in markets, investors regard public issue announcements as negative publicity as they believe that managers seek public equity when the respective firms are overvalued (Miller & Rock, 1985). Private placements could mitigate information asymmetry problems and thus convey the opposite signal to the market. Under the signalling hypothesis, managers convey their valuation of the firms' quality to outside investors through their equity ownership. When managers expect future growth in firms' cash flows, they would retain larger ownership (Leland & Pyle, 1977). Hertzel and Smith (1993) discover that private placements exhibit positive announcement effects that can be attributed to information effects. There exists a positive relationship between the severity of undervaluation and the influence of the information effect. Wu and Wang (2005) note that announcement returns increase with firms' growth expectations. When information asymmetry arises from uncertainty about growth prospects rather than assets in place, the equity issue should generate positive publicity. Additionally, if buyers in private placements are firms' insiders or affiliated investors (i.e., directors, officers, blockholders), the short-run or long-run performance of the issuers will improve. This is because insiders or affiliated investors could have information advantages to adequately assess the firms' value; therefore, they buy private equity shares of undervalued firms (Krishnamurthy et al., 2005; Wruck & Wu, 2009). Hertzel and Rees (1998) observe that the firms' earnings change after private equity issues are positively correlated with firms' announcement returns, but the underlying riskiness of firms' assets does not change significantly. This result further confirms that a private placement announcement conveys the firm's favourable prospects to the market.

In contrast with underinvestment caused by asymmetric information, Myers and Majluf (1984) propose that financial slack helps alleviate the underinvestment problem. Nonetheless, Jensen and Meckling (1976) argue that managers motivated by self-interest may overinvest and induce firms to grow beyond optimal size. This is an excess cash flow problem because the free cash flow might be wasted on unprofitable projects (Jensen, 1986). Jensen (1986), Myers and Majluf (1984) and Stulz (1990) also agree that following increased liquidity, the firm value will first increase and then decrease. This phenomenon has been widely verified. Even though the majority of the cash flow literature reveal that the market does not favour liquidity accumulation, Hertzel and Smith (1993) indicate that the stock market responds positively when financially distressed firms announce private placements. Although the capital market will penalize excess liquidity, the improved liquidity for non-financial slack firms could elicit a positive response from the stock market. Moreover, LeRoy and Graham (2005) investigate a potential relationship between earnings improvements following private issues and increased liquidity. They observe that when liquidity is enhanced by small firms with growth potential, the announcement abnormal returns will be positive. It is further verified that participation in private issues serves as a medium for investors to convey their private information to the market.

3.2.2. Monitoring, convergence-of-interest and entrenchment

In theory, the blockholders introduced by private placements offer monitoring services and then increase the issuing firms' value (Demsetz & Lehn, 1985; Shleifer & Vishny, 1986). Hertzel and Smith (1993) and Wruck (1989) also suggest that the abnormal returns of private placement reflect the expected monitoring benefits. However, it is unclear whether ownership concentration actually benefits monitoring or only entrenches management. According to the convergence-of-interest hypothesis, since the managers must bear the wealth effects of their decisions, any increase in the managers' ownership helps align their interests with those of outside shareholders, making the costs of divergence from value maximization decrease. Therefore, the value of the firm rises with the managers' ownership (Jensen & Meckling, 1976). Krishnamurthy et al. (2005) also show that if a firm's insiders or affiliated investors participate in private placements, the announcement abnormal returns for the firm will be higher, because the participation helps the managers increase their ownership in the firm. On the other hand, even earlier capital structure theories suggest that an alignment between the objectives of the managers and shareholders is good for the development of a firm. Barclay et al. (2007) argue that capital structure decisions aggravate agency problems because the managers usually place blocks of shares with passive investors to increase their control rights, namely, entrenchment. The result shown in Barclay et al. (2007) is not a special case. Under the entrenchment hypothesis, the managers of firms prefer to sell their shares to friendly investors who will not influence their power. For example, Dann and DeAngelo (1988) find that it is a common technique for managers to block any takeover attempt by privately placing the equity with friendly investors or with themselves. Finally, non-linear arguments offer a comprehensive explanation. Morck, Shleifer, and Vishny (1988) and Wruck (1989) all find that the effect of a change in ownership concentration on firm value is not linear, but varies with the level of ownership. Morck et al. (1988) show that the value of a firm (i.e., Tobin's Q) increases as board ownership rises from 0% to 5%, decreases as it rises from 5% to 25%, and increases again as it rises over 25%. Wruck (1989)

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also shows a positive relation between ownership concentration and abnormal returns from private placement when the changes in ownership concentration are in high and low levels and negative in the medium level (between 5% and 25%). The positive correlation reflects the convergence of interests between managers and shareholders, although under some situations the changes in ownership can lead to entrenching managers.

4. Methodology

In this study, we use the multiple regression models to analyze which factors affect the pricing and announcement effects in private placements. Variables are described as follows.

4.1. Dependent variable

4.1.1. Private placement discounts

As in Hertzel and Smith (1993), the discount is measured relative to share price, P_{10}, 10 days after the private placement announcement date[6] as

$$\text{Discount} = \frac{P_{10} - P_0}{P_{10}} \quad (1)$$

If P_{10} is higher than placement price (P_0), *Discount* is positive; if P_{10} is lower, *Discount* is negative. That is, premiums are viewed as negative discounts.

4.1.2. Discount-adjusted abnormal returns

Discount-adjusted abnormal returns (AR_{adj}) follows Wruck's (1989) formula.[7] We adjust the cumulative abnormal returns by taking account of the ratio of shares placed and the discount. The event window is a four-day announcement period from day −3 to day 0 (day 0 is the announcement date of a private placement). Equation is as follows:

$$AR_{adj} = \left[\frac{1}{1-\alpha}\right][AR] - \left[\frac{\alpha}{1-\alpha}\right]\left[\frac{P_0 - P_b}{P_b}\right] \quad (2)$$

where α is the ratio of shares placed to shares outstanding after the placement, *AR* is the abnormal stock return over the event window, P_b is the closing price just one day prior to the event window.

We use the market model to measure abnormal returns and estimate betas using the Scholes and Williams (1977) method to correct thin trading.

4.2. Independent variables

Explanatory variables are classified into three categories to explore the information hypothesis, the monitoring hypothesis, and the characteristics of the market, firms and private offerings. The measures of the variables are presented as follows.

4.2.1. Fraction

Fraction denotes the ratio of shares issued to total shares outstanding after an issue. Hertzel and Smith (1993) suggest that when facing profitable investment opportunities but lack sufficient capital, firms can raise the funds they need through private placements to mitigate the underinvestment problem (Myers & Majluf, 1984). When the size of the investment is larger, the firms may place a larger fraction of shares to raise the funds needed. Therefore, the fraction of shares placed reflects the investment opportunities. It is understandable that investment opportunities are more difficult to evaluate than are existing assets; moreover, the information costs may become higher for investors because they may have to expend more time and resources on firm evaluation. From the investors' viewpoint, a larger fraction of shares placed represents higher information costs. From the firms' viewpoint, placing a greater fraction of shares with a long lockup period is practically more difficult. The firms may therefore compensate investors by providing larger discounts (Maynes & Pandes, 2011). Tan et al. (2002) find that the price of placements and the fraction of shares placed exhibit a positive correlation, because the fraction of shares placed reflects the available investment opportunities and affects the earning prospects of the issuing firms. Therefore, a higher fraction means more positive information, and abnormal returns would be higher.

4.2.2. LnProceeds

LnProceeds denotes the natural logarithm of private placement proceeds. When the issue size (issue proceeds) of a firm is larger, more investors will assess the firm. This may reduce the degree of information asymmetry, the possibility of undervaluing the firm, and the costs of information gathering, and therefore the discount will be smaller.

4.2.3. LnMV

Large firms are easily assessed by investors and less likely to be undervalued; the costs of information gathering for investors are therefore lower so price discounts are smaller in large firms. On the other hand, information asymmetry is rather high in small firms, and investors have to incur more costs to assess firm value; the discounts are therefore higher and information effects stronger in small firms. This means that a firm's equity market value is negatively related to abnormal returns (Hertzel & Smith, 1993). Wu and Wang (2005) show that when a small but growing firm raises funds, the announcement abnormal returns will be greater if information asymmetry arises from investment opportunity rather than from assets in place. We use the firm's equity market value as a proxy for firm size. The variable is defined as the natural logarithm of the stock price on the announcement date multiplied by the number of shares outstanding prior to the placement.

