



## **Declaration Effect, Stock Returns and Earnings Management: A Study of Private Placement in Taiwan<sup>†</sup>**

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### **Abstract**

Since its inception in 2002, the private placement system has become one of the important alternatives for the listed and OTC companies in Taiwan to raise needed capitals. The purpose of the study is to investigate the declaration effect and one-year stock returns of the private placement companies and to examine if the companies would engage in earnings management before undertaking the private placement. Empirical results indicate that for the companies that decided to undertake the private placement, there was no significant declaration effect; the cumulative abnormal returns after one year of the private placement have been significantly positive. In addition, the study also found that the more insiders and institutional investors participated in the private placement, the higher the long-term cumulative abnormal returns and company size and market-to-book ratio are both negatively related to long-term cumulative abnormal returns. However, there is no evidence that the companies had conducted earnings management to influence specific investors to participate in the private placement.

*Keywords:* Private placement, Declaration effect, Stock returns, Earnings management

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### **1. Introduction**

Private placement has been applied in America for years, but it was implemented in Taiwan since the amendment of the Securities and Exchange Law in 2002. So far, more than 100 listed and OTC companies had employed private placement for capital recruitment. Narrowing down to private equity offerings, 3 listed and OTC companies in 2002, 14 in 2003, 18 in 2004, and 25 in 2005 applied equity private placements. And from January to June in 2006, total proceeds collected by all publicly listed and OTC companies amounted to 215.138 billion NT. Among them, public offerings accounted for 149.736 billion NT (69.6%), while private offering accounted for 65.402 billion NT (30.4%). It shows that more and more companies have used the channel of private placement to acquire capital for operation.

Based on the Article 7 of the Securities and Exchange Law, the term "public offer" as used in this Act means the act of offering securities to the general public by the promoters prior to the incorporation of the company, or by the issuing company prior to the issuance of the

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said securities. The term "private placement" as used in this Act means the act of offering securities to specific persons pursuant to paragraphs 1 and 2 of Article 43-6 by a company. Therefore, private placement indicates the capital collection of securities from the specific investors, while public offering is exclusive to the non-specific investors. The primary difference between private and public offering is that the placee of private placement is restricted to some specific investors, who should be searched and contacted by the firms. Because the system of private placement in Taiwan didn't set out until 2002, there has been comparatively little research relating to the announcement effect of it. Although Hsu (2003) conducted a study on the private placed firms, there were only thirteen observations in her study. Moreover, the study was conducted in the beginning period of private placement. As private placements have prevailed gradually, whether the result of the above study could be generalized is still a question. By contrast, there is already large amount of literature in other countries discussing the declaration effect of private placement on firms' stock price. For example, Wruck (1989) and Hertz et al. (2002) discover that the average abnormal return from day -3 to day 0 (announcement date) is significantly positive, showing that private placement delivers a positive declaration effect on firms' stock price. Since the focus of private placement conducted by the listed and OTC firms in Taiwan is common stock, this study also likes to make analysis upon the listed and OTC firms placing common stock privately to see if the same positive declaration effect exists in Taiwan.

According to the report by SEC (1971), listed firms mostly privately placed at a discount. On average, the discount approximates to 30%. Other literature also indicates that in order to complete private placement, firms will provide the participating investors with a certain discount to compensate them for the problem of cash liquidity (Wruck, 1989; Silber, 1991). However, why are investors willing to accept private equity offerings? Based on the perspective of self-interests, the reason for investors to participate in private placement may arise from the larger discounts offered by the firms. Other than that, investors may identify with the firms' future operating projects, believing that firms will be able to have better operating performances after receiving private placed funds. They wish to acquire more investment benefits through increasing stock prices. Hertz et al. (2002), however, find that firms issuing privately have negative abnormal return of stock price three years after announcement, an indication that investors are often over-optimistic about the future performance of private placed firms. In order to explore whether investors participating in private placement in Taiwan have the same over-optimistic inclination, this study adopts the listed and OTC firms placing privately as samples to examine whether long-term stock price outperforms after completion of private placement.

Since its inception, more and more listed and OTC firms have conducted private placement<sup>1</sup>. Some firms have flourished again because of the infusion of private capital. However, some firms are hollowed out due to private placement. Therefore, adoption of private placement could be double-faced. Although it could help acquire capital, technique, knowledge, and human resources, it may introduce the evil and put the firm in a great danger. Since the size, market comments, and investors participating in placement may influence firms' stock performance after private placement, this study would like to examine whether the declaration effect and post-placement stock performance will be affected by the variables of firms' size,

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<sup>1</sup> Take the cases in 2005 as examples, the noted firms placing privately include Power Quotient International, Xepex, and BTC.

market-to-book ratio, percentage of insider's participation, and institutional investors' participation. Results could be used by investors to make decision when participating private placement.

Finally, private placement could help those firms with poorer reputation and lower stock price out of the distress, in which they can hardly obtain capital through public offerings, and firms placing privately have the opportunity to collect money with less cost, in a shorter time, and in an easier way. However, information asymmetry exists between managers and investors. In order to obtain funds through private placement, managers are possibly manipulating earnings to window-dress financial statements as to attract funds infusion from specific investors. What's more, earnings management has the "reversing effect" which may negatively affect earnings one year following the private placement. Therefore, this study also examines whether firms conduct earnings management one year before and after, and in the year of private placement.

The sample firms are publicly listed firms (including OTC) on the Taiwan Stock Exchange that placed privately from 2002 to 2006 and have data available in the Taiwan Economic Journal (TEJ hereafter). Empirical results indicate no significant declaration effect, but stock return one year after placement was significantly positive. Both results are inconsistent with literature in the US. The reason might be that comparatively larger proportion of private placement in Taiwan was participated by insiders. Moreover, this study also finds that when firm size is smaller (bigger) or market-to-book ratio is lower (higher), long-term cumulative average abnormal return after announcement is higher (lower). When higher (lower) proportion of insiders or institutional investors participates in the placement, long-term cumulative average abnormal return after announcement is higher (lower). However, this study doesn't find that managers solicit specific investors to participate in private placement through conducting earnings management.

The remainder of the paper contains four sections. Section II reviews relevant literature and develops hypotheses to be tested in the study. Section III discusses the method employed in examining the research questions. Section IV presents results of the study. Section V concludes the paper and discusses implications and limitations of the study.

## **2. Literature Review and Hypothesis Development**

### *2.1 Declaration Effect of Private Placement*

Myers and Majluf (1984) demonstrate that equity issues convey management's belief that the firm is overvalued. They indicate that managers of undervalued firms with profitable investment opportunities, but lacking financial slack, will choose not to make investment. Therefore, they can prevent new shareholders from sharing benefits of existing shareholders when they do not issue new stocks. By not issuing, managers are choosing to forego the investment opportunities. Under the same notion, because managers possess more information, they will choose to issue equity publicly to collect more capital if they believe the firm is overvalued. Therefore, if a firm chooses public offerings, it delivers a message to investors that the manager believes firm's value is overestimate. Then stock price will be adjusted by market mechanism later, which may lead to the result of stock price decrease. Hertz and Smith (1993) suggest that private placement can solve the underinvestment problem, which results from that undervalued firms are worried about the initial stockholders' benefits being reduced. Therefore, the fact that managers choose private equity offerings and investors are willing to invest implies that the firm's stock price is undervalued. Spiess and Affleck-Graves

(1995) and Loughran and Ritter (1997) find that when firms announce seasoned equity offering (SEO), they may encounter negative stock return during the announcement period and their five-year stock return is also significantly lower than that of the non-SEO firms. Hertz and Smith (1993) find out that the cumulative abnormal return (from day -3 to day 0 (announcement day)) of the firms implementing private placement is 1.72%, and cumulative abnormal return from day -29 to day 10 approximates to 9%. Under the circumstance of information asymmetry, if the firms prefer private equity offerings to public equity offerings and the investors are willing to make private equity investment, both launch a signal that the stock prices of those firms are undervalued. Wruck (1989) finds that 4.5% of average abnormal return exists after announcement of private placement, which is significantly different from the research result of the announcement effect of SEO (negative 3% of average abnormal return). Aside from the information asymmetry hypothesis, Wruck (1989) suggests that the change of ownership structure, such as the increase of blockholders' shares, may be the reason for a positive announcement effect. When blockholders inject more funds into a specific firm's private equity offerings, the linkage in benefits with the firm will become stronger, which may induce their motivations to strengthen the degree of monitoring on the firm. Therefore, private placement may generate a positive announcement effect.

Adopting firms conducting public offerings and private offerings during 1981 to 1990 as samples, Lee and Kocher (2001) sort out five and three variables based on information asymmetry hypothesis and agency cost hypothesis respectively, then combine the same variables. Eventually, six variables such as firm size, dividend policy, growth opportunities, overvaluation, free cash flow, and ownership fraction were used to examine the characteristics of firm equity offerings publicly and privately. The result shows that private placement firms entail smaller size, higher growth opportunities, and limited financial slack, which shows that information asymmetry underlies when private placement firms collect funds outward. Also, firms with different characteristics may collect funds with different ways. Wruck (1989) and Hertz and Smith (1993) suggest that when firms announce private placement, the public will deem the information positive. Kato and Schallheim (1993) find that a positive announcement effect also exists in Japanese firms placing privately, and the average abnormal return can reach to 5%. With a sample of 56 private placement firms in Singapore during 1988 to 1996, Ruth et al. (2002) find that the cumulative average abnormal return from day -20 to day 1 is 6.27%, indicating a positive announcement effect in private placement. Hsu (2003) used 13 private placement firms in Taiwan as a sample and also found a positive announcement effect. Abnormal return on the announcement day is 2.2088%, and 4.5272% of average abnormal return is shown on the day 1.

## *2.2 Long-term Stock Performance of Private Placement*

Hertz et al. (2002) examine stock return of American firms placing privately with method of buy-and-hold abnormal returns and find that three-year buy-and-hold abnormal return is merely 0.21%, which is far lower than firms with public offerings. Furthermore, the stock performance doesn't improve after private placement, which shows that participating investors tend to be over-optimistic about corporate operation. Krishnamurthy et al. (2005) use American firms as samples and discover a positive announcement effect and negative long term abnormal returns in firms placing privately. This result is consistent with that by Hertz et al. (2002). Krishnamurthy et al. (2005) find that although long-term stock return is not favorable, an average of 20% discounts is provided during private equity offerings. Thus the

participating investors are usually able to gain a positive abnormal return, which is higher than public offerings. They also divide investors as affiliated ones (officers or directors of the firm, and relative institutions) and unaffiliated ones. As the affiliated ones possess lower information cost, having clearer picture of cash flow and intrinsic value of the firms, their capital injection into the firms can be regarded as assurance of firms' value and can also lessen agency cost. Although they find bigger discounts are normally allowed for unaffiliated investors than affiliated ones, long-term abnormal return doesn't differ significantly in between. This also explains that although affiliated investors have lower information cost, they basically have no information advantages compared with unaffiliated investors. Furthermore, given the control of financial distress, private equity with affiliated investors will generate a positive announcement effect and long-term abnormal returns. Chen et al. (2002) examine long-term stock performance of public firms placing privately in Singapore between 1988 and 1993. Their result indicates that cumulative abnormal returns will significantly decrease in two years after placement. Their study adopts four models (size-adjusted, book-to-market adjusted, market adjusted, and industry adjusted) for cumulative abnormal returns. Except for the industry-adjusted model, the cumulative abnormal returns of three other ones are approximate 20%. After making comparison between firms placing privately and benchmark firms, the former ones present lower stock performance. Firms with smaller sizes will also tend to have lower stock performance, which is consistent with the information asymmetry hypothesis. That is to say, information asymmetry will be more serious in smaller sized firms. Moreover, Chen et al. (2002) also find that firms with low book-to-market ratio will have better performance in stock price. The reason may be that book-to-market ratio can be seen as a proxy for growth opportunities. Therefore, firms with lower growth opportunities are more likely to issue shares when being overvalued. Finally, Chen et al. (2002) calculated discretionary accruals to examine earnings management behavior before and after private placement and found no significant results for earnings management behavior.

Hertz et al. (2002) find the characteristics of high capital expenditure, high R&D expenditure, and high book value in private placed firms. Although their operating performance is not so favorable, the stock price before private placement is apparently upward, showing that investors may gauge firms' value by growth opportunities. Marciukaityte et al. (2005) take American firms from 1979 to 1996 as samples to conduct research in private placement. Among the samples, at least 37% of firms are young or still developing. Their study finds that 7% of firms were recognized as financially distressed with three standards such as cancellation of the dividend payment, inability to fulfill financial duty, or occurrence of other financial problems. But investors may think these firms fell into financial distress only because they were under the product development stage instead of in any financial problems. That is to say, investors tended to be over-optimistic about private placed firms' perspective. Marciukaityte et al. (2005) adopted the prospect theory from Tversky and Kahneman (1974) and thought that investors will inject the successful experience of other firms into private placed firms once those firms possess speculative growth opportunities. And investors are inclined to believe that private placed firms will achieve the growth goals established before placement. Namely, investors will predict private placed firms' performance with other firms' performance. However, investors will not only over-expect firms' operating performance but also overvalue firms if over-trusting other firms' successful experience and ignoring long-term performance.

