EFA
Eastern
Finance
Association

The Financial Review 37 (2002) 165–184

The
Financial
Review

FR

Wealth Effects of Private Equity Placements: Evidence from Singapore

Sheng-Syan Chen

Yuan-Ze University

Kim Wai Ho

Nanyang Technological University

Cheng-few Lee*

Rutgers University

Gillian H.H. Yeo

Nanyang Technological University

Abstract

We examine institutional characteristics and the wealth effects of private equity placements in Singapore. Our findings show that private placements in Singapore generally result in a negative wealth effect and a reduction in ownership concentration. We find that at high levels of ownership concentration, the relation between abnormal returns and changes in ownership concentration is significantly negative. We also show that the market reacts less favorably to placements in which management ownership falls below 50%, but more favorably to issues to single investors. We do not find evidence suggesting that our results are due to an information effect.

Keywords: equity offerings, private placements, ownership structure

JEL Classifications: G14/G32

**Corresponding author*: Department of Finance, School of Business, Rutgers University, New Brunswick, NJ 08903; Phone (732) 445-3907; Fax: (732) 445-5927; E-mail: lee@everest.rutgers.edu

The authors wish to thank two anonymous referees, the editor, Dosoung Choi, David Ding, Jayant R. Kale, Sie Ting Lau, and seminar participants at the 1996 FMA meetings for helpful comments and suggestions. Any errors are the authors'.

1. Introduction

Wruck (1989) and Hertzel and Smith (1993) show that private equity placements in the United States are associated with a positive market reaction. Wruck finds that there is a significant increase in ownership concentration following a private placement and that the change in ownership concentration can partially explain the positive announcement effect. Hertzel and Smith show that the positive stock price reaction reflects favorable inside information about firm value.

However, previous studies using U.S. data might reflect only the specific environment in the United States. There are very few studies on private placements in other countries.[1] Therefore, in this paper we study the institutional characteristics and the wealth effects of private placements in Singapore, which is one of the major financial centers in Asia.[2] We find that in Singapore there are restrictions on the issue size, price discount, and the parties to whom the placement shares can be sold. For example, shares cannot be sold to directors and existing blockholders, implying a reduction in their equity holdings after the share issue.

Our results show that private placements in Singapore do indeed indicate a significant reduction in ownership concentration. We also find that the average announcement-period abnormal return is significantly negative. This evidence suggests that the reduction in the equity holdings of directors and blockholders has an adverse impact on firm value.

We also examine the relation between announcement-period returns and changes in ownership concentration at different levels of ownership concentration for the Singapore firms. We find that at very high levels of ownership concentration (above 75%), the relation between announcement-period returns and changes in ownership concentration is significantly negative, suggesting that the greater the reduction in ownership concentration, the higher the abnormal return (or the less negative the abnormal return). We provide a possible explanation based on the notion that a placement to outsiders would increase the free float in the announcing firm's stock, which would suggest a higher post-issue stock liquidity. We argue that the impact on post-issue stock liquidity is greater when the pre-issue ownership concentration (free float) is high (low) because the percentage change in the free float would be greater. We show that at high levels of ownership concentration, there is indeed a significant increase in the post-issue stock liquidity, which may have a favorable impact on firm value.

---

[1] Kato and Schallheim (1993) and Kang and Stulz (1996) examine private placements in Japan and find that the stock price response is positive.

[2] Singapore is the fourth largest foreign exchange trading center in the world, the fifth largest trader in derivatives, and the ninth-largest offshore lending center. There are more than 700 financial institutions in Singapore. (See the official website of the Singapore central bank, the Monetary Authority of Singapore, at http://www.mas.gov.sg.)

Our results also show that the market reacts more negatively to placements in which management ownership falls below 50%, but more favorably to issues to single investors. Further, we find that the market reaction is less negative when there is a significant pre-announcement price increase. We find that a firm's growth opportunities and fraction placed have no explanatory power, implying that information effects unrelated to ownership changes are less important. We also find that other potentially important information variables, such as financial slack, return on equity, dividend yield, financial distress dummy, and firm size, have no significant explanatory power.

The paper is organized as follows. The next section describes the regulatory and institutional environment relating to private placements in Singapore. Section 3 reviews the literature and discusses the hypotheses. Section 4 describes the sample. Section 5 presents the evidence on stock price response and ownership changes. Section 6 gives our cross-sectional analysis of the announcement-period returns. Section 7 concludes.