4.2.4. BM

BM denotes the year-end ratio of book value of equity to market value of equity prior to the private placement announcement. Empirical studies usually employ *BM* (book-to-market ratio) as a proxy for growth opportunities (e.g., Barclay & Smith, 1995; Cronqvist & Nilsson, 2005; Krishnaswami, Spindt, & Subramaniam, 1999). Folta and Janney (2004) suggest that a firm with a low *BM* implies low growth opportunities, but this is more difficult to be valued for investors who will thus obtain a higher discount. Hertzel and Smith (1993) and Tan et al. (2002) also use *BM* to measure firm value. A lower *BM* means that a larger fraction of the firm value is from intangible assets, while a higher *BM* indicates a larger fraction of tangible assets. When the intangible assets of a firm are worth more, information asymmetry for the firm will be more severe, and its value is more likely to be undervalued. Wu, Wang, & Yao

[6] When measuring the discount, there are two bases used in literature. Krishnamurthy et al. (2005) argue that the aim of computing the discount is to show any benefit from the private issue, so they measure the discount on the price ten days after the announcement. Barclay et al. (2007) argue while negotiating the terms of the private placement, the traders should have considered the impact of the announcement on the market price, thus they use the price one day after the announcement to obtain the discount. The others using price after announcement to measure premium/discount include Hertzel et al. (2002), Wu (2004), Lee and Wu (2009). Instead, Alli and Thompson (1993), Tan et al. (2002), Anderson et al. (2006), LeRoy and Graham (2005) and Wu et al. (2005) use preannouncement price to obtain premium/discount. Wruck and Wu (2009) use both methods.

[7] Although the measure AR_{adj} was questioned by Wu et al. (2005), it is more appropriate in exploring information content of private placement announcement. Therefore, we still use AR_{adj} as the dependent variable of announcement return regressions.

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(2005) extend Wu and Wang's (2005) theory, and proposes another view: if the lower market-to-book ratio (MV/BV) of a firm is due to its lower value of assets in place rather than future investments, it means that there is sufficient uncertainty over growth, and the private placement announcement effect may thus be better.[8] Conversely, if the lower MV/BV results from bad past investments, the announcement effect may be worse.

4.2.5. CAR (−59, −2)

As in Chen, Ho, Lee, and Yeo (2002b), we use cumulative abnormal returns over the period beginning 59 days and ending 2 days prior to the private placement announcement. The purpose is to control mean reversion in returns.

4.2.6. Purpose

While studying the issue on moral hazard,[9] Cronqvist and Nilsson (2005) find that in contrast to rights offerings, the sample firms often develop a new product-market relationship with investors, such as production technology, R&D, distribution systems and marketing, at the time of private offerings. Barclay et al. (2007) divide private investors into three types: active,[10] managerial, and passive. If a purchaser becomes an active investor in firm affairs following the placement, both the short- and long-run stock abnormal returns will be positive. This clearly shows that raising capital with a strategic purpose conveys a positive signal about private placements. Jang et al. (2010) study the private placements in Taiwan and find that when the placements have a financial purpose, the relation between changes in ownership concentration and stock prices is positive, implying that the insiders believe the firm is underpriced or there are benefits of alignment between the managers and investors. If the placements have a strategic purpose, when the extent of ownership concentration decreases due to increased liquidity or increased outside blockholder monitoring, the stock prices will rise.[11]

If the private placements have a strategic purpose, we define *Purpose* as equal to 1; if the purpose is financial, we define *Purpose* as equal to 0. Strategic purposes include using the issue proceeds for mergers and acquisitions (M&As), backdoor listing and ensuring the rights to operate. Financial purpose announcements include using the proceeds for working capital, capital expenditure, reinvestment or improving the financial structure. The data are from MOPS in Taiwan,[12] but due to the rough information, we use the data collected by the InfoWinner Plus database as auxiliary to explore the true intentions in private placement firms.

4.2.7. Distress

A firm is regarded as under financial distress if it experiences two consecutive years of negative earnings prior to the private placement announcement, or as provided by the *Taiwan Economic Journal* database, if it faces serious events that threaten its operations, such as bankruptcy or restructuring. If a firm is under financial distress, we define *Distress* as equal to 1; otherwise, *Distress* is equal to 0.

In Krishnamurthy et al. (2005), this variable (*Distress*) is used to indicate whether the public issue of shares is a feasible choice for firms. In private placements, adverse selection problems[13] are mitigated through the participation of insiders and informed investors. Hence, even if financially distressed firms face no information asymmetry and related moral hazard problems, private placements are often the only viable financing channel. This suggests that the information argument applies only to firms that have the ability to issue equity through both the private and public equity markets. On the other hand, by offering a controlling interest, private placements may be able to attract professional investors who would help the firms tide over financial issues. Similarly, even if such firms face no information asymmetry and related moral hazard problems, they still need to rely on private placements. Therefore, while studying the effects of certification by investors in information theory, it would be more meaningful to study firms that are not financially distressed.

4.2.8. Year

Although a firm's financial condition influences the method it adopts to attract capital (Hertzel & Smith, 1993; Krishnamurthy et al., 2005), the stock market will respond to news at different speeds during boom and recession periods (Antweiler & Frank, 2006), thereby inducing the firms to adopt different financing policies under various market conditions. For example, private placements may be influenced by bull or bear markets. Since our study covers the financial crisis period, after observing the stock price movements in Taiwan, we define *Year* as follows: if the placement is announced between January 2001 and July 2007, *Year* is equal to 0; if the announcement is between August 2007 and December 2008 (during the financial crisis period), *Year* is equal to 1.[14]

4.2.9. Exchange

Spiess and Affleck-Graves (1995) find that long-run underperformance after seasoned offerings can be more severe for firms listed in NASDAQ. In another paper on insider trading in the OTC market, Lin and Howe (1990) show that firms in the OTC market are relatively small, and that smaller firms may be covered by fewer institutional investors and stock market analysts, leading to a larger degree of information asymmetry. Therefore, we suggest that discriminating the exchanges to which the private placement firms belong should have special meaning. If the private equity issuer is listed on Taiwan Stock Exchange (TSE), *Exchange* is equal to 1; if the issuer is listed on Gre-Tai Securities Market (OTC), *Exchange* is equal to 0.

[8] Wu et al. (2005) divide MV/BV into two parts: A is the market value of assets-in-place and B is the expected NPV of future investments. Then MV/BV can be rewritten for (A+B)/BV. A Low (A+B)/BV may not necessarily result from poor growth prospects (B) but from bad past investments (A), leading to a turning point for issuers if uncertainty over growth is large enough.

[9] For example, Klein et al. (1978) have pointed out that when firms cooperate with other firms for some investment projects, any party may break contracts for self interests. This is one of moral hazard risk.

[10] Barclay et al. (2007) define active investors as those interacting with issuing firms after placements within 2 years (e.g., joint research, combined marketing and the purchasers' joining the board of the issuing firm).

[11] In financial literature, the use of private issue proceeds is often classified into capital expenditure and working capital (e.g. Tan et al., 2002; Anderson et al., 2006). Capital expenditure implies that the firm has good investment opportunities to enhance earnings, so it represents a positive signal. Based on robustness, this study also classifies the use of issue proceeds as (1) for capital expenditure, business expansion and strategic alliances, and (2) for repayment of debt, improving financial structure or financing working capital needs. Because the results are similar to those of the classification by strategic and financial purposes, for brevity, the results are not presented in this article.

[12] Available at http://mops.twse.com.tw.

[13] For example, when information asymmetry problems exist, firms can not be valued properly. Undervalued firms face valuable investment opportunities but lack sufficient capital will give up raising capital in public market (Myers & Majluf, 1984). This is one of adverse selection problems.