### 2.3 Hypotheses

Hertzel and Smith (1993) argue that managers are inclined to collect capital by private placement if they believe that firms are undervalued. Managers can also increase shareholding percentage through private placement participation to grab the opportunity for future benefit. Wruck (1989) argues that shareholders' participation in private placement will increase their holding shares and therefore their incentives for monitoring, which is beneficial for firms' operation. Because private placement is restricted to specific participants, the main investors will include insiders like managers and directors, institutional investors and financial organizations, natural persons, juristic persons and funds conforming to regulation by competent authorities. Those participants are all qualified for the rules rectified by the authorities concerned. They all have the opportunities to communicate with managers face-to-face about firms' future perspectives before participation. Therefore, after serious assessment, those investors think of the firms' as highly prospective and participate in placement in hope for larger benefits. The announcement of private placement not only discloses the information of firms being undervalued, but also represents the managers' confidence in firms' future and value for investment. Thus, when firms announce private placement, the market will recognize that firms are being undervalued and new capital will be helpful for firms' operation. Therefore, a positive announcement effect will arise. Accordingly, hypothesis 1 is established as follows:

**Hypothesis 1:** The declaration effect of private equity offerings will be positive.

Loughran and Ritter (1997) find that public equity issuing firms' will have higher capital expenditure before and after offering, showing that managers and investors are both likely to be overoptimistic about the investment projects. Managers will take advantage of selection of timing to decide when to conduct private placement, which causes that the announcement year of placement usually comes along with high performance. Investors will use firms' performance in the placement year as a reference to decide whether to participate or not, and they are also accustomed to predicting firms' future performance by that. Therefore, prior overoptimistic prediction may lead to slide in long-term stock returns because the predicted goal was not achieved. Hertzel et al. (2002) and Marciukaityte et al. (2005) also discover that investors tend to be overoptimistic about firms' operation and R&D capability. In addition, they will inject success experience from a few firms to the firm they invest, so they believe that participating in private placement will bring in higher benefits. Other studies such as Chen et al. (2002) also find negative long-term stock returns after placement. Therefore, hypothesis 2 is established as follows:

**Hypothesis 2:** Private placement is negatively correlated with long-term stock returns.

Lee and Kocher (2001) discover that compared with firms with public offerings, private placed firms are usually smaller in size. Brooks and Graham (2005) find that compared with bigger firms placed privately, smaller firms have higher abnormal returns during the announcement period. The evidence indicates that firm size can affect not only the behavior of placement but also abnormal return for investors after placement. Firms in smaller size might not be able to attract investors in public offerings because of less popularity. As for private placement, managers could find the specific investors and explain to them about the firms' growth opportunities, and therefore investors are possibly persuaded to participate easier. The positive declaration effect and higher long-term returns will then easily come about. Therefore,

hypothesis 3a and 3b are established as follows:

**Hypothesis 3a:** When firms issuing privately are smaller in size, positive declaration effects on stock return will be greater.

**Hypothesis 3b:** When firms issuing privately are smaller in size, long-term stock returns will be higher.

When investors participate in private placement, most of them hope that after infusion of cash, firms' operating performance will boost. And then stock price will reflect firms' performance to provide investors with abnormal returns. Therefore, firms with higher growth opportunity will be favored. Chen et al. (2002) find the stock price of firms with low book-to-market will outperform that of firms with high book-to-market ratio. And book-to-market ratio is the proxy for growth opportunity. Therefore, hypothesis 4a and 4b are established as follows:

**Hypothesis 4a:** Firms issuing private placement with lower book-to-market ratios will have bigger positive declaration effects.

**Hypothesis 4b:** Firms issuing private placement with lower book-to-market ratios will have higher long-term stock returns.

Wruck (1989) thinks that change of ownership structure after private placement may generate more monitoring incentives for new shareholders for newly owned shares or for initial shareholders because of increase in share holdings. Because insiders have more information about the firm than outsiders and have information advantages, their willingness to participate will reveal their confidence in firm's future perspectives. Moreover, it may also represent that the stock price is undervalued, so rational insiders would participate in the private placement instead of foregoing the potential profits. On the contrary, if insiders have little confidence in firms' operation, or private placement price is overpriced, they may not want to join in the private placement. Therefore, higher percentage of insiders' participation means brighter perspectives for the firms. Krishnamurthy et al.(2005) also find that private placement with the affiliated parties will bring about higher announcement effect than without, which also shows private placement with the affiliated will be considered by the market with high value. Thus, hypothesis 5a and 5b are established as follows:

**Hypothesis 5a:** Higher percentage of insiders participating in the private placement will bring about bigger declaration effects.

**Hypothesis 5b:** Higher percentage of insiders participating in the private placement will bring about higher long-term stock returns.

Admati and Pfleiderer (1994) find that internal investors like venture capital will mitigate the agency problem resulting from financial contracts. Without these kinds of investors, firms will not disclose all internal information. So, the existence of internal investors will help mitigate information asymmetry. In addition to insiders, institutional investors also participate in private placement for quite a large amount of money than insiders or regular investors. Unlike other investors, institutional investors tend to have weaker linkage with the firm. However, because institutional investors possess more resources, they have more ability to assess the firm's value, purpose for private placement, and future perspectives. Therefore, higher percentage of institutional investors' participation means that they have more confidence in the future perspectives of the firm after private placement. Thus, hypothesis 6a and 6b are established as follows:

**Hypothesis 6a:** Higher percentage of institutional investors' participation leads to bigger positive declaration effects.

**Hypothesis 6b:** Higher percentage of institutional investors' participation leads to higher long-term stock returns.

Teoh et al. (1998a, 1998b) find that firms will conduct earnings management before IPO or SEO. When firms collect capital through public offerings with non-specific investors, investors can only get access to the firms' operating performance by financial statements, while managers might be able to use discretionary accruals or other accounting options to manage earnings. Thus, investors may purchase the firm's stock for better earnings performance in the same year. Chen et al. (2002) used firms placing privately in Singapore as samples to examine earnings management behavior, and found no significant results. The reason might be that over 90% of the sample firms were audited by renowned audit firms, and thus managers' manipulation of earnings was restrained. This study postulates that because targets of IPO and SEO firms are mainly regular investors, most of them know little about firms' internal information. In order to gather up sufficient capital, firms will try their most to present the best financial statements to attract investors. However, the target of private placement firms is focusing on the specific investors, which are fewer in numbers. Also, when firms arrange private placement, they can directly communicate with the investors, explaining the opportunities to them instead of attracting them with earnings management. Therefore, hypothesis 7 is established as follows:

**Hypothesis 7:** No significant earnings management is shown before and after private placement.

### 3. Research Methodology

Common stock, preferred stock, corporate bonds, and depository receipts are all included in the subjects of private placement. To avoid the difference of the subjects which may disturb the effect, this study only chooses publicly listed and OTC firms placing common stock as samples. To begin with, the information of private placement announced by board of directors of publicly listed and OTC firms from 2002 to 2006 was acquired from the Market Observation and Post System (MOPS). The event date was the announcement date on MOPS. The fraction placed by insiders and institutional investors was calculated with the data of firms' annual reports and message on the private placement section on MOPS. Other financial data were acquired from Taiwan Economic Journal (TEJ) database. A total of 43 private placement firms were eliminated due to incomplete data during the estimate period. Finally, data of 83 firms with private placement event were collected.

A trend of increasing number of firms placing privately can be seen in Table 1. Among the 83 firms, 41 are publicly listed and 42 are OTC firms. From Table 2, it shows that most firms come from the electronics-related industry, and the highest percentage resides in the industry of computer and peripherals, components, and semi-conductors. From Table 3, firms placed privately in Taiwan are mostly small-sized listed or OTC firms. Average assets of listed samples are well below the average of total listed firms while average of OCT samples are about the same as the average of all OTC firms.



Table 1. Distribution of Private Placement Announcement Year

Year	Publicly Listed	OTC	Total
2002	2	1	3
2003	7	4	11
2004	8	9	17
2005	11	14	25
2006	13	14	27
Total	41	42	83

Table 2. Distribution of Sample Industry

Industry	Listed	% of listed	OTC	% of OTC	Total	Total %
Food	1	2.439%	0	0.000%	1	1.205%
Plastics	0	0.000%	1	2.381%	1	1.205%
Textile	2	4.878%	0	0.000%	2	2.410%
Ceramics	1	2.439%	0	0.000%	1	1.205%
Machinery and electronics	2	4.878%	4	9.524%	6	7.229%
Chemistry and biotech	1	2.439%	1	2.381%	2	2.410%
Steel	1	2.439%	1	2.381%	2	2.410%
Rubber	0	0.000%	1	2.381%	1	1.205%
Semi-conductor	3	7.317%	6	14.286%	9	10.843%
Computer and peripheral	9	21.951%	4	9.5247%	13	15.663%
Optronics	6	14.634%	1	2.381%	7	8.434%
Components	1	2.439%	8	19.048%	9	10.843%
Telecommunication	3	7.317%	2	4.762%	5	6.024%
Online channel	0	0.000%	3	7.143%	3	3.614%
Other electronics	2	4.878%	2	4.762%	4	4.819%
Information service	0	0.000%	4	9.524%	4	4.819%
Construction	5	12.195%	1	2.381%	6	7.229%
Transportation	1	2.439%	1	2.381%	2	2.410%
Oil, electricity, and gas	1	2.439%	0	0.000%	1	1.205%
Others	2	4.878%	2	4.762%	4	4.819%
Total	41	100%	42	100%	83	100%

Table 3. Total Assets<sup>a</sup> of Sample Firms

Year	Average of Listed Samples	Number of Listed Samples	Average of Listed Firms	Number of Total Listed Firms	Average of OTC Samples	Number of OTC Samples	Average of OTC Firms	Number of Total OTC Firms
2002	7,164	41	13,815	669	1,979	42	1,706	538
2003	7,373	41	14,872	672	2,113	42	1,923	538
2004	8,126	41	16,332	675	2,187	42	2,213	539
2005	8,314	41	17,922	677	2,220	42	2,425	539
2006	8,772	41	20,244	677	2,351	42	2,813	540

<sup>a</sup> millions NT except number of samples and firms

### 3.1 Measurement of Declaration Effect and Stock Return after Private Placement

This study follows the method by Wruck(1989) and takes the publicly listed and OTC firms placing privately from 2002 to 2006 as samples. The event study is adopted to examine the declaration effect of private placement. Event date is defined as the day on which private placement is announced on MOPS. Estimation period is established from day -201 to day -60 on the basis of event date as day 0. Event period starts from day -59 to day 60. The market model method is adopted to calculate the expected return, and the ordinary least square, OLS, is used to establish the regression model for individual stock returns as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

Where

$R_{it}$ : stock return of firm i in day t  
 $R_{mt}$ : market return on day t  
 $\varepsilon_{it}$ : estimation error,  $\varepsilon_{it} \sim N(0, \sigma)$

The daily average abnormal return (AR) and cumulative abnormal return (CAR) of sample firms are calculated as follows:

$$AR_{it} = R_{it} - E(R_{it}) = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt})$$

$$AR_t = \frac{1}{N} \sum_{i=1}^N AR_{it}$$

Where

$AR_{it}$ : abnormal return of firm i in period t  
 $AR_t$ : average abnormal return in period t  
 $R_{it}$ : actual return of firm i in period t  
 $E(R_{it})$ : expected return of firm i estimated by market model in period t

$$CAR(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_t = \frac{1}{N} \sum_{i=1}^N \sum_{t=t_1}^{t_2} (AR_{it}),$$

Where

$CAR(t_1, t_2)$ : cumulative abnormal return from period  $t_1$  to  $t_2$

The number of sample in the study is large enough to be tested by the t-distribution according to the central limit theorem. Therefore, the AR and CAR are tested by t-distribution as follows:

1. t-test for AR

$$t(AR_t) = \frac{AR_t}{\sqrt{Var(AR_t)}}$$

$AR_t$  = average of abnormal return in the event period t

$\sqrt{VAR(AR_t)}$  = standard deviation of average abnormal return in event period t

$$\sqrt{Var(AR_t)} = \frac{1}{N} \sqrt{\sum_{i=1}^N \hat{S}_i^2} = \frac{1}{N} \sqrt{\sum_{i=1}^N \frac{1}{(T_i - 1)} \sum_{t=t_1}^{t_2} (\hat{\varepsilon}_{it} - \sum_{t=t_1}^{t_2} \frac{\hat{\varepsilon}_{it}}{T_i})^2}$$

$T_i$  = period T of firm i in estimation period

$\hat{\varepsilon}_{it}$  = residual error of firm i in estimation period,  $\hat{\varepsilon}_{it} = R_{it} - E(R_{it})$ ,

$\hat{S}_i^2$  = error term of variance of firm i in estimation period,  $\hat{S}_i^2 = \frac{\sum_{t=t_1}^{t_2} (\hat{\varepsilon}_{it} - \bar{\varepsilon}_i)^2}{(T_i - 1)}$ ,

$\bar{\varepsilon}_i$  = the average of residual error in estimated period,  $\bar{\varepsilon}_i = \frac{\sum_{t=t_1}^{t_2} \hat{\varepsilon}_{it}}{T_i}$

2. t-test of cumulative average abnormal return

$$t(CAR_{t_1, t_2}) = \frac{CAR_{t_1, t_2}}{\sqrt{Var(CAR_{t_1, t_2})}}$$

Where

$$CAR_{t_1, t_2} = \sum_{t=t_1}^{t_2} AR_t,$$

$$Var(CAR_{t_1, t_2}) = Var(\sum_{t=t_1}^{t_2} AR_t),$$

assuming covariance term = 0, then

$$Var(CAR_{t_1, t_2}) = Var(\sum_{t=t_1}^{t_2} AR_t) = Var(AR_{t_1} + \dots + AR_{t_2})$$

$$= (\frac{1}{N^2} \sum_{i=1}^N \hat{S}_i^2) + \dots + (\frac{1}{N^2} \sum_{i=1}^N \hat{S}_i^2)$$

$$= m(\frac{1}{N^2} \sum_{i=1}^N \hat{S}_i^2)$$

which leads to

$$t(CAR_{t_1, t_2}) = \frac{1}{\sqrt{N}} \times \sum_{i=1}^N \frac{\sum_{t=t_1}^{t_2} (\frac{AR_{it}}{\hat{S}_i})}{\sqrt{m}},$$

m = days cumulated in the event period

### 3.2 The influence of firm size, market-to-book ratio, percentage of insider participants, and percentage of institutional investors on post-placement stock return