2. Institutional and regulatory environment

In Singapore there are two main methods through which listed firms can raise additional equity finance: a rights issue (usually underwritten) and private placement. However, we note that the seasoned public equity market in Singapore is underdeveloped relative to the rights issue and private placement markets. For example, the *Listing Manual* of the Stock Exchange of Singapore (SES) does not provide specific rules on primary seasoned equity offering. During the sample period, there was no primary seasoned public offer. Subsequent to the sample period, there were only a very few public issues, a notable example being the one issued by Singapore Telecom in 1996.

In a rights issue, each existing shareholder has the right to subscribe for new shares on a pro-rata basis. In a private placement, firms issue new shares to a group of investors through a placing agent, which is usually a stockbroking firm or an investment banker. The regulatory agencies require a detailed prospectus in a rights issue, but exempt firms from preparing a prospectus when they issue shares by way of a placement. The placement shares carry the same voting rights and right to cash flows as do the existing shares. The exceptions to this rule are the issues for which the new shares do not rank for dividends payable in relation to the fiscal year ended before the announcement. (There are 12 such issues in our sample.)

We describe below the main regulations governing private placements in Singapore. We use the rules contained in the *Listing Manual* of the Stock Exchange of Singapore. These rules were introduced in 1988.

The number of shares issued in a private placement in Singapore must not exceed 10% of the previously issued share capital of the firm. Under exceptional circumstances, the SES can approve a higher issue size. In our sample, only three

firms have an issue size greater than 10%. The maximum issue size is 17.4%. (In contrast, Wruck (1989) shows that in the United States, the issue size can be as high as 79.8%. Thus, U.S. private placements can result in a significant change in control. This is very unlikely for a Singapore listed firm).

The SES can permit a discount of up to 10% on the last price of the shares on the Exchange that were transacted either at the time of, or immediately preceding, the signing of the placement agreement. There is no similar restriction on the size of discount in the U.S.

In Singapore, shares cannot be placed with the issuer's directors and substantial shareholders; the immediate family members of the directors and substantial shareholders; the substantial shareholders, related companies, associated companies, and fellow companies of the issuer's substantial shareholders; or those corporations in whose shares the issuer's directors and substantial shareholders have an aggregate interest of at least 10%.[3] Thus, private placements in Singapore can dilute the holdings of directors and substantial shareholders.

On the other hand, following a U.S. private equity placement, ownership concentration can increase, because the shares can be sold to management-controlled purchasers or blockholders (Wruck, 1989).

Singapore regulation does not restrict the resale of the placement shares by the purchasers. Table 1 summarizes the issue characteristics of private equity placements in Singapore and compares them with those in the U.S.

3. Review of previous literature

3.1. Ownership changes and firm value

Jensen and Meckling (1976) argue that lower managerial ownership can result in higher agency costs and lower firm value (the alignment-of-interests hypothesis). Leland and Pyle (1977) suggest that actions taken by management to decrease their ownership are negative signals (the signaling hypothesis). Both hypotheses suggest a positive relation between ownership concentration and firm value. Since we expect private equity placements in Singapore to result in a lower managerial ownership, the average announcement return should be negative.

Holderness and Sheehan (1988) find that the market reacts positively to a majority-block trade. A placement in which managers reduce their holdings to below 50% (for example, from 55% to 45%) is, to a certain extent, the reverse of a majority-block trade, and suggests a negative market reaction. Also, the fact that managers are willing to lose 50% control is a signal that they are cashing out. Hence, we argue that the market would react more negatively to placements in which management shareholding falls below 50%.

[3] The SES can make exception to this rule. However, in our sample no exception exists.

Table 1

Issue characteristics of private placements: a comparison of Singapore and US firms

This table summarizes the issue characteristics of private equity placements in Singapore and compares them with those in the U.S.

Issue Characteristics	Singapore	United States
Issue size	Maximum 10%. The Stock Exchange of Singapore may approve a larger issue.	No restriction. Wruck (1989) reports a maximum issue size of 79.8%.
Discount	Maximum 10%.	No restriction. Wruck (1989) reports wide variation in pricing—5% of market to 205% of market.
Identity of purchasers	Shares cannot be sold to directors and substantial shareholders.	Shares can be sold to management-controlled purchaser or an existing blockholder.
Restriction of resale	No regulatory restriction.	Two types of private placements: registered and unregistered sales. Unregistered shares carry resale restriction up to three years.