[14] For estimating the occurrence of global financial crisis, most people use the Lehman default (September 15, 2008) as the watershed. Just as in "The Crisis" announced in 2010 by Greenspan, American former chairman of FED, the financial crisis erupted from the subprime mortgage event (summer 2007). The stock prices also fell from August 2007 in Taiwan; so we choose this period to define the *Year*.

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4.2.10. Managers

Managers include directors, supervisors and senior management. If the managers of firms participate in private placements, *Managers* is defined as equal to 1; if no managers participate, *Managers* is equal to 0. According to the information hypothesis, managers should be charged lower information acquisition costs; therefore, increased managerial holdings can be associated with smaller discounts and positive announcement effects because of signalling undervaluation. On the contrary, owing to managerial self-dealing or additional compensation,[15] the managers are likely to require greater discounts, hurting the interests of the non-participating shareholders. Owing to the interaction between the two kinds of conflicting incentives of managers, sales to managers are viewed as a less positive signal than sales to outsiders (Hertzel & Smith, 1993). Additionally, the managers and other affiliated investors of a firm may be too optimistic about the issuer's prospects (Heaton, 2002; Malmendier & Tate, 2005; Wong & Zhang, 2009), whereas outside investors are more objective and expend more effort to obtain better information. Thus, Wruck and Wu (2009) argue that under certain circumstances, placements to outside investors convey more positive information.

4.2.11. Non-manager affiliated

To emphasize the importance of investor identification in studying private placements, Krishnamurthy et al. (2005) divide the investors into affiliated and non-affiliated categories. They cite the argument of Leland and Pyle (1977) and Barclay et al. (2007) to show that the affiliated investors acquire information with lower costs and better understand the prospects and the true value of firms. Therefore, the participation of affiliated investors could be regarded as a certification of firm quality. However, even if the affiliated investors value the firm negatively, they can still be compensated by discounts; therefore, an increase in affiliated ownership may render the insiders more entrenched and increase agency problems. Lin and Howe (1990) find that once the insiders (directors, officers and blockholders holding over 5% shares) use their valuable information to time their transactions, they will easily benefit more than the unaffiliated shareholders. Therefore, investor identification has always been one important argument in the literature.

When the affiliated investors are not managers, we define *Non-manager affiliated* as equal to 1; otherwise, *Non-manager affiliated* is equal to 0. Following the definition of Krishnamurthy et al. (2005), with a slight modification based on media and proxy statements, the affiliated investors include the top management, managers' relatives, attorneys or the correspondent bank of the firm, current block shareholders of the firm (holding more than 5% shares), strategic alliance institutions, and the companies having product market agreements with the firm.

4.2.12. Single

When a single investor participates in placements, we define *Single* as equal to 1; otherwise, *Single* is equal to 0. For placements with single investors, the discounts are expected to be smaller, because single investors would be willing to pay a higher price to obtain control rights, or the information costs are smaller than those in placements with multiple investors. Hertzel and Smith (1993) argue that if the control premium partially offsets the information costs, it will result in smaller discounts and greater abnormal returns.

[15] For example, compensate managers for less diversified risk (Wu, 2004).

4.2.13. Ownership and △Ownership

Ownership is defined as the percentage holding of all the managers and non-management investors with 5% or greater ownership.*△Ownership* is the difference between the ownership concentration before the private placement announcement and after the announcement. Researchers usually explore the monitoring motives for private placements in two aspects: ownership concentration and trading restrictions (Wu, 2004). Wruck (1989) proposes that an increase in ownership concentration can improve the monitoring mechanism. Nevertheless, if most of the ownership is held by passive investors, the monitoring mechanism may not necessarily improve. This is supported by Barclay et al. (2007), who suggest that most private investors are passive in firm affairs, so the discounts reflect the compensation for entrenching managers. Wu (2004) makes a deep study of whether managers engage in self-dealing or not. In theory, monitoring is more beneficial to shareholders with large initial holdings. To encourage the investors with small initial holdings to buy private equity shares, the issuing firms must offer large price discounts to compensate for liquidity restrictions. This may lead to price discounts for shareholders with large initial holdings being smaller. Nonetheless, Wu's (2004) empirical results do not support this argument and are more consistent with the managerial self-dealing hypothesis.

In summary, the information hypothesis variables include *Fraction*, *LnProceeds*, *LnMV*, *BM*, *Distress*, and *Single*. The monitoring hypothesis variables include *Managers*, *Non-manager affiliated*, *Single*, *Ownership and △Ownership*. The variables for the market, characteristics of firms and placements include *CAR* (*−59*, *−2*), *Purpose*, *Distress*, *Year* and *Exchange*. In addition, since *Single and △Ownership* represent similar meanings, Hertzel and Smith (1993) suggest that *Single* is a discrete variable and hence does not reflect the size of the placement; *△Ownership* is a continuous variable that reflects the size of the placement, but is not easily available and exhibits measurement errors (if ownership changes result from non-placement reasons). For robustness, we use both the variables in regression analysis by turns.

5. Empirical analysis

5.1. Sample construction

We use a sample of private placements in conjunction with common stock that were announced between January 2002 and December 2008 by firms listed on Taiwan Stock Exchange (TSE) and Gre-Tai Securities Market (OTC). Data are collected from the Market Observation Post System (MOPS)[16] in Taiwan, along with the annual reports, InfoWinner Plus database. Besides, directorship, financial and return data are obtained from the *Taiwan Economic Journal* database.

We exclude observations that contain other events during the private placement announcement period, which concern capital reduction, dividends, equity repurchases and issuance announcements of other securities (preferred stock, GDR and corporate bonds), to avoid confounding effects. In addition, we eliminate

[16] The MOPS, established by TSE and OTC in June 2002, is a convenient platform for listed companies to place their public information and for investors to search for information. However, information on private placements until 2005 is not offered directly on the MOPS. We collected private placement data by filtering all the important information offered by the firms on the MOPS from 2002 to 2004, and then verifying the news released in the newspapers around the private placement announcement date. We further verified the annual reports to ensure the correctness of the data. Although the information offered on the MOPS from 2005 is more complete, it is still necessary to collect information such as the identities of investors and the purpose of private placements from the newspapers and annual reports.

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Table 1
Sample characteristics of equity private placements.

Variable	*N*	Mean	Median
Panel A: continuous variables			
Fraction (%)	326	20.678	16.490
Proceeds – US$ million	326	12.490	3.487
MV – US$ million	326	121.075	20.744
BM	317	0.928	0.788
Ownership (%)	326	32.389	29.420
△Ownership (%)	326	3.158	0.862

Classification	*N*	Percentage (%)	Classification	*N*	Percentage (%)
Panel B: dummy variables					
Single	65	20	TSE	129	40
Multiple	258	80	OTC	197	60
2–5	104	32			
6–12	92	29	During the financial crisis period	111	34
More than 13	62	19	Not during the financial crisis period	215	66
Affiliated	263	81	Strategic purpose	29	9
Managers	224	69	Financial purpose	297	91
Non-manager affiliated	39	12			
Nonaffiliated	60	19	Under financial distress	155	48
			Not under financial distress	171	52

Fiscal year	2002	2003	2004	2005	2006	2007	2008	Summary
Panel C: distribution of private placements by year								
Frequency	3	15	19	48	81	89	71	326
Percentage (%)	0.92	4.60	5.83	14.72	24.85	27.30	21.78	100.00

Note: The table presents the sample characteristics of the private placement and the firms placing equity privately during the period 2002–2008. Panel A reports continuous variables, and Panel B reports dummy variables. *Fraction* is the ratio of shares issued to total shares outstanding after an issue. *LnProceeds* is the natural logarithm of private placement proceeds. *LnMV* is the natural logarithm of the stock price on the announcement date multiplied by the number of shares outstanding prior to the placement. *BM* is the ratio of book value of equity to market value of equity. *Ownership* is the percentage holding of all the managers and non-management investors with 5% or greater ownership. △*Ownership* is the difference between the ownership concentration before the private placement announcement and after the announcement. Single investor means only a single investor participates in placements. Affiliated investors include *Managers* (directors, supervisors and senior management) and *Non-manager affiliated* (managers' relatives, attorneys or the correspondent bank of the firm, current block shareholders of the firm, strategic alliance institutions, and the companies having product market agreements with the firm). (Not) during the financial crisis period means the placement is announced between August 2007 and December 2008 (between January 2001 and July 2007). Strategic purposes include using the issue proceeds for M&As, backdoor listing and ensuring the rights to operate. Financial purposes include using the proceeds for working capital, capital expenditure, reinvestment or improving the financial structure. A firm is regarded as under financial distress if it experiences two consecutive years of negative earnings prior to the private placement announcement, or as provided by the *Taiwan Economic Journal* database, if it faces serious events that threaten its operations.

the private placements not issued within one year after the initial announcement[17] and those without complete information regarding the variables of interest. Financial institutions are also excluded from the sample by convention, because firms in this industry have special operating and financial structures.