In order to examine whether firm size, market-to-book ratio<sup>2</sup>, percentage of insider participants, and percentage of institutional investors have effects on post-placement stock return, the regression model is built as follows:

$$CAR_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 MB_{it} + \beta_3 INSIDER_{it} + \beta_4 INSTITUTION_{it} + \beta_5 IND_{it} + \beta_6 LEV_{it} + \varepsilon_{it}$$

Where

$CAR_{it}$ :	cumulative average abnormal return of firm i in period t
$SIZE_{it}$ :	log value of beginning assets of firm i in period t
$MB_{it}$ :	market-to-book ratio of firm i in period t <sup>3</sup> (market value divided by shareholder's equity)
$INSIDER_{it}$ :	percentage of insider participants of firm i in period t
$INSTITUTION_{it}$ :	percentage of institutional investors participants of firm i in period t
$IND_{it}$ :	dummy variable, 1 if firm i is in electronics-related industry in period t; 0 otherwise
$LEV_{it}$ :	leverage ratio of firm i in period t
$\varepsilon_{it}$ :	residual error

### 3.3 Measurement of earnings management of private issuing firms

This study adopts the modified Jones model<sup>4</sup> to calculate total accruals of individual firm as follows:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_i \cdot \frac{1}{A_{it-1}} + \beta_{1i} \cdot \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \beta_{2i} \cdot \frac{PPE_{it-1}}{A_{it-1}} + \varepsilon_{it}$$

Where

$TA_{it}$ :	total accruals of firm i in year t
$A_{it-1}$ :	total assets of firm i at the end of year t-1
$\Delta REV_{it}$ :	revenues in year t minus revenues in year t-1 of firm i
$\Delta REC_{it}$ :	accounts receivable in year t minus accounts receivable in year t-1 of firm i
$PPE_{it-1}$ :	total PPE of firm i in year t-1
$\varepsilon_{it}$ :	residual error

In the equation:

$$TA_{it} = \Delta CA_{it} - \Delta CL_{it} - \Delta CASH_{it} + \Delta CLD_{it} - Dep_{it}$$

Where

<sup>2</sup> We also use book-to-market ratio instead of market-to-book ratio in regression model, but it does not affect empirical results.

<sup>3</sup> Chen et al. (2002) use book-to-market ratio as variables. We use market-to-book ratio provided by TEJ. The dif-

$\Delta CA_{it}$ :	change of current assets of firm i in period t
$\Delta CL_{it}$ :	change of current liabilities of firm i in period t
$\Delta CASH_{it}$ :	change of cash of firm i in period t
$\Delta CLD_{it}$ :	change of long-term liabilities due within one year of firm i in period t
$Dep_{it}$ :	expenses of depreciation and amortization of firm i in period t

Discretionary accruals:

$$U_{ip} = \frac{TA_{ip}}{A_{ip-1}} - \left( a \cdot \frac{1}{A_{ip-1}} + b_1 \cdot \frac{\Delta REV_{ip} - \Delta REC_{ip}}{A_{ip-1}} + b_2 \cdot \frac{PPE_{ip-1}}{A_{ip-1}} \right)$$

$U_{ip}$  = DA of firm i in year p ( $p = -1, 0, 1$ )

$a, b_1, b_2$  = estimated coefficients for accruals of firm i

In order to further examine whether the firms conducting private equity offerings will use discretionary accruals to manage earnings in the prior, the current, and the following year of private placement announcement, we select two firms, with similar scale of assets to specific sample firm and without issuing private equity, in the same industry as a control group. Then we build following regression model to examine whether the DA of private placement firms is significantly higher than that of control group.

$$DA_t = \beta_0 + \beta_1 (YEAR_t, PYEAR_t \text{ or } NYEAR_t) + \beta_2 LNASSET_t + \beta_3 LEV_t + \beta_4 CFO_t + \beta_5 ROA_t + \beta_6 TA_t + \varepsilon_t$$

Where

$DA_t$ :	discretionary accruals in the year
$YEAR_t$ :	dummy variable, 1 for the current year of placement announcement; 0 otherwise.
$PYEAR_t$ :	dummy variable, 1 for the prior year of placement announcement; 0 otherwise.
$NYEAR_t$ :	dummy variable, 1 for the following year of placement announcement; 0 otherwise.
$LNASSET_t$ :	natural logarithm of the beginning assets in year t
$LEV_t$ :	leverage ratio of firm i in year t
$CFO_t$ :	operating cash flow of firm i in year t
$ROA_t$ :	return on assets of firm i in year t
$TA_t$ :	total accruals of firm i in year t

## 4. Empirical Result and Analysis

### 4.1 Descriptive Statistics

Table 4 shows that both 60CAR and 250CAR have comparably large standard deviations, indicating that big difference exists between cumulative abnormal returns of samples. The maximum of 60CAR is 103.094%; the minimum of that is -113.654. The maximum of 250CAR is 259.104% while the minimum is -317.138%. Similar situations can be seen in the variables of insider (*INSIDER*) and institutional investors (*INSTITUTION*) as well. For example, in some private placement cases, nor institutional investors or insiders are involved, while in some other cases all investors are institutional investors or insiders. In this study, the mean

Table 4. Descriptive Statistics of the Variables (n=83)

Variable	Mean	SD	Min	Max	Q <sub>1</sub>	Median	Q <sub>3</sub>
<i>60CAR</i>	7.536	38.657	-113.654	103.094	-14.799	10.466	29.147
<i>250CAR</i>	23.651	99.084	-317.138	259.104	-39.718	24.154	92.147
<i>SIZE</i>	6.444	0.500	5.386	7.641	6.065	6.428	6.711
<i>MB</i>	1.265	1.320	0.320	8.380	0.610	0.910	1.290
<i>INSIDER</i>	47.805	44.810	0.000	100.000	0.000	33.330	100.000
<i>INSTITUTION</i>	37.438	43.375	0.000	100.000	0.000	8.000	95.240
<i>IND</i>	0.663	0.476	0.000	1.000	0.000	1.000	1.000
<i>LEV</i>	51.200	17.156	7.020	91.730	41.330	51.720	65.190

*60CAR*: cumulative abnormal return in day 60

*250CAR*: cumulative abnormal return in day 250

*SIZE*: logarithm of total assets at the beginning of the year with base 10

*MB*: market-to-book ratio (market value divided by equity). This figure is provided by TEJ database

*INSIDER*: ratio of shares purchased by insiders to total private issuance shares

*INSTITUTION*: ratio of shares purchased by institutional investors to total private issuance shares

*IND*: dummy variable, 1 if sample is in electronics-related industry; 0 otherwise

*LEV*: leverage ratio, total liabilities divided by total assets

of *INSIDER* is 47.085%, the first quartile is 0%, and the third quartile is 100%, showing that the percentage of insider's participation is very high. The mean of *INSTITUTION* is 37.438%, the first quartile is also 0%, the third quartile is 95.240%, and the median is 8.000%, indicating that the percentage of institutional investors' participation is little or even none. Moreover, the statistics of *IND* show that the mean is 0.663, which indicates that 66.3% of the sample firms are in the electronics-related industry while only 33.7% of firms are not.

Table 5 of Pearson correlation shows that *60CAR* is positively and significantly correlated with *250CAR* ( $p < 0.01$ ). Firm size is significantly and positively correlated with debt ratio ( $p < 0.05$ ); market-to-book ratio is significantly and negatively correlated with debt ratio ( $p < 0.05$ ). The results show that when firm size is larger, the debt ratio is also higher; when market-to-book ratio is higher, the debt ratio is lower. Besides, percentage of insiders' participation is significantly and negatively correlated with percentage of institutional investor' participation ( $p < 0.01$ ), showing that when insiders' participation is higher, institutional investors' participation will be lower, and vice versa.

#### 4.2 Declaration Effect of Placement and After-placement Stock Performance

The change of average abnormal return of 83 firms' stock performance from day-59 to day 60 can be seen in Figure 1 and Table 6. Figure 1 shows that the days with positive abnormal stock returns after announcement obviously surpass the days with negative returns. The positive-return days after announcement also surpass the days before announcement. Moreover, the track of its movement also reveals that compared to days before announcement, average abnormal stock price seems to go upward. However, t-test in Table 6 shows that *AR* of day 0 is -0.4775 ( $p > 0.1$ ), and within day 0 to day 10, *AR* reach the significance level only on day 3 ( $AR = 0.8567$ ,  $p < 0.01$ ) and day 5 ( $AR = 1.0711$ ,  $p < 0.01$ ). On the announcement day and 10 days before it, the average abnormal return of stock price does not reach the significance level. The results in Figure 1 and Table 6 are unable to provide enough evidence to show positive declaration effect. Therefore, we further conducts t-test on *CAR* during the period from day -3 to day 3, day -2 to day 2, day -1 to day 1, day 0 to day 3, day 0 to day 2, and day 0 to day 1. The results are shown in Table 7. Table 7 shows that *CAR* of the above periods cannot reach the significant level of  $\alpha = 0.05$ . Therefore, Hypothesis 1 cannot be supported. It shows the *AR* of Taiwanese private placement firms after announcement is not positive, which is inconsistent with the results found by Wruck (1989) and Hsu (2003).

Apart from the results in Figure 1 and Table 6, Figure 2 and Table 8 present the change of *CAR* from day -59 to day 60. Figure 2 shows that compared to days before announcement, *CAR* of firms after announcement significantly increases. Results in Table 8 show that, excluding day -36, on which the *CAR* is significantly deviating from 0, *CAR* starts to deviate from 0 only after day 35. Furthermore, *CAR* to day 60 is 8.9% ( $p < 0.01$ ). Even when the observation period is shortened to day-3 to day 3, day -2 to day 2, and day-1 to day 1, *CAR* is still not deviating from 0 (as shown in Table 7). So, the notion of a positive declaration effect is still not supported.

Table 9 shows the comparison of net income and *ROA* between sample firms and all listed (including OTC) firms one year before placement announcement. Among the 83 sample firms, 57.83% of them had negative net income before announcement, while only 49.15% of all listed and OTC firms had negative net income in the same accounting period. Moreover, the average *ROA* was -0.20% among sample firms one year before announcement, which is also smaller than *ROA* of all listed and OTC firms (1.22%). It shows that firms with private

Table 5. Pearson Correlation Coefficients between Variables (n=83)

	60CAR	250CAR	SIZE	MB	INSIDER	INSTITUTION	LEV	IND
60CAR	1.0000							
250CAR	0.8045**	1.0000						
SIZE	0.0417	-0.0982	1.0000					
MB	-0.0343	-0.1681	-0.0055	1.0000				
INSIDER	-0.0389	0.0692	-0.0714	0.0258	1.000			
INSTITUTION	0.2587*	0.1344	0.1455	0.0480	-0.7777**	1.0000		
LEV	-0.0448	0.0100	0.2466*	-0.2812*	-0.1339	-0.0404	1.0000	
IND	0.2704*	0.1658	0.0008	0.1185	-0.0824	0.1755	-0.0866	1.0000

\*\* 1% significance level, \* 5 % significance level

60CAR: cumulative abnormal return in day 60

250CAR: cumulative abnormal return in day 250

SIZE: logarithm of total assets at the beginning of the year with base 10

MB: market-to-book ratio (market value divided by equity). This figure is provided by TEJ database

INSIDER: ratio of shares purchased by insiders to total private issuance shares

INSTITUTION: ratio of shares purchased by institutional investors to total private issuance shares

LEV: leverage ratio, total liabilities divided by total assets

IND: dummy variable, 1 if sample is in electronics-related industry; 0 otherwise



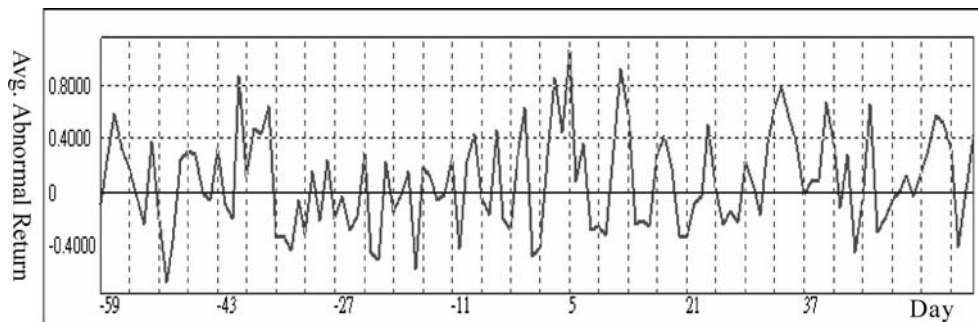


Figure 1. Average Abnormal Return of 83 Sample Firms on Day (-59, 60)