An equity sale to a single shareholder results in a new blockholder, which can have positive monitoring effects.[4] However, the presence of a blockholder can negatively affect firm value if the blockholder helps to entrench management (Brickley, Lease, and Smith, 1988; Pound, 1988). Hertzel and Smith (1993) find no significant relation between announcement returns and private equity placements to single investors. We use the Singapore data to provide international evidence on this question.

Although the alignment-of-interests and the signaling hypotheses suggest that the relation between ownership concentration and firm value is positive, other studies suggest that over a certain range of ownership concentration, the relation may be negative. Fama and Jensen (1983) argue that when managers own a substantial percentage of a firm's equity, they can become entrenched, resulting in a negative impact on firm value. Stulz (1988) shows that the value of the firm first increases, then decreases, as managerial equity ownership increases. Stulz argues that the premium a hostile bidder must pay increases with management ownership concentration, but that the probability that the takeover will succeed decreases.

There is mixed empirical evidence on the relation between ownership concentration and firm value at different levels of ownership concentration. Using a sample of private equity sales, Wruck (1989) shows that when ownership concentration is below 5% or above 25%, the relation between changes in firm value and changes in ownership concentration is positive. However, in the range of 5% to 25% ownership

[4] See Mikkelson and Ruback (1985), Shleifer and Vishny (1986), Agrawal and Mandelker (1990), Holthausen, Leftwich and Mayers (1990), Barclay and Holderness (1991), and Brous and Kini (1994).

concentration, this relation is negative.[5] The author argues that the alignment-of-interests effect may be dominated by the entrenchment effect in the 5% to 25% range. Hertzel and Smith (1993), on the other hand, find that ownership changes at different ownership levels have no explanatory power in their sample of private placements.

For Singapore, there are no earlier studies on the relation between firm value and ownership concentration. Corporate ownership is more concentrated in Singapore than in the United States, and an ownership concentration of less than 25% is rare. Therefore, we cannot test the presence of an entrenchment effect in the 5% to 25% range. However, since ownership concentration is higher for our sample firms, we are able to examine the relation between firm value and ownership concentration at high concentration levels, an issue that has received relatively little attention in the literature.

We argue that some firms with high ownership concentration might wish to increase the free float in the stock by reducing ownership concentration via a private placement to outsiders. Holmström and Tirole (1993) suggest that a reduction in ownership concentration increases market monitoring of the firm and the amount of information available on the firm, implying a reduction in spreads and an increase in stock liquidity. Amihud and Mendelson (1986) and others show that stock liquidity and firm value are positively related. Thus, an improvement in stock liquidity resulting from a reduction in ownership concentration would imply a positive impact on firm value.[6]

We suggest that the impact on post-issue stock liquidity, and hence firm value, is greater when the pre-issue ownership concentration is high. For example, if we assume a firm with a pre-issue ownership concentration of 80% (free float of 20%) issues 10% new shares (the maximum allowed under the Singapore regulation) to outsiders, then the free float will increase from 20% to 27.27% (=30/110), which represents an increase of 36.4% (=(27.27% − 20%)/20%). But if the firm has a pre-issue ownership concentration of 60% (free float of 40%) and issues 10% new shares, the free float will increase from 40% to 45.45%, which represents an increase of only 13.6%. Thus, we expect that the incremental liquidity effect of a placement will be more significant at high levels of pre-issue ownership concentration.

3.2. Information effects unrelated to ownership changes

Myers and Majluf (1984) argue that a decision to issue new equity could signal negative information about overvalued assets in place. Hertzel and Smith (1993)

---

[5] Wruck's (1989) findings are similar to the piecewise linear relation between firm value and board ownership found by Morck, Shleifer, and Vishny (1988). Other studies, such as McConnell and Servaes (1990) and Fields and Mais (1994), find a curvilinear relation between firm value and ownership concentration.

[6] Previous studies on the relation between ownership concentration and firm value (e.g., Fama and Jensen, 1983; Stulz, 1988; Wruck, 1989; McConnell and Servaes, 1990; and Fields and Mais, 1994) do not offer liquidity effect as a potential explanation.

suggest that the willingness of private placement investors to commit funds to a firm, together with management's decision to forgo a public issue, signals undervalued assets in place. In Singapore, because the seasoned public equity offering market is underdeveloped, firms with overvalued assets in place might also use the private placement market to raise capital.[7] A negative market reaction to an announcement of a private placement would be consistent with this observation.