Our initial sample consists of 439 observations, of these, 113 observations not meeting requirements are eliminated,[18] leaving us a final sample of 326 observations,[19] including 193 firms (some firms conduct more than one placement).

5.2. Descriptive statistics

Table 1 provides the descriptive statistics to describe the sample characteristics. Panel A shows results for the continuous variables. On average, the ratio of shares issued to total shares outstanding after the issue is 20.7% (median 16.5%). The average proceeds raised from private placements in our sample is $12 million (median $3 million). Of our sample firms, the average equity market value is $121 million (median $21 million), and the average book-to-market ratio is 0.928 (median 0.788). Total percentage holdings by managers and 5% or greater non-management averages 32.4% (median 29.4%) before private placements, and the average change in total percentage holdings is 3.2% (median 0.9%).

Panel B reports the results for the dummy variables, showing that about 69% (81%) of private placements are placed with managers (affiliated investors); this is similar to the evidence in Wruck and Wu (2009). In Wruck and Wu (2009), the percentage of private placements sold to investors who have a pre-issue relationship (e.g., managers, business partners and prior block holders) with the issuers is also large (64%). We conjecture that the high proportion of private placements involving insiders/managers may be related to the market characteristics in Taiwan. When a family controlled firm with many family members on the board of directors is likely to be under financial distress, and needs to raise funds but is not willing to lose control rights, the effective way is to offer their private placement shares to the family members (insiders and managers). The explanation corroborates that a rather large number of our sample firms have faced financial distress. In Panel B, we may find 48% of the sample firms experience two consecutive years of negative earnings prior to the announcement or financial distress news releases.

Besides, our sample shows that about 20% of private placements are sold to single investors and 32% are sold to fewer than 6 (2–5) investors. Earlier literature also finds that most private equity

[17] Since the firms are permitted to divide the private equity shares into parts to issue within one year, the earliest pricing announcement date by the same private placement is used as criteria for deciding the sample.

[18] We exclude 113 observations in total. Sample reduction reasons include: simultaneous announcements of capital reduction, dividends or equity repurchases (13 observations), unavailable announcement date data (11 observations), a placement not completed after announcement (53 observations), insufficient stock-price data (30 observations) and outliers (6 observations).

[19] Of these, 201 private placements are from the computer-related industry, 47 from construction, 14 from steel products, 10 from electric machinery, 6 from textiles, and the rest are from other 9 industries.

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Table 2
Price discounts and announcement period returns in equity private placements.

		N	Mean (%)	Median (%)
Panel A: total sample				
Discount		326	9.554 (2.970)***	22.048 (8.316)***
CAR (−3, 0)		302	1.419 (2.730)***	0.536 (2.572)**
CAR (−29, 10)		302	7.153 (3.921)***	6.215 (3.990)***
Discount-adjusted CAR (−3 to 0)		297	3.170 (1.923)**	4.680 (5.618)***

	TSE			OTC			Difference	
	N	Mean (%)	Median (%)	*N*	Mean (%)	Median (%)	Mean (%)	Median (%)
Panel B: subsamples by exchange								
Discount	129	6.653	20.000***	197	11.454***	23.491***	−4.802	−3.491*
		(1.249)	(4.639)		(2.844)	(6.886)	(−0.729)	(1.765)
CAR (−3, 0)	121	2.122**	1.217**	181	0.948	0.232	1.174	0.984
		(2.599)	(2.442)		(1.409)	(1.336)	(1.107)	(1.027)
CAR (−29, 10)	121	6.686**	6.294**	181	7.466***	6.137***	−0.781	0.158
		(2.537)	(2.473)		(3.001)	(3.128)	(−0.209)	(0.128)
Discount-adjusted	120	3.674	4.345***	177	2.829	4.807***	0.845	−0.461
CAR (−3 to 0)		(1.527)	(4.362)		(1.264)	(3.773)	(0.251)	(0.105)

Note: The table presents price discounts and announcement period returns in private placements. The discount is measured relative to share price 10 days after the announcement. CAR is the average cumulative abnormal returns over different intervals around the announcement. Discount-adjusted CAR = $[1/(1-\alpha)]$ $[AR] - [\alpha/(1-\alpha)]$ $[(P_0 - P_b)/P_b]$, where α is the ratio of shares placed to shares outstanding after the placement, AR is the abnormal stock return over the event window, P_b is the closing price just one day prior to the event window. A *t*-test (Wilcoxon signed rank/Mann–Whitney *U* test) is used to test the null hypothesis that the mean (median/median of the differences) is zero. Test statistics are reported in parentheses.

* Indicates significance at the 10% level.
** Indicates significance at the 5% level.
*** Indicates significance at the 1% level.

shares are placed with a selective number of investors (Wruck, 1989; Wruck & Wu, 2009). The OTC firms conduct more private placements (60%). The proceeds from 9% of private placements are used for strategic purpose. Although the overlap between our study period and the financial crisis period is only 17 months, 34% of the private placements are placed during the overlap period; Panel C reports the time distribution of the sample further. Since private placements were permitted from 2001 in Taiwan, the number of placements is not large during the first few years, although growing annually. Chou, Gombola, & Liu (2009) and Mathew (2002) find that the number of private issues in a single year is largest when the stock prices reached high levels in the US and Hong Kong, respectively. In Taiwan, stock prices were seen to rise annually during the study period but begin falling during the second half of 2007. This supports the view that firms issue equity to exploit their overpriced stock. Additionally, since the private placement is a new financing instrument in Taiwan, we conjecture that the growth in the number of placements may also be due to the market gradually becoming familiar with the instrument. Finally, the number of private placements is seen to reduce in 2008, for which the financial crisis may be a possible reason, and the managements have become conservative in financing activity due to greater systematic risk.

5.3. Price discounts and announcement period returns in private placements

Table 2 reports price discounts and announcement period returns in private placements. In Panel A, the average discount in the sample is 9.554%, significant at the 1% level. When the sample is classified by listed exchange (Panel B), the average discount is smaller for the TSE firms (6.653%[20]) than for the OTC firms (11.454%). As for announcement effects, the four-day CAR in the window (−3, 0) is shown as 1.419%, and discount-adjusted abnormal return is 3.170%, both significant at the 5% level and higher for the TSE firms. Due to the potential leakage of information, Hertzel and Smith (1993) suggest using a longer event window, such as the (−29, 10) window. In Table 2, the CAR in the window (−29, 10) is significantly positive but higher for the OTC firms. In general, positive abnormal returns prior to the announcement day can be explained as the firms issuing private equity during the periods of stock-price run-ups. Information leakage is another explanation for private placements being often announced at the date of continuing or completed private placements (Tan et al., 2002; Wu et al., 2005), resulting in those with superior information making profits through speculative trading.

5.4. The pricing of private placements

5.4.1. Regression analysis of private placement discounts

In this study, we use the multiple regression models to analyze which factors affect the magnitude of the discounts in private placements. Table 3 reports the cross-sectional regression of private placement discounts, showing the relationship between the independent variables and discounts for the sample firms. In all models of the full sample, the coefficients on *Fraction* are positive and significant at 1% level. This indicates that the discounts reflect the information search costs. When the fraction of placements is higher, the growth opportunities of firms are relatively more difficult to evaluate, leading to increases in the costs of information search borne by the investors, who would thus expect larger discounts as compensation. Moreover, it is also possible that the investors may presume that the stock price of a firm that places a larger fraction of shares may decline, and thus, require larger discounts as compensation. The coefficients on *LnMV* are significantly positive, which is inconsistent with the view that information asymmetry is more severe for small firms, and so the investors would expect larger discounts to compensate their valuation costs. According to Hertzel and Smith (1993), large firms need to be more closely monitored, and so their greater discounts reflect the compensation for monitoring costs. The significantly negative coefficients on *Exchange* may be due to better information

[20] Though the average discount is only 6.63%, 65% of TSE firms have a discount higher than 6.63%.