Table 6. Average Abnormal Return of 83 Sample Firms from Day -59 to 60

Period	AR	t-value	p-value	Period	AR	t-value	p-value
-59	-0.0859	-0.2658	0.7911	1	-0.4272	-1.3221	0.1898
-58	0.2208	0.6833	0.4963	2	0.2644	0.8181	0.4157
-57	0.5875	1.8181	0.0727	3	0.8567	2.6513	0.0096**
-56	0.3208	0.9929	0.3237	4	0.4497	1.3917	0.1678
-55	0.1829	0.5661	0.5729	5	1.0711	3.3146	0.0014**
-54	-0.0290	-0.0898	0.9287	6	0.0829	0.2567	0.7981
-53	-0.2409	-0.7456	0.4581	7	0.3605	1.1157	0.2678
-52	0.3787	1.1720	0.2446	8	-0.2824	-0.8738	0.3848
-51	-0.2026	-0.6270	0.5324	9	-0.2504	-0.7750	0.4405
-50	-0.6838	-2.1162	0.0374*	10	-0.3271	-1.0123	0.3144
-49	-0.3655	-1.1310	0.2614	11	0.3106	0.9613	0.3393
-49	-0.3655	-1.1310	0.2614	11	0.3106	0.9613	0.3393
-48	0.2311	0.7153	0.4765	12	0.9211	2.8505	0.0055**
-47	0.3021	0.9348	0.3526	13	0.5823	1.8021	0.0752
-46	0.2835	0.8774	0.3828	14	-0.2376	-0.7354	0.4642
-45	-0.0053	-0.0163	0.9870	15	-0.2208	-0.6832	0.4964
-44	-0.0564	-0.1746	0.8619	16	-0.2596	-0.8035	0.4240
-43	0.3205	0.9918	0.3242	17	0.2805	0.8680	0.3879
-42	-0.0898	-0.2779	0.7818	18	0.4226	1.3078	0.1946
-41	-0.2044	-0.6327	0.5287	19	0.1751	0.5419	0.5894
-40	0.8672	2.6838	0.0088**	20	-0.3306	-1.0231	0.3093
-39	0.1182	0.3657	0.7155	21	-0.3443	-1.0654	0.2898
-38	0.4743	1.4677	0.1460	22	-0.0841	-0.2602	0.7954
-37	0.4366	1.3511	0.1804	23	-0.0363	-0.1124	0.9108
-36	0.6447	1.9950	0.0494*	24	-0.5079	1.5718	0.1198

Period	<i>AR</i>	t-value	p-value	Period	<i>AR</i>	t-value	p-value
-35	-0.3359	-1.0396	0.3016	25	0.0370	0.1144	0.9092
-34	-0.3212	-0.9941	0.3231	26	-0.2481	-0.7676	0.4449
-33	-0.4422	-1.3684	0.1749	27	-0.1484	-0.4592	0.6473
-32	-0.0634	-0.1963	0.8448	28	-0.2325	-0.7196	0.4738
-31	-0.3123	-0.9663	0.3367	29	0.2268	0.7018	0.4848
-30	0.1492	0.4617	0.6456	30	0.0694	0.2147	0.8305
-29	-0.2110	-0.6529	0.5156	31	-0.1728	-0.5348	0.5942
-28	0.2299	0.7116	0.4787	32	0.3657	1.1317	0.2610
-27	-0.1945	-0.6018	0.5490	33	0.6093	1.8857	0.0629
-26	-0.0319	-0.0988	0.9216	34	0.7890	2.4418	0.0168*
-25	-0.2883	-0.8921	0.3749	35	0.5551	1.7178	0.0896
-24	-0.1798	-0.5564	0.5794	36	0.3580	1.1078	0.2712
-23	0.2893	0.8952	0.3733	37	-0.0237	-0.0732	0.9418
-22	-0.4510	-1.3957	0.1666	38	0.0861	0.2665	0.7905
-21	-0.5071	-1.5692	0.1205	39	0.0918	0.2842	0.7770
-20	0.2243	0.6943	0.4895	40	0.6723	2.0805	0.0406*
-19	-0.1471	-0.4551	0.6502	41	0.3691	1.1424	0.2566
-18	-0.0266	-0.0825	0.9345	42	-0.1183	-0.3662	0.7151
-17	0.1537	0.4757	0.6355	43	0.2830	0.8758	0.3837
-16	-0.5802	-1.7955	0.0763	44	-0.4480	-1.3865	0.1693
-15	0.1819	0.5630	0.5750	45	-0.0723	-0.2236	0.8236
-14	0.1130	0.3498	0.7274	46	0.6621	2.0489	0.0437*
-13	-0.0575	-0.1781	0.8591	47	-0.3033	-0.9386	0.3507
-12	-0.0143	-0.0444	0.9647	48	-0.1997	-0.6180	0.5383
-11	0.2416	0.7477	0.4568	49	-0.0593	-0.1835	0.8548
-10	-0.4286	-1.3263	0.1884	50	0.0108	0.0334	0.9735
-9	0.2148	0.6648	0.5081	51	0.1214	0.3756	0.7082
-8	0.4336	1.3417	0.1834	52	-0.0261	-0.0806	0.9359
-7	-0.0409	-0.1265	0.8996	53	0.1436	0.4444	0.6579
-6	-0.1675	-0.5185	0.6055	54	0.3205	0.9918	0.3242
-5	0.4633	1.4337	0.1555	55	0.5741	1.7765	0.0794
-4	-0.1946	-0.6022	0.5487	56	0.5206	1.6110	0.1110
-3	-0.2915	-0.9021	0.3696	57	0.3218	0.9958	0.3223
-2	0.2705	0.8370	0.4050	58	-0.4189	-1.2964	0.1985
-1	0.6249	1.9338	0.0566	59	0.0084	0.0260	0.9793
0	-0.4775	-1.4778	0.1433	60	0.4174	1.2917	0.2001

\*\* 1% significance level, \* 5% significance level

Table 7. Short-term Results of Private Placement Announcement

Period	CAR%	t-value	p-value	number
CAR(-3,3)	1.0754	1.2599	0.2113	83
CAR(-2,2)	0.3870	0.5365	0.5931	83
CAR(-1,1)	-0.2119	-0.3792	0.7055	83
CAR(0,3)	0.3620	0.5610	0.5763	83
CAR(0,2)	-0.5691	-1.0184	0.3115	83
CAR(0,1)	-0.8946	-1.9606	0.0533	83

\*\* 1% significance level; \* 5 % significance level

CAR(-3,3): cumulative average abnormal return from 3 days prior to announcement to 3 days following announcement

CAR(-2,2): cumulative average abnormal return from 2 days prior to announcement to 2 days following announcement

CAR(-1,1): cumulative average abnormal return from 1 days prior to announcement to 1 days following announcement

CAR(-3,0): cumulative average abnormal return from 3 days prior to announcement to announcement date

CAR(-2,0): cumulative average abnormal return from 2 days prior to announcement to announcement date

CAR(-1,0): cumulative average abnormal return from 1 days prior to announcement to announcement date

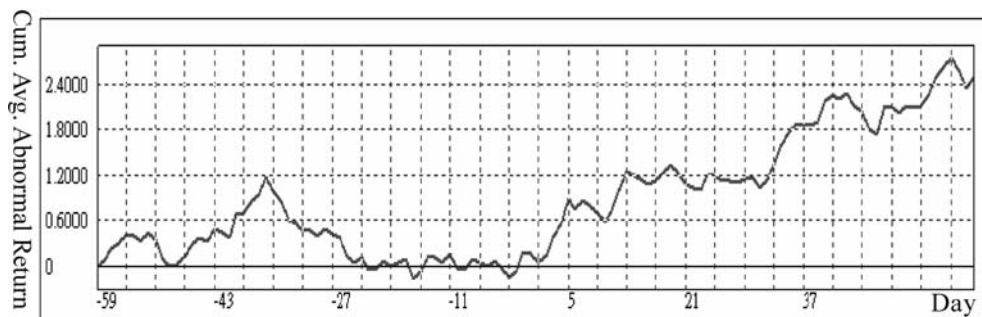


Figure 2. Cumulative Average Abnormal Return of 83 Sample Firms on Day(-59, 60)

TABLE 8. Cumulative Average Abnormal Return of 83 Sample Firms from Day -59 to 60

Period	CAR	t-value	p-value	Period	CAR	t-value	p-value
-59	-0.0859	-0.2658	0.7911	1	1.4284	0.3147	0.7538
-58	0.1349	0.2952	0.7686	2	1.6927	0.4136	0.6803
-57	0.7224	1.2907	0.2004	3	2.5495	0.7362	0.4637
-56	0.9492	1.6083	0.1116	4	2.9992	0.9002	0.3706
-55	1.1321	1.6886	0.0951	5	4.0034	1.2995	0.1974
-54	1.1031	1.5052	0.1361	6	3.4683	1.3212	0.1901

Period	CAR	t-value	p-value	Period	CAR	t-value	p-value
-53	0.8622	1.1152	0.2680	7	3.8288	1.4476	0.1516
-52	1.2409	1.4525	0.1502	8	3.5464	1.3309	0.1869
-51	1.0330	1.1655	0.2472	9	3.2960	1.2279	0.2230
-50	0.3491	0.4526	0.6520	10	2.9689	1.0981	0.2754
-49	-0.0163	0.0988	0.9216	11	3.2795	1.2045	0.2319
-48	0.2148	0.2961	0.7679	12	4.2006	1.5320	0.1294
-47	0.5169	0.5375	0.5924	13	4.7829	1.7324	0.0870
-46	0.8004	0.7468	0.4573	14	4.5453	1.6352	0.1058
-45	1.2870	0.7174	0.4751	15	4.3245	1.5453	0.1261
-44	1.2306	0.6531	0.5155	16	4.0649	1.4430	0.1528
-43	1.6411	0.8655	0.3893	17	4.3627	1.5313	0.1295
-42	1.5514	0.7780	0.4388	18	4.7853	1.6677	0.0992
-41	1.3469	0.6173	0.5387	19	4.9604	1.7174	0.0897
-40	2.2141	1.1801	0.2414	20	4.6298	1.5936	0.1149
-39	2.3323	1.2286	0.2227	21	4.2616	1.4654	0.1466
-38	2.8066	1.5020	0.1369	22	4.1775	1.4277	0.1572
-37	3.2432	1.7405	0.0855	23	3.9687	1.4068	0.1633
-36	3.8879	2.0964	0.0391*	24	4.4766	1.5679	0.1208
-35	3.5519	1.8536	0.0674	25	4.5136	1.5709	0.1201
-34	3.2307	1.6297	0.1070	26	4.2655	1.4800	0.1427
-33	2.7693	1.3422	0.1832	27	4.2865	1.4222	0.1588
-32	2.7059	1.2818	0.2035	28	4.0540	1.3374	0.1848
-31	2.3936	1.0844	0.2814	29	4.2808	1.4042	0.1640
-30	2.5428	1.1484	0.2541	30	4.3501	1.4190	0.1597
-29	2.3318	1.0153	0.3129	31	4.1414	1.3558	0.1789
-28	2.5617	1.1221	0.2651	32	4.5071	1.4650	0.1467
-27	2.3673	1.0027	0.3189	33	5.1500	1.6527	0.1022
-26	2.3354	0.9713	0.3342	34	5.9391	1.8957	0.0615
-25	1.6504	0.8120	0.4191	35	6.4941	2.0619	0.0424*
-24	1.4706	0.7113	0.4789	36	6.8521	2.1642	0.0334*
-23	1.7599	0.8434	0.4014	37	6.8285	2.1456	0.0349*
-22	1.3089	0.6140	0.5409	38	6.9146	2.1616	0.0336*
-21	1.3077	0.3579	0.7214	39	7.0064	2.1792	0.0322*
-20	1.5321	0.4618	0.6454	40	7.6787	2.3763	0.0198*
-19	1.3850	0.3859	0.7005	41	8.0478	2.4782	0.0153*
-18	1.4061	0.3689	0.7132	42	7.9295	2.4297	0.0173*

Period	CAR	t-value	p-value	Period	CAR	t-value	p-value
-17	1.5598	0.4354	0.6644	43	8.2125	2.5042	0.0143*
-16	0.5937	0.1695	0.8658	44	7.7644	2.3562	0.0209*
-15	0.7756	0.2485	0.8044	45	7.6922	2.3231	0.0227*
-14	1.2795	0.2961	0.7679	46	6.5021	2.5039	0.0143*
-13	1.2220	0.2676	0.7897	47	6.1988	2.4047	0.0184*
-12	1.2076	0.2585	0.7966	48	7.4979	2.3348	0.0220*
-11	1.4492	0.3601	0.7197	49	7.4386	2.3067	0.0236*
-10	1.0207	0.1735	0.8627	50	7.4494	2.2994	0.0240*
-9	1.2355	0.2626	0.7935	51	7.9141	2.3246	0.0226*
-8	1.6690	0.4416	0.6599	52	7.8881	2.3066	0.0236*
-7	1.6282	0.4205	0.6752	53	8.0317	2.3382	0.0218*
-6	1.4606	0.3477	0.7289	54	8.3522	2.4208	0.0177*
-5	1.9239	0.5332	0.5953	55	8.9262	2.5759	0.0118*
-4	1.7293	0.4499	0.6540	56	9.4468	2.7144	0.0081**
-3	1.4378	0.3293	0.7427	57	9.7686	2.7948	0.0065**
-2	1.7083	0.4337	0.6656	58	9.3497	2.6636	0.0093**
-1	2.3331	0.6757	0.5011	59	8.4826	2.6547	0.0095*
0	1.8556	0.4839	0.6298	60	8.9000	2.7587	0.0072**

\*\* 1% significance level; \* 5% significance level

Table 9. Net Income and *ROA* of Privately-issuing Firms One Year Prior to Announcement

Variable	Mean of total listed and OTC firm from 2002-2006 (n = 2,814) <sup>5</sup>	Mean of sample firms (n = 83)
<i>NI</i>	240,58.12	-136,472.47
<i>ROA</i>	1.22%	-0.20%
<i>DNI</i>	49.15%	57.83%
<i>DROA</i>	39.73%	50.60%

*NI*: after-tax net income of the year

*ROA*: return of assets of the year

*DNI*: dummy variable, 1 if *NI* is negative; 0 otherwise

*DROA*: dummy variable, 1 if *ROA* is negative; 0 otherwise.

placement had poorer performance in the previous year compared to all firms, and thus are unlikely to attract investors. Since the capital market will be unlikely to show positive re-

sponse immediately, the positive *AR* is not significant in placement announcement. However, even the positive *AR* does not show up in the announcement period, *CAR* in day 60 is significantly positive (in Figure 2 and Table 8), which means that placement announcement will still have good effects on firms' stock price within a rather short period even though it does not have a positive declaration effect.