Several studies examine how investment opportunities might explain the stock price response to equity issues. Myers and Majluf (1984) predict that increasing the profitability of new investment opportunities reduces the stock price decline when firms announce equity issues. Ambarish, John, and Williams (1987) suggest that the announcement effects of new issues can be positive if asymmetric information arises mainly from investment opportunities. Jensen's (1986) free cash flow hypothesis predicts a positive abnormal return for those equity-issuing firms with valuable investment opportunities, and a negative market reaction for those firms with poor investment opportunities. Hertzel and Smith (1993) find that the relation between announcement returns and growth opportunities is positive for private placements.

Hertzel and Smith (1993) use fraction placed to capture positive information effects, and find a significant positive relation between fraction placed and announcement returns. The fraction placed in Singapore is small compared to that in the United States because of the 10% cap on issue size,[8] and therefore may not be an important information variable in our sample.

Wruck (1989) shows that U.S. private placements are preceded by significant price increases. However, Wruck does not examine the relation between the price runup and announcement return. Asquith and Mullins (1986) suggest that equity-issuing firms that experience price increases will have a smaller price drop at issue. Korajczyk, Lucas, and McDonald (1990) argue that there is no theoretical reason for the relation between price runup and abnormal return to be either positive or negative. We examine this issue for our sample of private placements.

4. Data description

The SES annual *Factbook* summarizes all capital changes of Singapore listed firms. We use the *Factbook* from 1988 to 1993 to determine private placements.[9] We then look for the company's initial announcement in the *Daily Financial News*,

[7] A private placement in Singapore might be a "seasoned public equity offering" in disguise. However, since the shares are placed out to a select group of investors through the placing agent and are not available for subscription from the public, the share issue is still technically a private placement.

[8] The mean fraction placed in the United States is about 16% to 20% (Wruck, 1989; Hertzel and Smith, 1993).

[9] We note that 1988 was the first year in which the SES introduced the rules on private placements. After 1993, the private placement rules were relaxed, and thus might affect the results of the study.

which contains compilations of corporate announcements received by the SES on the preceding day. The announcement date (day 0) we use is the date in the *Daily Financial News* on which the initial announcement appears.

Our sample selection criteria are: (1) we can locate the initial announcement; (2) there is no contemporaneous rights issue of common stock or issues of other securities; (3) there are sufficient returns data from the SES; and (4) the issue is not for the foreign tranche of the listed stock. (In Singapore, some firms that have foreign ownership limits have dual quotations, one for the local shares and the other for the foreign shares. Foreigners cannot buy local shares). These criteria eliminate ten issues. The final sample comprises 53 announcements by 47 firms.

Table 2, Panels A and B, present the sample distributions by year of announcement and by industry. The industry classification is based on the SES classification. However, our interpretation of this industry classification is limited because of the broadly defined industry groups.

Table 2, Panel C, shows the sample characteristics. The average proceeds raised by Singapore private placements during the sample period is about S$40 million (approximately US$23.5 million). This is lower than the average proceeds of US$31.5 million that Wruck (1989) shows in her sample, but higher than the average proceeds of US$11.4 million in Hertzel and Smith's (1993) sample.

The market value of equity, which we define as the closing price at day -2 multiplied by the number of shares outstanding before placement announcement, averages S$509 million (US$299 million) for the sample firms. This market value is close to the average market value of S$519 million (US$305 million) for the entire market over the sample period. The average market values of equity in Wruck's (1989) and Hertzel and Smith's (1993) sample firms are US$234 million and US$95 million, respectively.

Issue size, which we define as shares offered divided by shares outstanding before placement announcement, averages 9.17%. We define fraction placed as shares offered divided by shares outstanding after placement announcement. This fraction averages 8.35%, compared to 15.98% in Hertzel and Smith (1993). Discount, which we measure by (share closing price at day -2 minus issue price)/(share closing price at day -2), averages 3.9%, compared to 13.5% for unregistered sales in Wruck (1989) and 20.1% in Hertzel and Smith.

There are no takeover targets in our sample. Only three announcements disclose the identity of buyers. Two of these announcements report only one buyer. One of the two single investors appoints its chairman to the issuer's board. There are no other cases in which the buyer nominates directors to the board of the issuer.