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Table 3
Cross-sectional regression of private placement discounts.

	Full sample			TSE			OTC		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Intercept	−4.082***	−3.913***	−4.399***	−3.718**	−3.325*	−3.928**	−3.562***	−3.446***	−3.853***
	(0.001)	(0.001)	(0.000)	(0.049)	(0.059)	(0.035)	(0.000)	(0.002)	(0.000)
Fraction	1.952***	2.070***	1.963***	0.684	0.954	0.666	3.346***	3.431***	3.241***
	(0.001)	(0.001)	(0.001)	(0.229)	(0.129)	(0.245)	(0.000)	(0.000)	(0.000)
LnProceeds	−0.137	−0.126	−0.144	0.029	0.054	0.014	−0.401**	−0.402**	−0.387**
	(0.176)	(0.228)	(0.121)	(0.732)	(0.561)	(0.865)	(0.012)	(0.010)	(0.019)
LnMV	0.314***	0.299***	0.335***	0.146**	0.109	0.176**	0.514***	0.511***	0.515***
	(0.000)	(0.000)	(0.000)	(0.048)	(0.142)	(0.020)	(0.000)	(0.000)	(0.000)
BM	0.097*	0.083	0.084**	0.116	0.105	0.054	0.090*	0.079	0.123**
	(0.076)	(0.107)	(0.035)	(0.143)	(0.150)	(0.274)	(0.084)	(0.153)	(0.026)
CAR (−59, −2)	−0.141*	−0.130*	−0.102	−0.006	−0.038	0.052	−0.150**	−0.139**	−0.148**
	(0.055)	(0.068)	(0.128)	(0.963)	(0.752)	(0.678)	(0.019)	(0.035)	(0.022)
Distress	0.032	0.039	−0.049	0.062	0.119	−0.075	−0.013	−0.015	−0.030
	(0.718)	(0.665)	(0.509)	(0.683)	(0.477)	(0.520)	(0.876)	(0.849)	(0.715)
Year	−0.084	−0.068	−0.051	−0.177	−0.129	−0.159	−0.013	−0.008	0.012
	(0.245)	(0.309)	(0.450)	(0.191)	(0.260)	(0.189)	(0.833)	(0.903)	(0.867)
Purpose	−0.103	−0.184**	−0.012	−0.036	−0.188*	0.019	−0.087	−0.122	−0.034
	(0.221)	(0.022)	(0.904)	(0.815)	(0.099)	(0.913)	(0.394)	(0.210)	(0.734)
Exchange	−0.197**	−0.209**	−0.153**						
	(0.039)	(0.035)	(0.037)						
Managers	−0.100	−0.047	−0.049	−0.039	0.033	−0.023	−0.090	−0.062	−0.074
	(0.268)	(0.518)	(0.568)	(0.784)	(0.783)	(0.869)	(0.371)	(0.450)	(0.508)
Non-manager affiliated	−0.157	−0.124	−0.099	−0.001	0.033	−0.007	−0.227	−0.196	−0.201
	(0.108)	(0.197)	(0.342)	(0.992)	(0.817)	(0.960)	(0.101)	(0.134)	(0.147)
Single	−0.180*		−0.452**	−0.283		−0.699*	−0.080		−0.231
	(0.090)		(0.038)	(0.121)		(0.094)	(0.434)		(0.144)
Ownership		−0.399*			−0.807**			−0.212	
		(0.086)			(0.046)			(0.396)	
△Ownership		−0.496*			−1.222*			−0.246	
		(0.074)			(0.068)			(0.310)	
Single*Fraction			0.678			0.557			0.705
			(0.227)			(0.546)			(0.273)
Single*BM			−0.018			0.059			−0.116
			(0.902)			(0.818)			(0.450)
Single*Distress			0.528***			0.663**			0.217
			(0.009)			(0.033)			(0.290)
Single*Exchange			−0.159						
			(0.401)						
N	307	307	307	122	122	122	185	185	185
Adjusted R^2	0.197	0.195	0.231	0.145	0.164	0.192	0.334	0.332	0.334

Note: The dependent variable is the private placement discount measured relative to share price 10 days after the announcement. *Fraction* is the ratio of shares issued to total shares outstanding after an issue. *LnProceeds* is the natural logarithm of private placement proceeds. *LnMV* is the natural logarithm of the stock price on the announcement date multiplied by the number of shares outstanding prior to the placement. *BM* is the ratio of book value of equity to market value of equity. *CAR* (*−59*, *−2*) is the cumulative abnormal returns over the period beginning 59 days and ending 2 days prior to the private placement announcement. *Distress* equals to 1 if a firm is under financial distress; otherwise 0. A firm is regarded as under financial distress if it experiences two consecutive years of negative earnings prior to the private placement announcement, or as provided by the *Taiwan Economic Journal* database, if it faces serious events that threaten its operations. *Year* equals to 1 if the placement is announced between August 2007 and December 2008, and 0 if the announcement is between January 2001 and July 2007. *Purpose* equals to 1 if the private placements have a strategic purpose and 0 if the purpose is financial. *Exchange* equals to 1 if the private equity issuer is listed on TSE and 0 if the issuer is listed on OTC. *Managers* equals to 1 if the managers of firms participate in private placements; otherwise 0. *Non-manager affiliated* equals to 1 if the affiliated investors are not managers; otherwise 0. The affiliated investors include *Managers* (directors, supervisors and senior management) and *Non-manager affiliated* (managers' relatives, attorneys or the correspondent bank of the firm, current block shareholders of the firm, strategic alliance institutions, and the companies having product market agreements with the firm). *Single* equals to 1 if a single investor participates in placements; otherwise 0. *Ownership* is the percentage holding of all the managers and non-management investors with 5% or greater ownership. △*Ownership* is the difference between the ownership concentration before the private placement announcement and after the announcement. The *P*-values based on White-corrected standard errors are in parentheses.

* Indicate significance at the 10% level.
** Indicate significance at the 5% level.
*** Indicate significance at the 1% level.

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disclosures or liquidity[21] by the TSE firms, leading to smaller discounts, in line with the information asymmetry hypothesis.

The coefficients on *CAR* (−59, −2) are significantly negative in both the full sample and the OTC subsample, but not significant in the TSE subsample. What is the implication of stock-price run-ups before private placements that cause OTC firms to raise funds with smaller discounts? As a study in Taiwan, He (2009) shows that the OTC firms release more positive signals about private placements during the announcement period, whereas TSE firms release both positive and negative signals almost evenly (the observation window is during the 2-month period before and after the announcement date). Therefore, we conjecture that the issuing firms may intentionally release positive signals during the issuing period to create opportunity windows for themselves.

When we replace *Single* with △*Ownership*[22] in Model 2, the variable "*Purpose*" becomes significant in the full sample and the TSE subsample, suggesting that when the purpose of private placements is strategic consideration, the discount is smaller than for financial consideration. The coefficient on *Ownership* is significantly negative in the full sample and the TSE subsample, implying that when the insider and shareholder interests are aligned, the discounts are smaller to reduce wealth transfers to new shareholders. Besides, since the information search costs are smaller for insiders, the discounts are smaller, which is consistent with the argument of Hertzel and Smith (1993). Moreover, the significantly negative coefficient on △*Ownership* means that the insiders purchase private placement shares at higher prices to gain control benefits. This is consistent with the results for the variable "*Single*" shown below.