The *CAR* of firms conducting private placement from day 0 to day 250 is shown in Figure 3 and Table 10, which represents the stock price performance one year after announcement. The results show that from day 40, *CAR* starts to reach the significant level of  $\alpha=0.05$  in a stable pace (*CAR* in day 40 is 5.0483%) and then remains positive. *CAR* of firms conducting placement in day 250 is about 26.2272% ( $p<0.01$ ), showing that overall *CAR* of sample firms is significantly positive.<sup>6</sup> The result is inconsistent with the ones by Hertz et al.(2002), Chen et al. (2002) and Marciukaityte et al.(2005), who argue that long-term stock price is significantly negative in firms with private placement. Therefore, Hypothesis 2 is not supported.

Hertz et al. (2002) argue that long-term negative stock price in private placed firms often results from over-optimism of investors. However, their study does not indicate the kinds of investors. Hertz et al. (1993) find that in 70 firms conducting private placement, the percentage of shares held by managers and directors declined from 21.9% to 20.4% (−1.5%), and percentage of shares held by 5% outside blockholders increased from 8.3% to 10.8% (+2.4%). If investors are separated into different sorts, the shares held by individual investors increase from 33.1% to 36.7% (+3.6), and shares held by institutional investors decline from 27.4% to 25.7% (−1.7%), which shows that in the samples, the individuals instead of managers and directors are the main investors. Moreover, the shares held by managers and directors decline from 21.9% to 20.4% (−1.5%) and shares held by 5% outside blockholders increase from 8.3% to 10.8% (+2.5%), showing that compared to outsiders, insiders' participation is lower. Yet, of the 67 samples in this study, 47.805% of investors are insiders, 37.438% are institutional investors (as shown in Table 4). There are comparatively fewer outsiders of individual investors instead of managers or directors. Among the 67<sup>7</sup> firms, 45 firms (67.16%) are involved with insiders, and 23 firms are even involved with 100% insiders. Because insiders usually have information advantage over regular investors, higher percentage of their participation may reveal their positive perspectives toward firms' future operation and their expectation to acquire higher abnormal return by private placement. On the contrary, if insiders believe firms can't improve their operations through private placement, then insiders may experience larger losses if they participate in the private placement. Thus, the percentage of their participation will decrease in a wide range. From the result of day 250 *CAR*, firms' private placement is sure to bring in a positive *CAR*, which means that private placement of listed and OTC firms will have a positive effect on one-year stock return.

#### *4.3 The relationship between firm size, market-to-book ratio, insiders' participation, institutional participation and after-placement stock price*

The study adopts *CAR* in day 60 and day 250 as dependent variables, firms size (*SIZE*),

<sup>6</sup> Overall, *CAR* from day 40 starts to be significantly positive. Individually, there exists quite a difference between *CAR* in individual samples, which also shows that some sample firms appear to have extreme performance after announcement.

<sup>7</sup> A total of 83 firms are used as samples for calculating *CAR*, while only 67 firms can be used for calculating the percentage of insider participants.

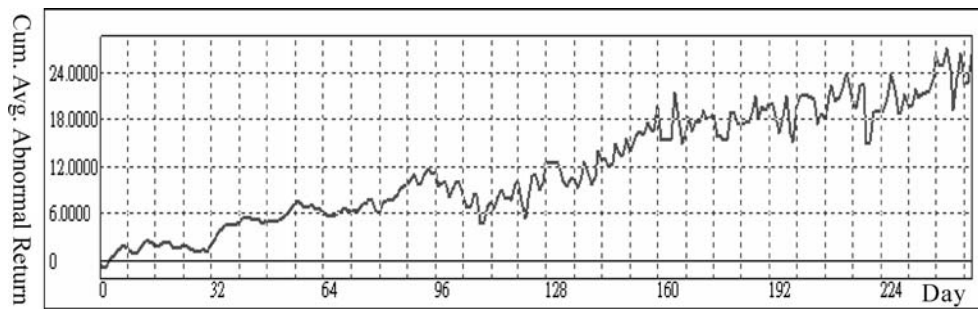


Figure 3. Cumulative Average Abnormal Return of 83 Sample Firms on Day (0, 250)

Table 10. Cumulative Average Abnormal Return of 83 Sample Firms from Day 0 to 250

Period	CAR	t-value	P-value	Period	CAR	t-value	P-value
0	-0.4127	-1.2393	0.2188	130	12.4693	3.1993	0.0020**
5	1.4533	1.8039	0.0749	135	10.3297	3.2475	0.0017**
10	0.7941	0.7368	0.4633	140	11.3274	3.4423	0.0009**
15	2.1888	1.6840	0.0960	145	12.8049	3.6834	0.0004**
20	2.1467	1.5160	0.1334	150	13.3789	3.8886	0.0002**
25	1.8972	1.1240	0.2643	155	16.4296	4.0853	0.0001**
30	1.3751	0.7601	0.4494	160	19.6300	4.1589	0.0001**
35	4.1651	1.8949	0.0616	165	21.5520	4.0057	0.0001**
40	5.0483	2.1950	0.0310*	170	16.6035	3.9201	0.0002**
45	5.1346	2.1110	0.0378*	175	18.1474	4.1439	0.0001**
50	5.0384	2.0240	0.0462*	180	15.2719	4.1415	0.0001**
55	6.6983	2.4639	0.0158*	185	17.7258	4.2375	0.0001**
60	7.0811	2.7300	0.0078**	190	19.7190	4.3488	0.0000**
65	5.9148	1.9800	0.0511*	195	16.3906	4.3411	0.0000**
70	6.8054	2.3020	0.0239*	200	19.6308	4.5032	0.0000**
75	7.2324	2.6208	0.0105*	205	20.6528	4.3438	0.0000**
80	6.0694	2.3768	0.0198*	210	22.4952	4.5349	0.0000**
85	8.2626	2.6654	0.0093**	215	22.7681	4.3556	0.0000**
90	10.9742	3.2016	0.0019**	220	14.8584	4.3800	0.0000**
95	11.1157	3.3173	0.0014**	225	19.2217	4.2249	0.0001**
100	8.0929	2.8761	0.0051**	230	19.0151	4.5160	0.0000**
105	6.8582	2.4645	0.0158*	235	20.8249	4.8500	0.0000**
110	5.0020	2.3639	0.0204*	240	26.0532	5.1111	0.0000**
115	9.0526	2.4474	0.0165*	245	19.3312	5.0097	0.0000**
120	10.1392	2.6232	0.0104*	250	26.2272	5.0946	0.0000**
125	10.8915	2.8348	0.0058**				

\*\*1% significance level; \* 5% significance level



market-to-book ratio (*MB*), insiders' percentage (*INSIDER*), and institutional investors' percentage (*INSTITUTION*) as independent variables. The industry that firms reside in and leverage ratio are also used as control variables to conduct the regression analysis to examine if *CAR* in day 60 and day 250 will change significantly because of firm size, market-to-book ratio, insider percentage, and institutional investor percentage.

The regression result of *CAR* in day 60 is shown in Table 11, and heteroskedasticity-consistent covariance matrix estimator modified by White (1980) is adopted to calculate t-statistics to examine the significance of the regression coefficient.

Table 11 shows that when *CAR* in day 60 is adopted as dependent variable and a regression analysis is conducted on firm size (*SIZE*), market-to-book ratio (*MB*), insiders percentage (*INSIDER*), institutional investors percentage (*INSTITUTION*), industry category (*IND*), and leverage ratio (*LEV*), coefficients of *INSTITUTION* and *IND* are found to be 0.4637 ( $p < 0.05$ ) and 20.6909 ( $p < 0.05$ ), which reach the significance level. It also shows that *CAR* in day 60 is positively correlated with institutional investors percentage. When firms placed privately are in the electronics-related industry, *CAR* in day 60 will also be higher, indicating that in a short term, investors will respond more positively to firms with higher institutional investors and electronics-related firms. The coefficients of firm size, market-to-book ratio, and insider percentage, however, don't appear significant, an indication that the relation-

Table 11. Regression Analysis of 60*CAR*

$$60CAR_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 MB_{it} + \beta_3 INSIDER_{it} + \beta_4 INSTITUTION_{it} + \beta_5 IND_{it} + \beta_6 LEV_{it} + \varepsilon_{it}$$

Variable	Expected sign	Coefficient	Standard Error	t-value	p-value	VIF
<i>INTERCEPT</i>		-32.8779	71.6339	-0.4590	0.6480	
<i>SIZE</i>	-	-0.9034	10.8201	-0.0835	0.9338	1.0799
<i>MB</i>	+	-3.3815	3.7614	-0.8990	0.3724	1.1608
<i>INSIDER</i>	+	0.3349	0.2124	1.5768	0.1204	2.6896
<i>INSTITUTION</i>	+	0.4637	0.2219	2.0895	0.0411**	2.8472
<i>IND</i>	?	20.6909	8.7974	2.3519	0.0222**	1.0806
<i>LEV</i>	-	0.0566	0.3163	0.1791	0.8585	1.2379
N=64		Adj. R <sup>2</sup> =0.1149		F=2.3637 (p=0.0415**)		

\*10% significance level; \*\* 5% significance level; \*\*\* 1% significance level

60*CAR*: cumulative abnormal return in day 60

*SIZE*: logarithm of total assets at the beginning of the year with base 10

*MB*: market-to-book ratio (market value divided by equity). This figure is provided by TEJ database

*INSIDER*: ratio of shares purchased by insiders to total private issuance shares

*INSTITUTION*: ratio of shares purchased by institutional investors to total private issuance shares

*IND*: dummy variable, 1 if sample is in electronics-related industry; 0 otherwise

*LEV*: leverage ratio, total liabilities divided by total assets

$\varepsilon_{it}$ : residual error



ship between  $60CAR$  and  $SIZE$ ,  $MB$ , and  $INSIDER$  is not significant after placement announcement. Therefore, apart from  $H_{6a}$ , which is supported,  $H_{3a}$ ,  $H_{4a}$ , and  $H_{5a}$  are not supported.

When  $CAR$  in day 250 is adopted as dependent variable and a regression analysis is conducted on  $SIZE$ ,  $MB$ ,  $INSIDER$ ,  $INSTITUTION$ ,  $IND$  and  $LEV$ , the result is shown in Table 12.

In Table 12, coefficient of  $IND$  doesn't achieve a significance level, showing that in a long-term,  $250CAR$  is not significantly correlated with industry category. Moreover, coefficient of  $INSTITUTION$  is 1.4960 ( $p < 0.05$ ), which is still significant. And coefficients of  $SIZE$ ,  $MB$ , and  $INSIDER$  are -39.8720 ( $p < 0.1$ ), -16.0078 ( $p < 0.1$ ), and 1.3858 ( $p < 0.05$ ), respectively. The above results indicate that in a long term,  $SIZE$  and  $MB$  are negatively correlated with  $CAR$  in day 250, and positively correlated with  $INSIDER$ . That is to say, when firms placed privately are smaller in size, lower in  $MB$ , and higher in insider percentage,  $CAR$  of stock price one year after placement will be higher. Therefore, only  $H_{3b}$ ,  $H_{5b}$  and  $H_{6b}$  are supported.

The coefficient of  $INSTITUTION$  in Table 11 and Table 12 is positive, showing that  $INSTITUTION$  is positively correlated with  $CAR$  in day 60 and day 250. The reason may be that institutional investors usually have specific appraisal procedures on their investment, and cautious assessment must be taken to decide whether to participate in private placement. Therefore, with higher institutional investor percentage, firms are expected by institutional investors to have better operating perspectives after placement and positive  $CAR$ . On the contrary,

Table 12. Regression Analysis of  $250CAR$

$$250CAR_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 MB_{it} + \beta_3 INSIDER_{it} + \beta_4 INSTITUTION_{it} + \beta_5 IND_{it} + \beta_6 LEV_{it} + \varepsilon_{it}$$

Variable	Expected sign	Coefficient	Standard Error	t-value	p-value	VIF
<i>INTERCEPT</i>		122.1892	172.8675	0.7068	0.4825	
<i>SIZE</i>	-	-39.8720	22.8233	-1.7470	0.0859*	1.8025
<i>MB</i>	+	-16.0078	8.2444	-1.9416	0.0570*	1.1616
<i>INSIDER</i>	+	1.3858	0.6732	2.0586	0.0440**	3.1478
<i>INSTITUTION</i>	+	1.4960	0.7156	2.0905	0.0410**	3.2740
<i>IND</i>	?	30.5975	27.2962	1.1209	0.2669	1.0942
<i>LEV</i>	-	0.6927	0.8618	0.8038	0.4248	1.2745
N=65		Adj. $R^2=0.1197$		F=2.4510 ( $p=0.0352^{**}$ )		

\*10 % significance level; \*\*5% significance level ; \*\*\*1% significance level

$250CAR$ : cumulative abnormal return in day 250

$SIZE$ : logarithm of total assets at the beginning of the year with base 10

$MB$ : market-to-book ratio (market value divided by equity). This figure is provided by TEJ database

$INSIDER$ : ratio of shares purchased by insiders to total private issuance shares

$INSTITUTION$ : ratio of shares purchased by institutional investors to total private issuance shares

$IND$ : dummy variable, 1 if sample is in electronics-related industry; 0 otherwise

$LEV$ : leverage ratio, total liabilities divided by total assets

although *INSIDER* is positively correlated with *CAR* in day 250 in significance, it is not positively correlated with *CAR* in day 60 significantly. The reason might be that investors have no access to insider percentage at the beginning of placement, and thus they are unable to give more positive responses to firms' private placement. As private placement finishes, investors will respond more positively toward the stock price of firms with higher percentage of insiders' participation, which leads to the result of significantly positive correlation between *CAR* in day 250 and *INSIDER*. However, individual firms have different operating situations, and benefits of private placement will not show up within a short time but in a gradual manner. Overall, the result not only indicates that the percentage of insiders and institutional investors has information value but also their prudent perspective on firms' future operation in terms of stock price.