5. Stock price response and ownership changes

We use standard event study methodology to measure abnormal returns based on the market model. Because of possible bias caused by thin trading, we estimate parameters using the Scholes and Williams (1977) technique. Our estimation period

Table 2

Descriptive statistics

This table presents sample distributions, by year and by industry, and issue characteristics for those firms listed on the Stock Exchange of Singapore (SES) that announced private placements during the 1988–1993 period. We obtain our sample, which comprises 53 announcements by 47 firms, from the annual *Factbook* and the *Daily Financial News* issued by the SES. The industries are based on the SES industry classification. Market value of equity is the closing price at day −2 (relative to announcement date at day 0) multiplied by the shares outstanding before placement. We define issue size as shares offered/shares outstanding before placement, fraction placed as shares offered/shares outstanding after placement, and discount as (share closing price at day −2—issue price)/(share closing price at day −2). We obtain information on the issue characteristics from the company's initial announcement and the SES.

Panel A: Distribution by Year

Year	Number of Observations	Percent of Sample
1988	2	3.8
1989	10	18.9
1990	12	22.6
1991	4	7.5
1992	5	9.4
1993	20	37.8
Total	53	100.0

Panel B: Distribution by Industry

Industry	Number of Observations	Percent of Sample
Industrial & Commercial	40	75.5
Finance	4	7.5
Hotels	3	5.7
Properties	6	11.3
Total	53	100.0

Panel C: Issue Characteristics

Issue Characteristics	Mean	First Quartile	Median	Third Quartile
Proceeds				
S$ million	39.87	13.92	24.75	43.74
US$ million	23.45	8.19	14.56	25.73
Market Value of Equity				
S$ million	508.5	134.4	264.9	781.0
US$ million	299.1	79.1	155.8	459.4
Issue Size	9.17%	8.88%	10.00%	10.00%
Fraction Placed	8.35%	8.15%	9.09%	9.09%
Discount	3.87%	1.96%	4.49%	5.56%

Table 3

Abnormal returns surrounding announcements of private placements

We calculate abnormal returns using Scholes and Williams (1977) beta from market model, estimated for the period 200 days to 60 days before the announcement. We use the SES All-Share Index as the market index. We conduct significance tests using the Z-statistic described in Dodd and Warner (1983). We also report the p-value for the Wilcoxon signed-rank test statistic. The percent negative is the percent of the sample with negative abnormal returns. The sample comprises 53 private placements during the 1988–1993 period.

Event Days	Average Abnormal Return (%)	Z statistics	Percent Negative	Wilcoxon p-value
−59 to −2	4.23	2.05**	45.2	0.2784
−59 to −6	4.10	2.02**	47.2	0.1470
−5 to −2	0.13	0.41	50.9	0.8273
−5	−0.44	−1.37	52.8	0.1268
−4	−0.01	−0.14	56.6	0.5970
−3	0.24	1.33	49.1	0.7934
−2	0.35	1.00	49.1	0.6846
−1	−0.05	−0.73	58.5	0.4650
0	−0.84	−2.26**	69.8	0.0030
−1 to 0	−0.89	−2.11**	64.2	0.0592
1	−0.03	−0.12	56.6	0.9409
2	−0.25	−0.60	66.0	0.0519
3	0.05	0.65	54.7	0.7566
4	−0.26	−0.34	49.1	0.4979
5	0.05	−0.04	52.8	0.7867
1 to 5	−0.44	−0.20	60.4	0.3416
1 to 10	−0.98	−0.63	60.4	0.0851
1 to 20	−0.12	0.85	60.4	0.4650
1 to 30	−0.11	0.48	62.3	0.4181

** Indicates statistical significance at the 0.05 level.

extends from 200 to 60 days before the initial announcements. The value-weighted SES All-Share Index is our market proxy. We conduct our significance tests using the Z-statistic (Dodd and Warner, 1983)[10] and the Wilcoxon signed-rank test.

Table 3 presents average abnormal returns around the announcement of private equity placements. The average abnormal returns are −0.84% for day 0 and −0.89% for the two-day announcement period (days −1 to 0), respectively. Both sets of returns are significant at the 0.05 level using a two-tailed test. About 70% (64%) of the sample firms have negative announcement returns on day 0 (in the two-day announcement period).

[10] Dodd and Warner's (1983) method has also been used in recent studies (e.g., Hubbard and Palia, 1999; and Yeo, Chen, Ho, and Lee, 1999). Our results are similar when we use Sanger and McConnell's (1986) method, which adjusts for estimation of standard errors outside the test period.