On the other hand, some variables can be used to explain both the information and monitoring effects; we therefore study the interaction of the *Single* variable with the variables related to the information hypothesis to determine the differences. Hertzel and Smith (1993) suggest that the likelihood of monitoring will increase when the ownership of private equity shares is concentrated. Therefore, if the monitoring hypothesis holds, we can test whether the magnitude of the discount is related to the expected monitoring cost by the interaction terms. If the relation shows, the expected signs of the interaction terms should be the same as the corresponding variables. The results of all the samples are shown in Model 3 (due to multicollinearity, we eliminate two interaction terms: *Single* × *LnProceeds* and *Single* × *LnMV*). At first, the coefficients on *Single* are significantly negative in both the full sample and the TSE subsample. If this is according to the information hypothesis, the negative coefficient on *Single* means that the smaller discount in private placements participated by single investors reflects the information cost savings (if by more participants, the informing cost relatively increases). If it is based on the monitoring hypothesis, the smaller discount implies that the control premium by block holdings offsets the expected monitoring cost in part, which is consistent with Hertzel and Smith's (1993) findings. Wayne and Hailu (1991) also find that investors pay premiums for control or voting rights in block transactions. Are the results of the sample a consequence of information advantages or control benefits? After analyzing the sample data, we find that under some circumstances, private equity shares are purchased at a premium by single investors. For example, 43% (49%) of private placements are offered at a premium in the TSE firms (financially non-distressed firms). If this is based only on the information advantage argument, it does not explain why investors are willing to purchase shares at a premium. Thus, the control premium explanation appears more adequate here. For further confirmation, see Section 5.5, where we show the regression of announcement abnormal returns.

The coefficient on the interaction term between *Single* and *Distress* is significantly positive, showing that when the issuing firms face financial distress, they must compensate the investors with discounts for increased monitoring, such as by introducing blockholders to participate in firm affairs or bringing new management skills to improve the operating performance (in line with the monitoring hypothesis). It is also possible that the financially distressed firms cannot easily shop around with multiple potential buyers who would need the time to perform due diligence before making an investment in a financially distressed firm (in line with the information hypothesis). However, why does not the phenomenon appear in the OTC firms? We conjecture that the fund-raising purpose of the OTC firms facing financial distress is to survive or to obtain operating rights, and the investors no longer care about the prices of private equity shares.

If classified by listed exchanges, information asymmetry definitely influences the OTC firms more than the TSE firms. The coefficients on *Fraction*, *LnProceeds* and *BM* are significant in the OTC subsample but insignificant in the TSE subsample. The significantly negative coefficients on *LnProceeds* indicate that information acquisition has economies of scale, and so the discounts are smaller for larger placements. Therefore, we conjecture that the information hypothesis applies appropriately to the OTC firms.

5.4.2. Managerial self-dealing

Because managers are self-interested in gaining control benefits, this study determines whether they are likely to engage in self-dealing. Wu (2004) shows that managers tend to purchase private equity shares at large discounts when they possess small original holdings; therefore, this study uses Wu's (2004) procedure to test the managerial self-dealing hypothesis. First, the means are compared in Panel A of Table 4, in which Rows 1 and 2 show the discounts for private placements involving managers and for those of non-manager investors. The discounts for private placements involving managers are less in both the full sample and the OTC subsample, but more in the TSE subsample, in which the discounts are greater if managers are involved in private placements. However, the difference in average discounts is insignificant between private placements involving managers or non-manager investors. In Rows 4 and 5, managerial buyers are classified into those with small holdings or with big holdings based on whether their original ownership is below or above their median ownership. The mean discount is 18.180% (median 26.603%) for managers with small holdings and −0.396% (median 18.935%) for managers with big holdings. The mean and median discounts are significantly different between these two categories at the 5% level. We also find the same results for the TSE subsample but not for the OTC subsample. The results indicate that managers in TSE firms are likely to engage in self-dealing.

Panel B shows the different shareholding percentages of managers in firms with small managerial ownership and those in big managerial ownership. For the full sample, the mean shareholding percentage of managers is 12.74% (median 12.91%) for firms with small managerial ownership and 33.63% (median 30.87%) for firms

[21] When conducting SEOs, the firms having less liquid stocks generally suffer great flotation costs (Hung et al., 2012). For example, Corwin (2003) finds that underpricing is negatively related to stock liquidity, and Butler et al. (2005) show that investment banks charge significantly greater fees on firms with illiquid stocks. Alternatively, Maynes and Pandes (2011) find that share turnover (a common proxy for liquidity) is positively related to private placement discounts in Canada. We have investigated liquidity in TSE and OTC subsamples. Liquidity is larger in TSE than in OTC-offering firms, but including the liquidity measures does not improve the explanation power of our regression models. Since there are mixed results in the liquidity impacts on equity offerings, we thus take a conservative attitude to relevant conjecture and leave the issue for further research.

[22] Because *Single and* △*Ownership* represent similar meanings, we use both the variables in our regression analysis by turns.

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Table 4
Managerial self-dealing analysis.

	Full sample			TSE			OTC		
	N	Mean (%)	Median (%)	*N*	Mean (%)	Median (%)	*N*	Mean (%)	Median (%)
Panel A: private placement discounts									
Managers	224	8.892	22.631	86	6.849	20.593	138	10.166	23.328
Non-managers	99	10.891	20.732	43	6.259	18.182	56	14.447	26.596
Difference (test statistics)		−0.283	0.085		0.052	0.969		−0.474	0.919
Managers with small holdings	112	18.180	26.603	43	23.599	30.233	69	16.433	23.333
Managers with big holdings	112	−0.396	18.935	43	−9.900	13.597	69	3.899	22.764
Difference (test statistics)		2.300**	2.713***		2.344**	3.429***		1.307	0.969

	Full sample			TSE			OTC		
	N	Mean (%)	Median (%)	*N*	Mean (%)	Median (%)	*N*	Mean (%)	Median (%)
Panel B: shareholding percentage of managers									
Managers with small holdings	112	12.74	12.91	43	10.26	10.24	69	14.74	15.00
Managers with big holdings	112	33.63	30.87	43	31.67	28.72	69	34.40	33.29
Difference (test statistics)		−19.149***	12.932***		−10.230***	7.981***		−15.627***	10.135***

	Full sample Coefficient *P*-value	TSE Coefficient *P*-value	OTC Coefficient *P*-value
Panel C: regression of private placement discounts			
Intercept	−4.113***(0.001)	−3.422* (0.075)	−3.514*** (0.001)
Fraction	1.903*** (0.002)	0.318 (0.579)	3.378*** (0.000)
LnProceeds	−0.121 (0.252)	0.080 (0.424)	−0.404 (0.010)
LnMV	0.301*** (0.000)	0.089 (0.205)	0.514*** (0.000)
BM	0.081 (0.117)	0.079 (0.243)	0.074 (0.173)
CAR (−59, −2)	−0.138* (0.054)	−0.060 (0.636)	−0.140** (0.034)
Distress	0.015 (0.855)	0.052 (0.721)	−0.024 (0.765)
Year	−0.090 (0.226)	−0.189 (0.190)	−0.018 (0.777)
Purpose	−0.149* (0.077)	−0.122 (0.337)	−0.106 (0.310)
Exchange	−0.217** (0.033)		
Managers	−0.004 (0.964)	0.117 (0.315)	−0.030 (0.766)
Non-manager affiliated	−0.142 (0.145)	−0.043 (0.758)	−0.186 (0.158)
ManagerShare	−0.040 (0.684)	−0.122 (0.385)	−0.049 (0.695)
Managers*ManagerShare	−0.071 (0.555)	−0.133 (0.487)	−0.048 (0.749)
N	307	122	185
Adjusted R^2	0.188	0.137	0.334

Note: Panels A and B: (Non-) managers represent the private placements involving managers (non-manager investors). Managers with big (small) holdings represent managerial buyers whose initial ownership is above (below) their median ownership. The mean (median) of the differences is tested by *t*-test (Mann–Whitney *U* test). Panel C: The dependent variable is the private placement discount measured relative to share price 10 days after the announcement. *Fraction* is the ratio of shares issued to total shares outstanding after an issue. *LnProceeds* is the natural logarithm of private placement proceeds. *LnMV* is the natural logarithm of the stock price on the announcement date multiplied by the number of shares outstanding prior to the placement. *BM* is the ratio of book value of equity to market value of equity. *CAR (−59, −2)* is the cumulative abnormal returns over the period beginning 59 days and ending 2 days prior to the private placement announcement. *Distress* equals to 1 if a firm is under financial distress; otherwise 0. A firm is regarded as under financial distress if it experiences two consecutive years of negative earnings prior to the private placement announcement, or as provided by the *Taiwan Economic Journal* database, if it faces serious events that threaten its operations. *Year* equals to 1 if the placement is announced between August 2007 and December 2008, and 0 if the announcement is between January 2001 and July 2007. *Purpose* equals to 1 if the private placements have a strategic purpose and 0 if the purpose is financial. *Exchange* equals to 1 if the private equity issuer is listed on TSE and 0 if the issuer is listed on OTC. *Managers* equals to 1 if the managers of firms participate in private placements; otherwise 0. *Non-manager affiliated* equals to 1 if the affiliated investors are not managers; otherwise 0. The affiliated investors include *Managers* (directors, supervisors and senior management) and *Non-manager affiliated* (managers' relatives, attorneys or the correspondent bank of the firm, current block shareholders of the firm, strategic alliance institutions, and the companies having product market agreements with the firm). *ManagerShare* equals to 1 if the percentage holding of directors and officers before private placements is above the median holding. The *P*-values based on White-corrected standard errors are in parentheses.