In order to further examine the relationship between insider percentage, institutional investor percentage and *CAR*, this study defines the firms of 100% insider participation (23 firms) as higher insider percentage and the ones of 0% insiders (22 firms) as lower insider percentage. At the same time, the firms of 100% institutional investors (16 firms) and 0% institutional investors (8 firms) are defined as high institutional investor percentage and low institutional investor percentage. Then, whether percentage of insider and institutional investors' participation has an effect on *CAR* after private placement was examined. The shares of some sample firms were purchased by 100% insiders, then institutional investors would be 0% in the participation, or 100% institutional investors and 0% insiders. In Table 12, insider and institutional percentages are both positively correlated with *CAR* in day 250. In order to separate the effect of *CAR* in day 60 and day 250 caused from high or low percentage of insider and institutional investors, this study eliminates 100% institutional investor firms<sup>8</sup> when selecting low percentage of insiders and eliminates 100% insider investor firms<sup>9</sup> when selecting low institutional investor firms.

Figure 4 and Figure 5 show that the trend of *CAR* in day 60 is obviously better with higher percentage of insider than that with lower insider percentage. In firms with high percentage of insider, *CAR* in day 60 is 9.5073%, and t-value is 2.6968 ( $p < 0.05$ ) in significance. By contrast, firms with low insider percentage, *CAR* in day 60 is -14.9133%, and t-value is -1.2973 ( $p > 0.01$ ), which is not significant. The result shows that within 60 days after announcement, firms with high percentage of insider will have better *CAR* in stock price.

In Figures 6 and 7, the trend of *CAR* in day 250 is separated by high and low insider percentages. It is obvious that *CAR* in day 250 of firms with high percentage of insider participation is also better than firms with low percentage of insiders. The firms with high percentage of insider's participation have *CAR* of 28.1983% in day 250, and t-value is 4.1250 ( $p < 0.01$ ), while the firms with low percentage of insider participation have *CAR* of -62.3254% in day 250, and t-value is -2.3692 ( $p < 0.1$ ). The result shows that within 250 days after private placement, firms with high percentage of insider participation will have better *CAR* in stock price.

Moreover, in Figures 8 and 9, firms with high percentage of institutional investors' participation also have better trend in *CAR* in day 60 over firms with low institutional investors. The firms with high percentage of institutional investors' participation have *CAR* of 15.9048%

<sup>8</sup> This study defines the firms of 100% insider participation (23 firms) as high insider percentage and the ones of 0% insiders (6 firms) as low insider percentage.

<sup>9</sup> This study defines the firms of 100% institutional investor participation (16 firms) as high institutional investor percentage and the ones of 0% institutional investor participation (8 firms) as low institutional investor percentage.

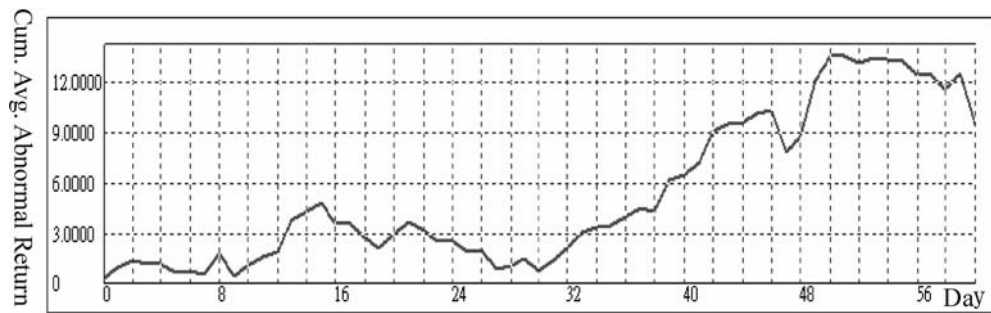


Figure 4. 60CAR of 23 Firms with High Percentage of Insider Participation

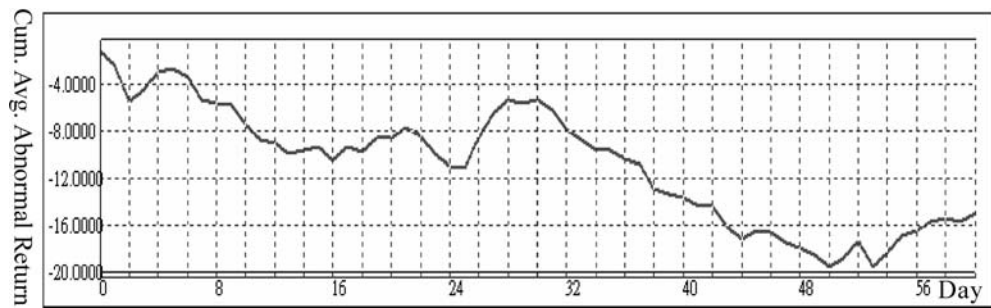


Figure 5. 60CAR of 6 Firms with Low Percentage of Insider Participation

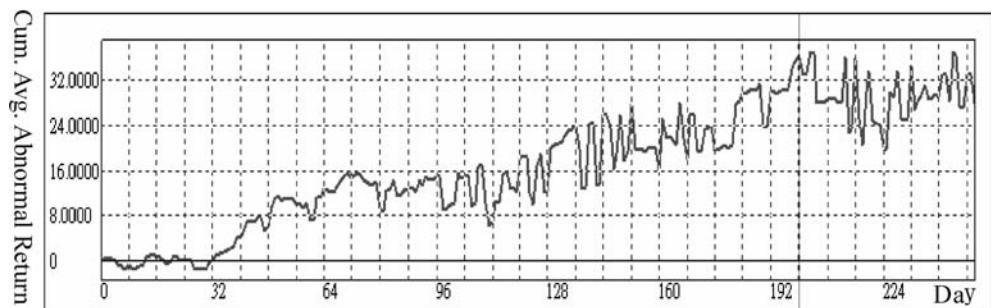


Figure 6. 250CAR of 23 Firms with High Percentage of Inside Participation

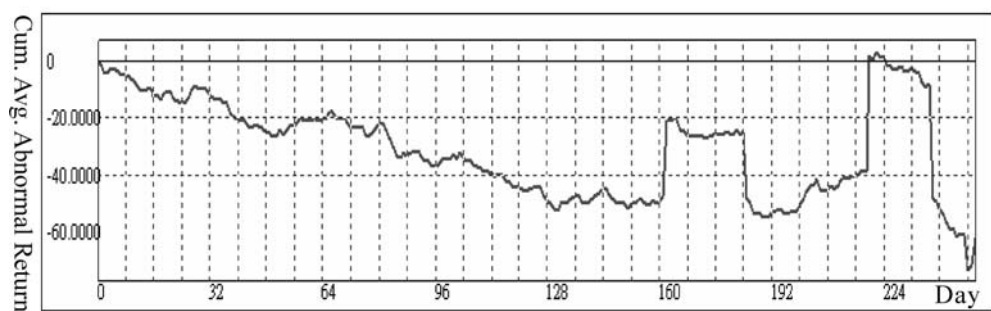


Figure 7. 250CAR of 6 Firms with Low Percentage of Insider Participation

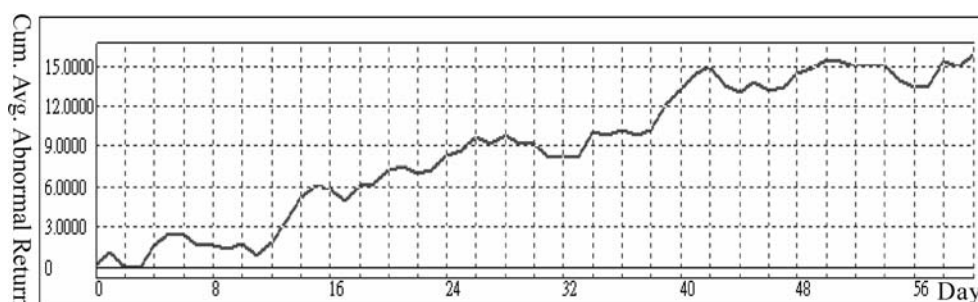


Figure 8. *CAR* (0, 60) of 16 Firms with High Percentage of Institutional Investors' Participation

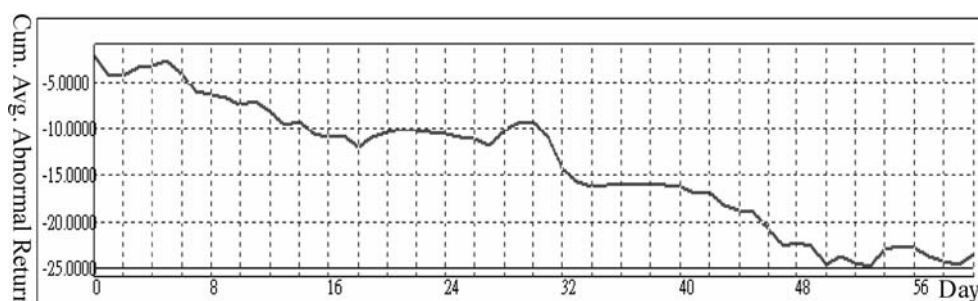


Figure 9. *CAR* (0, 60) of 8 Firms with Low Percentage of Institutional investors' Participation

in day 60, and *t*-value is 2.8949 ( $p < 0.05$ ) in significance. The firms with low percentage of institutional investors have *CAR* of -23.5775% in day 60, and *t*-value is -2.5552 ( $p < 0.05$ ) in significance. The result shows that firms with high percentage of institutional investors have better *CAR* in stock price within 60 days after private placement.

In Figures 10 and 11, firms with high percentage of institutional investors' participation also have better trend in *CAR* in day 250 over firms with low institutional investors. The firms with high percentage of institutional investors' participation have *CAR* of 41.4463% in day 250, and *t*-value is 3.7189 ( $p < 0.01$ ) in significance. The firms with low percentage of institutional investors have *CAR* of -84.5281% in day 250, and *t*-value is -4.1686 ( $p < 0.01$ ) in significance. The result shows that firms with high percentage of institutional investors have better *CAR* in stock price within 250 days after private placement.

From the above analysis, Figure 3, and Table 10, *CAR* in day 250 of Taiwanese firms with private placement is significantly positive. From 40 days after placement announcement, *CAR* starts to be significantly positive, showing that Taiwanese firms' stock performance after announcement is inconsistent with the result shown in the US literature. The reason might arise from the comparably higher insider percentage in Taiwanese firms. For example, in 83 samples of this study, 23 (27.7108%) cases were purchased by 100% insiders. On average, insider percentage achieves to 47.805%<sup>10</sup>. By comparison of high *INSIDER* and low *INSIDER*,

<sup>10</sup>. In the sample of Hertz and Smith (1993), placees are mainly individual investors instead of outsiders like managers or directors. It is a lot different from Taiwanese cases in which percentage of insider participation can achieve to 47.805%

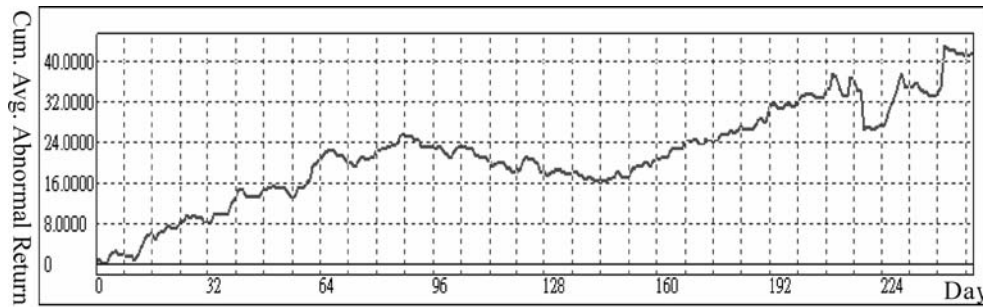


Figure 10.  $CAR(0, 250)$  of 16 Firms with High Percentage of Institutional Investors' Participation

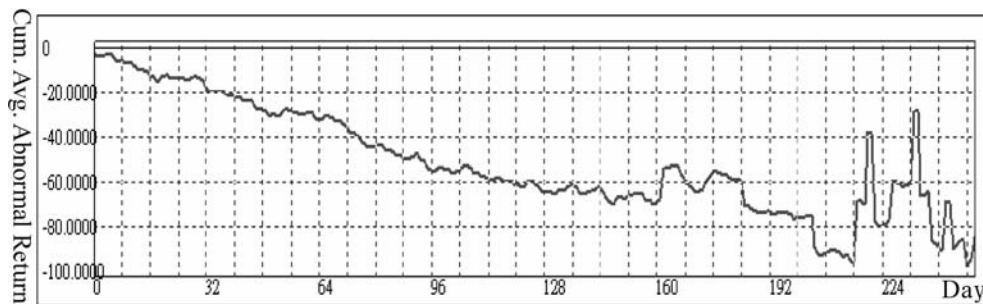


Figure 11.  $CAR(0, 250)$  of 8 Firms with High Percentage of Institutional Investors' Participation

it proves that  $CAR$  is positively correlated with insider percentage. Because insiders have information advantages, they will increase their share percentages if they smell opportunities for profits.

#### 4.4 Examination of Earnings Management Behavior in Firms with Private Placement

In order to understand whether firms use discretionary accruals to manage earnings in the prior year, the very year, and next year of announcement, this study chooses the control firms, which is closest in firm size with sample firms and in the same industry in the announcement year to analyze the effect of announcement on discretionary accruals. Table 13 shows the descriptive statistics of the regression model on earnings management. Compared to  $LEV$  and  $ROA$  of firms with private placement, the control firms have mean  $LEV$  of 44.3192 and median  $LEV$  of 44.6900, both of which are significantly lower than figures in private placed firms.  $ROA$  of control firms is 7.6243%, and median is 8.0500%, which also outperform private-placed firms.