* Indicates significance at the 10% level.
** Indicates significance at the 5% level.
*** Indicates significance at the 1% level.

with big managerial ownership. The mean and median shareholding percentages of managers are significantly different between the two categories at the 1% level. The same results are obtained for the TSE and OTC subsamples.

Then we add the variable "*ManagerShare*" and the interaction term "*Managers*×*ManagerShare*" to the regression model[23]; the results are presented in Panel C. The coefficient on the interaction term between *Managers* and *ManagerShare* in the TSE subsample is negative but not statistically significant. Although the mean analysis in the previous paragraph leads to the possibility of managerial self-dealing in TSE firms, there is no sufficient evidence supporting the hypothesis in the multivariate results.

5.5. Regression analysis of discount-adjusted abnormal returns

Table 5 reports the cross-sectional regression of discount-adjusted abnormal returns. In all the models of the full sample, the coefficients on *Fraction* are significantly positive, indicating that placing a higher fraction conveys information about the greater magnitude of investment opportunities and future prospects for the issuing firms, which is consistent with Hertzel and Smith's (1993) findings. The significantly positive coefficients on *LnMV*

[23] *ManagerShare* is a dummy variable which equals to 1 if the percentage holding of directors and officers before private placements is above the median holding.

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Table 5
Cross-sectional regression of discount-adjusted abnormal returns.

	Full Sample			TSE			OTC		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Intercept	−1.573***	−1.624***	−1.588***	−0.673	−0.878*	−0.602	−2.326***	−2.283***	−2.418***
	(0.000)	(0.000)	(0.000)	(0.112)	(0.099)	(0.153)	(0.000)	(0.000)	(0.000)
Fraction	0.856***	0.815**	0.809**	0.204	0.142	0.082	1.266***	1.236***	1.205***
	(0.008)	(0.015)	(0.018)	(0.776)	(0.856)	(0.917)	(0.000)	(0.000)	(0.000)
LnProceeds	−0.094***	−0.092***	−0.099***	−0.042	−0.038	−0.050	−0.138***	−0.137***	−0.137***
	(0.003)	(0.004)	(0.001)	(0.221)	(0.263)	(0.111)	(0.001)	(0.001)	(0.002)
LnMV	0.153***	0.154***	0.160***	0.067*	0.070*	0.074**	0.226***	0.224***	0.230***
	(0.000)	(0.000)	(0.000)	(0.069)	(0.060)	(0.047)	(0.000)	(0.000)	(0.000)
BM	0.059**	0.055**	0.045*	0.057	0.058	0.031	0.077**	0.072**	0.079*
	(0.014)	(0.024)	(0.069)	(0.109)	(0.105)	(0.322)	(0.033)	(0.043)	(0.068)
CAR (−59, −2)	0.002	−0.000	0.008	0.124	0.112	0.159	−0.042	−0.045	−0.044
	(0.962)	(1.000)	(0.843)	(0.150)	(0.161)	(0.103)	(0.384)	(0.361)	(0.358)
Distress	0.015	0.010	−0.000	−0.055	−0.072**	−0.096**	0.063	0.057	0.057
	(0.693)	(0.787)	(0.996)	(0.155)	(0.041)	(0.029)	(0.257)	(0.297)	(0.327)
Year	0.072**	0.065**	0.078**	0.022	−0.009	0.029	0.112***	0.107***	0.118***
	(0.022)	(0.035)	(0.018)	(0.727)	(0.858)	(0.650)	(0.003)	(0.004)	(0.003)
Purpose	−0.108**	−0.112***	−0.074*	−0.095*	−0.086*	−0.068	−0.128**	−0.139**	−0.088
	(0.013)	(0.008)	(0.062)	(0.096)	(0.087)	(0.156)	(0.044)	(0.025)	(0.151)
Exchange	−0.052	−0.053	−0.044						
	(0.223)	(0.204)	(0.356)						
Managers	−0.035	−0.026	−0.016	0.017	0.037	0.023	−0.072*	−0.063*	−0.052
	(0.295)	(0.394)	(0.630)	(0.777)	(0.516)	(0.720)	(0.058)	(0.080)	(0.190)
Non-manager affiliated	−0.050	−0.055	−0.035	0.077	0.049	0.057	−0.170	−0.167	−0.147
	(0.527)	(0.489)	(0.644)	(0.175)	(0.437)	(0.284)	(0.219)	(0.226)	(0.261)
Single	−0.026		−0.173***	−0.054		−0.219**	−0.021		−0.174*
	(0.369)		(0.006)	(0.186)		(0.014)	(0.560)		(0.071)
Ownership		0.059			0.199			−0.031	
		(0.534)			(0.291)			(0.749)	
△Ownership		0.185			0.159			0.189	
		(0.290)			(0.675)			(0.295)	
Single*Fraction			0.553*			0.827			0.565*
			(0.059)			(0.191)			(0.061)
Single*BM			0.022			−0.004			0.002
			(0.522)			(0.927)			(0.973)
Single*Distress			0.081			0.127			0.083
			(0.141)			(0.105)			(0.311)
Single*Exchange			−0.012						
			(0.839)						
N	294	294	294	119	119	119	175	175	175
Adjusted R^2	0.133	0.133	0.143	0.041	0.041	0.070	0.245	0.248	0.247

Note: The dependent variable is the discount-adjusted abnormal returns (AR_{adj}). $AR_{adj} = [1/(1-\alpha)]\,[AR] - [\alpha/(1-\alpha)]\,[(P_0 - P_b)/P_b]$, where α is the ratio of shares placed to shares outstanding after the placement, *AR* is the abnormal stock return over the event window, P_b is the closing price just one day prior to the event window. *Fraction* is the ratio of shares issued to total shares outstanding after an issue. *LnProceeds* is the natural logarithm of private placement proceeds. *LnMV* is the natural logarithm of the stock price on the announcement date multiplied by the number of shares outstanding prior to the placement. *BM* is the ratio of book value of equity to market value of equity. *CAR* (−59, −2) is the cumulative abnormal returns over the period beginning 59 days and ending 2 days prior to the private placement announcement. *Distress* equals to 1 if a firm is under financial distress; otherwise 0. A firm is regarded as under financial distress if it experiences two consecutive years of negative earnings prior to the private placement announcement, or as provided by the *Taiwan Economic Journal* database, if it faces serious events that threaten its operations. *Year* equals to 1 if the placement is announced between August 2007 and December 2008, and 0 if the announcement is between January 2001 and July 2007. *Purpose* equals to 1 if the private placements have a strategic purpose and 0 if the purpose is financial. *Exchange* equals to 1 if the private equity issuer is listed on TSE and 0 if the issuer is listed on OTC. *Managers* equals to 1 if the managers of firms participate in private placements; otherwise 0. *Non-manager affiliated* equals to 1 if the affiliated investors are not managers; otherwise 0. The affiliated investors include *Managers* (directors, supervisors and senior management) and *Non-manager affiliated* (managers' relatives, attorneys or the correspondent bank of the firm, current block shareholders of the firm, strategic alliance institutions, and the companies having product market agreements with the firm). *Single* equals to 1 if a single investor participates in placements; otherwise 0. *Ownership* is the percentage holding of all the managers and non-management investors with 5% or greater ownership. △*Ownership* is the difference between the ownership concentration before the private placement announcement and after the announcement. The *P*-values based on White-corrected standard errors are in parentheses.