Table 14 shows the examination of earnings management and consists of three parts. Panel A examines whether discretionary accruals in the year of announcement ( $YEAR$ ) are significantly higher than those in the control group from the same industry. Panel B examines whether discretionary accruals in the prior year of announcement ( $PYEAR$ ) are significantly higher than those in the control group from the same industry. Panel C examines whether discretionary accruals in next year of announcement ( $NYEAR$ ) are significantly higher than those

Table 13. Descriptive Statistics of Regression Model for Earnings Management

Panel A: Firms with Private Placement (n=234) <sup>11</sup>					
Variable	Mean	Max	Min	SD	Median
<i>DA</i>	-0.0078	0.3695	-0.3551	0.1074	-0.0091
<i>LNASSET</i>	14.7961	17.7659	12.5916	1.0938	14.7488
<i>LEV</i>	50.9428	95.0900	8.9400	18.7960	52.0150
<i>CFO</i>	245,900	7,901,919	-1,091,598	873,491	38,795
<i>ROA</i>	-0.4773	47.3300	-54.1600	13.9936	1.3350
<i>TA</i>	-0.0527	0.4507	-0.4199	0.1483	-0.0662
Panel B: Control Group (n=467)					
Variable	Mean	Max	Min	SD	Median
<i>DA</i>	0.0018	1.4408	-0.6673	0.1550	-0.0086
<i>LNASSET</i>	14.7715	18.3385	11.7788	1.1448	14.6983
<i>LEV</i>	44.3192	98.5000	5.0500	19.0133	44.6900
<i>CFO</i>	265,547	6,362,854	-4,658,765	893,334	101,502
<i>ROA</i>	7.6243	56.2000	-88.2700	13.0463	8.0500
<i>TA</i>	-0.0044	1.5240	-0.7805	0.1805	-0.044

*DA<sub>t</sub>*: discretionary accruals in year *t*

*LNASSET<sub>t</sub>*: natural log of the beginning assets in year *t*

*LEV<sub>t</sub>*: leverage ratio in year *t*

*CFO<sub>t</sub>*: operating cash flow in year *t*

*ROA<sub>t</sub>*: return on assets in year *t*

*TA<sub>t</sub>*: total accruals in year *t*

in the control group from the same industry. In Table 14, *YEAR*, *PYEAR*, or *NYEAR* are not significant. Even when *DA* is separated into positive *DA* and negative *DA*, the result doesn't change at all. It means that compared with non-private placement firms with similar size in the same industry, the discretionary accruals of sample firms are not significantly higher no matter in prior year, in the very year, or the next year of announcement. It suggests that Taiwanese firms issuing private placement didn't adopt discretionary accruals to manage earnings. Therefore, *H<sub>7</sub>* is supported.

According to the Article 43-6 of the Securities and Exchange Law, the competent authorities regulate that the total number of places should not exceed 35 persons if investors belong to the natural persons, juristic persons, funds, directors, supervisors, or managers of the very firms or the affiliated. Since there are comparatively fewer places, private placed firms may directly communicate with potential investors and explain to them the placement plan, purpose of fund raised, and future benefits. Therefore, compared to public offerings, the importance of financial statements has been lowered for private placement. This might be the main reason for the salient earnings management behavior before and after public offerings, but no earnings management behavior is found for private placement. In addition, because

<sup>11</sup> It includes the data in the prior year, the very year, and the following year after announcement.



Table 14. Regression Analysis for Earnings Management

Panel A:				
$DA_t = \beta_0 + \beta_1 YEAR_t + \beta_2 LNASSET_t + \beta_3 LEV_t + \beta_4 CFO_t + \beta_5 ROA_t + \beta_6 TA_t + \varepsilon_t$				
Variable	Estimated coefficient	t-value	p-value	VIF
<i>INTERCEPT</i>	-0.0618	-0.9292	0.3538	
<i>YEAR</i>	0.0093	0.9316	0.3525	1.0970
<i>LNASSET</i>	0.0076	1.6889	0.0926*	1.2316
<i>LEV</i>	-0.0004	-1.5596	0.1202	1.2461
<i>CFO</i>	0.0000	0.6820	0.4960	1.9366
<i>ROA</i>	-0.0021	-4.7329	0.0000***	1.7864
<i>TA</i>	0.7170	19.3398	0.0000***	1.9551
Adj. R <sup>2</sup> =0.737		F=109.760		N=234
Panel B:				
$DA_t = \beta_0 + \beta_1 PYEAR_t + \beta_2 LNASSET_t + \beta_3 LEV_t + \beta_4 CFO_t + \beta_5 ROA_t + \beta_6 TA_t + \varepsilon_t$				
Variable	Estimated coefficient	t-value	p-value	VIF
<i>INTERCEPT</i>	-0.1371	-2.3024	0.0222**	
<i>PYEAR</i>	0.0073	0.8323	0.4061	1.1034
<i>LNASSET</i>	0.0119	2.8686	0.0045***	1.4036
<i>LEV</i>	-0.0003	-1.0677	0.2868	1.2411
<i>CFO</i>	0.0000	-4.1909	0.0000***	1.7314
<i>ROA</i>	-0.0020	-5.5051	0.0000***	1.9158
<i>TA</i>	0.7337	21.5240	0.0000***	1.6718
Adj. R <sup>2</sup> =0.759		F=122.823		N=233
Panel C:				
$DA_t = \beta_0 + \beta_1 NYEAR_t + \beta_2 LNASSET_t + \beta_3 LEV_t + \beta_4 CFO_t + \beta_5 ROA_t + \beta_6 TA_t + \varepsilon_t$				
Variable	Estimated coefficient	t-value	p-value	VIF
<i>INTEREPT</i>	0.0346	0.5189	0.6043	
<i>NYEAR</i>	0.0115	1.1510	0.2510	1.0807
<i>LNASSET</i>	0.0019	0.4207	0.6744	1.3321
<i>LEV</i>	-0.0009	-3.4861	0.0006***	1.4277
<i>CFO</i>	0.0000	1.2008	0.2311	1.6304
<i>ROA</i>	-0.0035	-7.6239	0.0000***	1.8747
<i>TA</i>	0.8333	27.6013	0.0000***	1.6828
Adj. R <sup>2</sup> =0.821		F=178.535		N=234

\* 10% significance level; \*\* 5% significance level; \*\*\* 1% significance level

 $DA_t$ : discretionary accruals in year t $YEAR_t$ : dummy variable, 1 for the year of announcement; 0 otherwise $PYEAR_t$ : dummy variable, 1 for the prior year of announcement; 0 otherwise $NYEAR_t$ : dummy variable, 1 for the following year of announcement; 0 otherwise $DA_t$ : discretionary accruals in year t $LNASSET_t$ : natural log of the assets at the beginning of year t $LEV$ : leverage ratio, total liabilities divided by total assets $CFO_t$ : operating cash flow in year t $ROA_t$ : return on assets in year t $TA_t$ : total accruals in year t

percentage of insider participation is higher in Taiwanese private placement firms and insiders have fully understood firms' operation, there is no need for firms to conduct earnings management behavior by means of *DA*.

#### 4.5 Sensitivity Analysis

In order to check robustness of the test results, besides adopting the non-standardized *AR* and *CAR* as presented in the above, we also examines the announcement effect, stock price return, and earnings management with standardized *AR* and standardized *CAR* that are available in the TEJ database. The results indicate no difference between the two sets of tests. Therefore, the results of the study are robust.

### 5. Conclusion

At first, the empirical results of the study show that the declaration effect of listed and OTC firms placed privately in Taiwan is not significant, but positive *AR* appears more times than negative *AR* after placement. Moreover, *CAR* of day 60 is significantly positive, an indication that although the placement announcement of listed and OTC firms does not appear positive, it still helps to boost stock price.

Second, this study also finds that *CAR* one year following placement is significantly positive, which is inconsistent with foreign literature. The reason might arise from the higher percentage of insider participants in most private placement in Taiwan, who can obtain most information of firms' operation. When insiders are willing to participate in large percentage, it shows their confidence in firms' future prospects, and therefore it is reasonable for positive *CAR* one year following announcement.

On the other hand, both firm size and market-to-book ratio have significantly negative correlation with *CAR* of day 250, suggesting that when placing firms are smaller in size or lower in market to book ratio, long-term *CAR* after placement will be comparably higher. Percentage of insider participants and institutional investors is also positively correlated with *CAR* of day 250, which indicates that higher percentage of insiders or institutional investors will lead to higher long-term *CAR* after placement. Finally, this study also finds no significant earnings management behavior in the prior year, in the very year, and in the following year of placement announcement. The reasons might be the limited number of places, a higher percentage of insider participants, and placing firms can directly collect capital from investors, all of which may make managers lack incentives for conducting earnings management.

This study has searched and selected all information about private placement of listed and OTC firms in Taiwan. Since private issuance started from 2002, samples for study are still not many. Part of information and data of private issued firms have to be collected from annual reports of the firms, which may only contain incomplete information. Therefore, some research samples might be deficient, which is the first limitation of the study. In addition, this study only focuses on the firms which had private placement the first time. Firms issuing more than one time are not included, which is the second limitation of the study.

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## Appendix

Dispersion of Event Dates of Private Issuance Firms

Code	Event date	Industry	Code	Event date	Industry
2449	20021031	Semi-conductor	6186	20050408	Semi-conductor
2601	20021125	Transportation	2341	20050413	Computer and peripheral
5466	20021125	Semi-conductor	5102	20050415	Rubber
9934	20030324	Others	6195	20050415	Online channel
6150	20030414	Computer and peripheral	2340	20050428	Optronics
1215	20030516	Food	6603	20050518	Machinery and Electronics
5309	20030611	Components	2444	20050525	Communication and internet
2505	20030623	Construction	4534	20050525	Machinery and Electronics
1464	20030808	Textile	2429	20050610	Components
2331	20031009	Computer and peripheral	6217	20050701	Components
5009	20031024	Steel	6101	20050823	Components
9905	20031030	Others	6238	20050901	Other electronics
4502	20031111	Machinery and Electronics	2396	20051021	Optronics
2461	20031204	Other electronics	2399	20051025	Computer and peripheral
1442	20040209	Construction	5310	20060110	Information service
4503	20040223	Machinery and Electronics	2384	20060213	Optronics
2530	20040304	Construction	1735	20060321	Chemistry and Biotech
6231	20040308	Information service	6179	20060322	Other electronics
2540	20040325	Construction	1512	20060330	Machinery and Electronics
5364	20040330	Components	4304	20060410	Plastics
5205	20040428	Information service	1526	20060412	Machinery and Electronics
1806	20040511	Ceramics	3017	20060412	Computer and peripheral
8935	20040514	Others	2543	20060414	Construction

2455	20040621	Communication and internet	3051	20060425	Optronics
6130	20040802	Semi-conductor	6121	20060503	Computer and peripheral
5386	20040804	Computer and peripheral	8008	20060504	Computer and peripheral
2465	20040825	Computer and peripheral	9937	20060504	Oil, electricity, and gas
3054	20040901	Computer and peripheral	5523	20060510	Construction
2479	20041202	Optronics	4414	20060525	Textile
4113	20041203	Chemistry and Biotech	8081	20060713	Semi-conductor
2443	20041207	Optronics	2466	20060724	Optronics
3004	20050103	Other electronics	6110	20060726	Information service
5345	20050105	Components	8066	20060803	Semi-conductor
6135	20050121	Online channel	6220	20060807	Components
4907	20050215	Communication and internet	6259	20060818	Online channel
2494	20050302	Communication and internet	8299	20061005	Computer and peripheral
6114	20050308	Components	2007	20061020	Steel
3041	20050316	Semi-conductor	3046	20061027	Computer and peripheral
4903	20050318	Communication and internet	5605	20061128	Transportation
2442	20050321	Computer and peripheral	8942	20061128	Others
5321	20050331	Components	6287	20061215	Semi-conductor
6145	20050331	Semi-conductor			

# 宣告效果、股價報酬與盈餘管理： 我國企業私募股權之研究

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## 中文粹要

關鍵詞：私募、宣告效果、股價報酬、盈餘管理

### 一、研究議題

相對於私募制度在國外早已行之多年，國內遲至 2002 年增修訂證券交易法後，才開始實施私募制度，至今已有越來越多上市上櫃公司透過私募的方式，取得營運所需資金。根據證券交易法第 7 條：「本法所稱募集，謂發起人於公司成立前或發行公司於發行前，對非特定人公開招募有價證券之行為。本法所稱私募，謂已依本法發行股票之公司依第 43 條之 6 第 1 項及第 2 項規定，對特定人招募有價證券之行為。」由於我國的私募制度較晚實施，對於私募股權宣告效果之研究相對較少，但國外早有文獻針對私募股權的宣告效果進行研究，並且發現公司私募宣告前 3 天至宣告當日股價的平均異常報酬顯著為正，顯示私募計劃對於公司股價具有正向宣告效果(Wruck 1989; Hertz et al. 2002)。而由美國證管會(1971)的報告可發現，發行公司大多以折價方式辦理股權私募，且平均而言，其折價幅度約 30%。其他文獻也發現，公司為了要順利完成私募，會提供相當程度之折價給參與私募的投資人(Wruck, 1989; Silber, 1991)，以彌補參與公司私募所產生的資金流動性問題。由於投資人參與私募的原因，除了較大的折價幅度，也可能是認同公司未來的營運計劃，希望藉由參與公司私募，獲得正的長期股價異常報酬。但是 Hertz et al.(2002)卻發現，私募股權公司在私募宣告後三年期的股價異常報酬為負值，顯示投資人對於私募股權公司未來的營運展望，往往過度樂觀。因此，本研究同時探討國內上市上櫃公司私募股權之宣告效果及私募股權公司於私募完成後的長期股價表現。

隨著國內上市上櫃公司私募股權之案例越來越多，私募股權的宣告效果與後續的股價表現，也越來越受到重視。而私募股權公司是否能享有正的宣告效果與長期股價

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表現，除了受到公司未來成長動能與成長機會之影響，在私募參與者中，內部人及法人參與私募股權之比率，代表公司內部與公司外部擁有資訊之投資人對公司辦理私募股權的態度。因此，本研究也探討公司規模、股價淨值比率、內部人參與比率及法人參與比率等變數對私募股權宣告效果及公司後續股價表現之影響，以作為投資人參加公司私募股權時之決策參考。

最後，管理者為了能順利經由私募取得資金，有可能會透過盈餘操弄來美化或窗飾 (window-dressing) 財務報表，吸引特定投資人資金之挹注。由於盈餘管理具有迴轉效果，倘若私募股權公司在私募當年度，曾有盈餘管理行為，此迴轉效果即可能會影響私募完成後次一年度之盈餘。因此，本研究也針對私募股權公司在私募宣告前一年度、私募宣告當年度及私募宣告後一年度，是否會有顯著的盈餘管理行為進行探討。

## 二、研究假說

當管理者認為公司價值遭到低估時，會傾向利用私募進行籌資，並經由參與私募掌握未來獲利的機會(Hertzel and Smith 1993)。由於私募對象限定於特定人，這些參與私募股權的投資人，都是在審慎評估之下，參與公司私募。因此當公司宣告要以私募的方式籌集資金時，市場可能以公司價值遭到低估及新資金投入有助於公司發展的角度來解讀，故本研究建立假說  $H_1$  如下：

$H_1$ ：公司私募股權對於股價具有正向的宣告效果。

辦理現金增資之公司，在增資前後的資本支出往往相對較高，顯示管理者與投資人可能對公司新的投資方案過於樂觀(Loughran and Ritter 1997)。再加上管理者有權決定何時辦理私募，而造成公司私募宣告年度，往往正逢績效高峰期，因此，投資人對公司未來過度樂觀的預期，比較容易使私募後之績效不如預期，導致公司長期股價報酬下滑，故本研究提出假說  $H_2$  如下：

$H_2$ ：公司私募股權與長期股價表現呈現負向關係。

私募股權公司通常具有規模較小之特性(Lee and Kocher 2001)，且規模較小之私募股權公司在私募宣告期間之異常報酬相對較高(Brooks and Graham 2005)。由於規模較小之公司，具有較大的成長空間，比較容易受投資人青睞，故本研究提出假說  $H_{3a}$  及  $H_{3b}$  如下：

$H_{3a}$ ：私募股權公司規模越小時，其正向宣告效果越大。

$H_{3b}$ ：私募股權公司規模越小時，其長期股價報酬越高。

Chen et al.(2002)發現低淨值股價比率之私募股權公司的股價表現，會優於高淨值股價比之私募股權公司。由於淨值股價比反映投資人對公司未來展望看好的程度，也可作為公司成長機會的代理變數，故本研究建立假說  $H_{4a}$  與  $H_{4b}$  如下：

$H_{4a}$ ：淨值股價比率越低之私募股權公司，其正向宣告效果越大。

$H_{4b}$ ：淨值股價比率越低之私募股權公司，其長期股價報酬越高。

若公司內部人參與公司私募股權比率越高，一方面代表內部人對公司越有信心，另一方面也可能代表公司私募股權訂定之股價偏低，使內部人不願意放棄參與公司私募股權的機會。故本研究提出假說  $H_{5a}$  及  $H_{5b}$  如下：

$H_{5a}$ ：公司內部人參與私募程度越高，其正向宣告效果越大。

$H_{5b}$ ：公司內部人參與私募程度越高，其長期股價報酬越高。

外部法人經常成為公司私募股權的應募對象，且應募金額往往高於其他投資人。當法人參與企業私募股權之程度越高時，也代表法人對公司具有信心，故本研究提出假說  $H_{6a}$  及  $H_{6b}$  如下：

$H_{6a}$ ：法人參與私募程度越高，其正向宣告效果越大。

$H_{6b}$ ：法人參與私募程度越高，其長期股價報酬越高。

公司為了募集資金，在募集資金的過程中，往往會盡量呈現出較好的盈餘數字，以提高投資人購買公司股票之意願。不過，因為私募股權之籌資對象為特定人，且人數較少，管理者可面對面向應募人詳述未來的營運計劃，而不必透過盈餘管理的方式，來吸引一般的投資人，因此本研究提出假說  $H_7$  如下：

$H_7$ ：私募股權公司在私募前後無顯著盈餘管理行為

### 三、研究方法

私募制度包含私募普通股、特別股、私募公司債及海外存託憑證等，為避免因私募標的不同，產生效果上之混淆，本研究將樣本鎖定於私募普通股之上市上櫃公司。首先，利用公開資訊觀測站取得 2002 年至 2006 年上市上櫃公司董事會通過辦理私募之訊息，並以董事會通過私募案後，於公開資訊觀測站公告之日為事件日，依個別公司年報所揭露之私募資訊，與公開資訊觀測站私募專區所公布之訊息，計算公司內部人及法人參與私募之股權比率，然後再由 TEJ 資料庫取得財務資料，經刪除資料不完整及平均異常報酬估計區間內資料不足之樣本後，共取得 83 家曾辦理私募股權公司之相關資料。其中，屬於上市公司者共 41 家，餘 42 家皆屬於上櫃公司（詳如表 1），而其產業分類則以電子相關產業最多（詳如表 2），且大多屬於規模較小的上市上櫃公司（詳如表 3）。

本研究採用事件研究法探討私募股權之宣告效果，將「事件日」定義為公司董事會決議辦理私募股權後，於公開資訊觀測站公布訊息之日；「估計期」設為事件日前 201 日至前 60 日；而「事件期」則為事件日前 59 日至事件後 60 日，採用市場模式計算期望報酬率，以普通最小平方法建立個股股價報酬率之迴歸模型如下：

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

式中： $t=t_1, \dots, t_n$ ，代表天數； $i=1, 2, \dots, N$ ，代表公司； $R_{it}$ =第  $t$  天  $i$  公司之股價報酬率； $\alpha_i$  與  $\beta_i$  皆為估計參數； $R_{mt}$ =第  $t$  天市場報酬率； $\varepsilon_{it}$ =誤差項， $\varepsilon_{it} \sim N(0, \sigma)$



至於樣本公司每日平均異常報酬(average abnormal return,  $AR$ )與累計平均異常報酬(cumulative abnormal return,  $CAR$ )之衡量方式如下：

$$AR_{it} = R_{it} - E(R_{it}) = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt})$$

$$AR_t = \frac{1}{N} \sum_{i=1}^N AR_{it}$$

式中： $AR_{it}$ =事件期  $t$  期之異常報酬； $AR_t$ =事件期  $t$  期之平均異常報酬； $R_{it}$ = $i$  公司在事件期  $t$  期之實際報酬； $E(R_{it})$ =以市場模式估計  $i$  公司在事件期  $t$  期之預期報酬而事件期  $t_1$  至  $t_2$  之累計平均異常報酬( $CAR(t_1, t_2)$ )之計算方式如下：

$$CAR(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_t = \frac{1}{N} \sum_{i=1}^N \sum_{t=t_1}^{t_2} (AR_{it})$$

另外，為檢驗公司規模、股價淨值比率、內部人參與比率及法人參與比率是否會影響公司私募股權後之股價表現，本研究以累計平均異常報酬為因變數，公司規模、股價淨值比率、內部人參與比率、法人參與比率、產業別及負債比率為自變數進行下列迴歸分析：

$$CAR_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 MB_{it} + \beta_3 INSIDER_{it} + \beta_4 INSTITUTION_{it} + \beta_5 IND_{it} + \beta_6 LEV_{it} + \varepsilon_{it}$$

式中： $CAR_{it}$ = $i$  公司第  $t$  期累計平均異常報酬； $SIZE_{it}$ = $i$  公第  $t$  期期初資產總額取對數值； $MB_{it}$ = $i$  公司第  $t$  期之股價淨值比率； $INSIDER_{it}$ = $i$  公司第  $t$  期公司內部人參與之比率； $INSTITUTION_{it}$ = $i$  公司第  $t$  期法人參與之比率； $IND_{it}$ =虛擬變數， $i$  公司第  $t$  期之產業分類若為電子資訊業設為 1，否則為 0； $LEV_{it}$ = $i$  公司第  $t$  期之負債比率； $\varepsilon_{it}$ =誤差項

最後以 modified Jones model 估算裁決性應計數，衡量私募股權公司的盈餘管理行為。

#### 四、研究結果

私募宣告當日之平均異常報酬( $AR$ )為-0.4775( $p>0.1$ )，且在私募後 10 日內，只有第 3 日( $AR=0.8567$ ,  $p<0.01$ )與第 5 日( $AR=1.0711$ ,  $p<0.01$ )之平均異常報酬達到顯著水準，而私募宣告日當日及宣告日前 10 日之股價平均異常報酬率，均未達到顯著水準（詳如表 6），顯示並無足夠證據支持私募宣告具有正向的宣告效果，假說  $H_1$  並未獲得支持。不過，由圖 1 可發現，在私募宣告日後，公司股價呈正向平均異常報酬之日數，不僅明顯多於負向平均異常報酬之日數，也多於私募宣告日前正向平均異常報酬之日數，且由圖 2 及表 8 可發現私募後 60 日之累計平均異常報酬為正，且達到顯著水準，顯示國內上市上櫃公司的私募宣告，雖不具正向宣告效果，但對公司股價還是具有較大的正面意義。

其次，公司自私募宣告後第 40 日起，其累計平均異常報酬開始穩定達到 $\alpha=0.05$  的顯著水準（第 40 日之累計平均異常報酬=5.0483%），且維持正的累計平均異常報酬，

至宣告日後第 250 日止之累計平均異常報酬為 26.2272% ( $p < 0.01$ )，顯示公司於私募宣告後一年，其股價具有正的累計平均異常報酬（詳如圖 3 與表 10），假說  $H_2$  未獲支持。而其原因可能是，國內公司辦理私募，常有較高的內部人參與比率（詳如表 4），甚至 100% 由內部人認購。當內部人願意大舉參與私募時，也代表內部人對公司深具信心。由圖 4 與圖 5 可發現，具有高內部人參與比率之公司，其私募宣告後 60 日累計平均異常報酬率之走勢，明顯優於低內部人參與比率之公司。其中高內部人參與比率之公司，60 日累計平均異常報酬率為 9.5073%， $t$  值為 2.6968 ( $p < 0.05$ )。而低內部人參與比率之私募股權公司，其 60 日累計平均異常報酬率為 -14.9133%， $t$  值為 -1.2973 ( $p > 0.01$ )。再由圖 6 及圖 7 則可發現，具高內部人參與比率之公司，其私募宣告後 250 日累計平均異常報酬率之走勢，也明顯優於低內部人參與比率之私募股權公司。其中高內部人參與比率之私募股權公司，其 250 日累計平均異常報酬率為 28.1983%， $t$  值為 4.1250 ( $p < 0.01$ )。而低內部人參與比率之私募股權公司，其 250 日累計平均異常報酬率為 -62.3254%， $t$  值為 -2.3692 ( $p < 0.1$ )。此結果顯示內部人參與比率與公司私募後之累計平均異常報酬有關，也正足以作為國內公司在私募宣告後一年，股價呈現正向累計平均異常報酬的合理解釋。

另外，若以私募宣告後 60 日累計平均異常報酬率為依變數，對公司資產規模、股價淨值比率、內部人參與比率、法人參與比率、產業分類及負債比率進行迴歸分析，可發現法人參與比率與產業分類之係數分別為 0.4637 ( $p < 0.05$ ) 及 20.6909 ( $p < 0.05$ )，顯示私募宣告後 60 日之股價累計平均異常報酬與法人參與比率有正向關係，而當私募公司屬於電子相關產業時，私募宣告後 60 日之股價累計平均異常報酬也相對較高（詳如表 11），顯示短期而言，投資人對於法人參與比率較高或產業分類屬於電子業之私募股權公司，會給予較佳的評價。至於資產規模、股價淨值比率及內部人參與比率等三項變數之係數，則未達到顯著水準。故只有假說  $H_{6a}$  獲得支持，假說  $H_{3a}$ 、 $H_{4a}$  及  $H_{5a}$  皆未獲得支持。

在長期股價表現方面，法人參與比率之係數為 1.4960 ( $p < 0.05$ )，而資產規模、股價淨值比率及內部人參與比率之係數分別為 -39.8720 ( $p < 0.1$ )、-16.0078 ( $p < 0.1$ ) 及 1.3858 ( $p < 0.05$ )（詳如表 12）。顯示就長期而言，公司資產規模及股價淨值比率，與公司私募宣告後 250 日之累計平均異常報酬有負向關係，而與內部人參與比率有正向關係，代表當公司資產規模較小、股價淨值比率較低或內部人參與比率較高時，在私募宣告後一年，公司股價的累計平均異常報酬相對較高，因此除了假說  $H_{4b}$  外， $H_{3b}$ 、 $H_{5b}$  及  $H_{6b}$  皆獲得支持。

最後，由於國內私募股權公司不論在私募宣告當年度、前一年度或後一年度，其裁決性應計數與對照組公司均無顯著差異，顯示國內私募股權公司於辦理私募時，並無利用裁決性應計數操弄盈餘之現象，假說  $H_7$  獲得支持。