* Indicate significance at the 10% level.
** Indicate significance at the 5% level.
*** Indicate significance at the 1% level.

show that the greater the announcement abnormal returns are, the larger the firm size. As Wu and Wang (2005) argue, if the asymmetric information about firms is due to their investment opportunities rather than assets-in-place, that is, if the market has uncertainty about the good growth prospects of the firms, the announcement abnormal returns are greater. According to the argument, we conjecture that greater (smaller) announcement effects for large (small) firms reflect the market's concerns about the uncertainty over growth opportunities (assets-in-place). In addition, Malkiel (2003) proposes that in most world markets, the stocks issued by larger firms generate larger returns because portfolio managers prefer larger firms with more liquidity.[24] Since a small size for private placement firms is common, the investors' concerns about liquidity among these firms may also be a reason for the positive coefficient on *LnMV* in this study. The significantly

[24] Wu (2004) finds that private placement firms are concerned by fewer institutional investors and stock market analysts and have relatively smaller trading volume than public issue firms.

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positive coefficients on *BM*, another proxy for growth, indicate that the announcement effects become greater as *BM* grows larger. This corroborates the view of Wu et al. (2005), who interprets the positive relationship between *BM* and the announcement effects thus: when the uncertainty of firm value results from the firms' growth prospects rather than assets in place, the market will respond positively. This also supports the result of significantly positive coefficients on *BM* in private placement discount regression models. If the uncertainty of firm value results from growth prospects, since the growth prospects are more difficult to be valued than assets in place, the investors will demand a greater discount.

The coefficients on *Purpose* are significantly negative. This shows that the market will respond more positively if a firm raises private equity for a financial purpose; as suggested by He (2009), the market will view this improvement in financial condition as an important development for the firm, which would obtain a positive market reaction.

Moreover, the coefficients on *Year* are significantly positive, showing that during the financial crisis period, the private issue announcement implies that firms have the ability to raise funds, which is a sign of market confidence in the firm. Therefore, Besley, Kohers, & Steigner (2007) suggest that a firm having the ability to attract investors to buy private equity shares during unattractive market conditions (e.g., bear markets) delivers a positive signal about its quality.

Models 3 of the full sample and the subsamples report the results after adding the interaction terms. The coefficients on *Single* are significantly negative, and so the single investors who participate in private placements for control benefits should be able to explain the negative market reaction. Besides, the significantly positive interaction between *Single* and *Fraction* shows that the sales to single investors holding a larger fraction of private equity indicate stronger monitoring motives, and so the market responds positively (Models 3 of the full sample and the OTC subsample).

We now discuss the models in the TSE and OTC subsamples. The coefficients on *Fraction, LnProceeds* and *BM* are significant only in the OTC subsample, showing again that information asymmetry variables influence the OTC firms more than the TSE firms.

The coefficient on *Distress* is significantly negative in Models 2 and 3 of the TSE subsample, showing that when financially distressed TSE firms announce private placements, the market responds negatively. On the other hand, in the OTC subsample, the announcements receive positive responses only during of financial crises (the coefficients on *Year* are significantly positive). *Year* and *Distress* have similar implications, but *Distress* is based on micro consideration while *Year* is based on macro consideration. When the capital market is in an unstable condition, announcements by the OTC firms send positive signals to the market, showing that the firms are in sound condition and have growth prospects to attract capital injection from investors, and the market responds positively. When the capital market is in a stable condition, private equity placed by the OTC firms would imply their weak fund-raising ability (due to not capable of making public issues), or their unfairness to non-participating shareholders, and so the market responds negatively. However, if the TSE firms face financial distress, implying that the firms are not in sound condition, the market will interpret this quite differently. Additionally, when the managers buy the private placement shares in OTC firms, the market will respond negatively (the coefficients on *Managers* are significantly negative in Models 1 and 2 of the OTC subsample). This is consistent with Hertzel and Smith's (1993) view that the participations of managers in placements may convey undervaluation of the issuing firms, although the managers may have selfish self-dealing motives. Under the interaction between the two kinds of conflicting incentives of managers, the sales of private placements to managers are viewed a less positive signal than sales to outsiders. Moreover, He (2009) shows that due to the lower visibility of operating condition in OTC firms, the sales to managers may be linked to the managers' pursuit of private benefits. In addition, the managers may be too optimistic about their firms' prospects (Heaton, 2002; Malmendier & Tate, 2005; Wong & Zhang, 2009; Wruck & Wu, 2009), leading to the market's negative reaction to their announcements. All the above arguments provide various explanations for our results.[25]

Once again, these arguments prove that when the TSE/OTC firms announce their private placements, the market interprets the announcements quite differently. Additionally, the adjusted R^2 is larger in the OTC subsamples for both the discount regression and the discount-adjusted abnormal return regression, showing that when studying the private placements of the TSE and OTC firms, the influential factors are obviously different.

6. Conclusion

This paper studies the price discounts and announcement effects of equity private placements conducted by firms in Taiwan from January 2002 to December 2008, and explores the influential factors. From our empirical results, the information hypothesis and ownership structure hypothesis apply to different conditions. The factors that influence the TSE firms are different from those that influence the OTC firms. Therefore, we consider it more appropriate for future studies to separate the whole sample into subsamples by listed exchanges, such as TSE firms and OTC firms in our study.

In sum, the empirical evidences presented in our study are mixed. The information hypothesis applies to the OTC firms. The discounts serve as compensation for investor's costs of assessing firms, while positive abnormal returns, regarded as the OTC firms' message conveying good news through private placements, imply asymmetric information from uncertainty about growth prospects. On the other hand, the empirical results show that some of our findings support an information explanation and some support a monitoring explanation in the case of the TSE firms. It seems that there are different motives behind the exchange-listed firms placing equity privately. The effects induced by the different motives might partially offset each other.

As suggested by Hertzel and Smith (1993), changes in firm value surrounding private placements may arise from the market's evaluation of firm assets and investment opportunities; when firms face limited financial slack, they may raise funds through private placements. Therefore, the importance of the information asymmetry hypothesis in our results may partially result from the fact that a rather large number of sample firms have faced financial distress (accounting for 48% of all sample firms, Panel B of Table 1).

Furthermore, single investors participate in private placements in order to obtain control premium and pursue control benefits. The evidence substantiating this claim is fairly conclusive in TSE firms, where investors are willing to purchase private equity shares at higher prices. In contrast to many limitations of public issues, the private issues by firms have effectively more flexibility for financing. However, it is also likely that the capital market provides a convenient method for managers to pursue self-interest. Besides, the trend for firms with net loss to conduct private placements following capital reduction is upward in Taiwan, and private placement shares are often offered at a discount. All of these

[25] We also substitute *Affiliated* for *Managers* and *Non-manager affiliated to* conduct regression analysis. Because the results are the same, and *Managers* and *Non-manager affiliated* provide more detailed information, we do not show the regression containing *Affiliated*.

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factors are inevitably associated with the firms selling their equity at unfavourable prices to benefit specific investors. In order to prevent these negative side effects of private placements, the Financial Supervisory Commission seeks to enhance the supervision of the private placement system by amending and promulgating the Notice for Private Placement of Marketable Securities by Publicly Offered Companies in 2010, which stipulates restrictions on private placements by profitable companies, and the setting of reference prices[26] (Articles 3 and 4). Thus, not all the firms are allowed to place equity privately. This implies that private placements in Taiwan are the major financing method for financially distressed firms, and could be the last resort for firms to survive. We believe that the ongoing amended regulations, matched with a practical environment, will reflect the firm value properly through the market mechanisms and make private placements intrinsically more meaningful. After all, we expect private placements to facilitate the financing activity of firms, and not the pursuit of self-interest.

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[26] The competent authority requires that a firm must not use the private placement method of issuing securities to raise capital when the firm has a net profit and no accumulated deficit for the most recent fiscal year.

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