We do not find statistically significant abnormal return over the period from days −5 to −2 and from days 1 to 30. We find a significant positive runup of about 4% from days −59 to −6 and from days −59 to −2.[11] The positive runup coupled with a negative abnormal return suggests that managers attempt to sell shares when they are overpriced.

Table 4 describes the ownership concentration before and after the private placements. We define ownership concentration as total management and nonmanagement holdings. Management holdings are total holdings of directors. Nonmanagement holdings are total holdings of nonmanagement blockholders (those who hold 5% or more of the paid-up capital of the firms). We obtain the information from annual financial reports of firms for the fiscal year ended before and after the announcement date. Because of data availability, the sample for the analysis of ownership concentration includes 51 out of the full sample of 53 observations. We test the significance of the mean and median changes in holdings using the standard t-test and the Wilcoxon signed-rank test, respectively.

Our results show that management and nonmanagement blockholders control an average of 59% of the voting rights and 60.5% at the median. Management controls an average of 33.6% of the voting rights and 32.8% at the median. Nonmanagement blockholders control an average of 25.4% of the voting rights and 12.1% at the median. These percentages are much higher than those in the United States. In Wruck's (1989) sample of U.S. private placements, the mean (median) ownership concentration is 30.7% (24.3%), with managers controlling an average (median) of 13.1% (7.1%) and nonmanagement blockholders controlling 15.6% (8.4%).

Because of the regulatory restrictions in Singapore, sample private placements coincide with a mean (median) reduction in ownership concentration of 5.6% (5.3%). This reduction is significant at the 0.01 level, using a two-tailed test. Mean reduction in management holdings of 4.3% is significant at the 0.01 level, using a two-tailed test. The mean reduction in nonmanagement holdings of 1.3% is insignificant, but the median reduction in nonmanagement holdings of 2.0% is significant at the 0.10 level, using a two-tailed test. The overall results of negative abnormal returns and reductions in ownership concentration support the alignment-of-interests, signaling, and the overvaluation of assets-in-place hypotheses.

6. Cross-sectional analysis of announcement returns

Following Wruck (1989) and Hertzel and Smith (1993), we use discount-adjusted abnormal return for the two-day announcement period (days −1 to 0) as the dependent variable in our cross-sectional regressions. We measure the discount-adjusted abnormal return AR_{adj} as $AR_{adj} = [\frac{1}{1-\alpha}][AR] + [\frac{\alpha}{1-\alpha}][(\frac{P_b - P_o}{P_o})]$, where AR is the abnormal stock return, α is the ratio of shares placed to shares outstanding after the placement,

[11] Wruck (1989) finds a runup of 6% from days −59 to −4 for U.S. private placements.

Table 4

Changes in ownership concentration of sample firms

This table reports mean and median ownership concentration of our sample firms. Ownership concentration is total management and nonmanagement holdings. Management holdings are total holdings of directors. Non-management holdings are total holdings of non-management blockholders (holding 5% or more of the paid-up capital of the firms). The mean (median) change in holdings is the average (median) of the percent holdings after minus the percent holdings before the placement. We obtain the information from available annual financial reports of firms for the fiscal year-end before and after the announcement date. Because of data limitation, the sample comprises 51 private placements during the 1988–1993 period. We test the significance of the mean and median changes in holdings by using the standard *t*-test and the Wilcoxon signed-rank test, respectively.

	Singapore Firms					US Firms (Table 5 in Wruck, 1989)			
	N	Percent Holdings Before	Percent Holdings After	Mean Change in Holdings	Median Change in Holdings	Percent Holdings Before	Percent Holdings After	Mean Change in Holdings	Z-statistic for Wilcoxon signed-rank test
Total Holdings									
Mean	51	59.0	53.3	−5.62***	−5.31***	30.7	36.5	7.7	4.38**
Median	51	60.5	57.6			24.3	32.2		
Management Holdings									
Mean	51	33.6	29.2	−4.33***	−2.93***	13.1	11.6	−1.5	−2.26**
Median	51	32.8	26.9			7.1	7.2		
Non-management Holdings									
Mean	51	25.4	24.1	−1.29	−1.99*	15.6	24.6	9.1	4.65**
Median	51	12.1	16.4			8.4	19.1		

*** Indicates statistical significance at the 0.01 level.
** Indicates statistical significance at the 0.05 level.
* Indicates statistical significance at the 0.10 level.

P_b is the market price at the end of day -2 relative to the announcement date, and P_o is the placement price.

We estimate the regressions by using weighted least squares. We weight our observations by the reciprocal of the residual variance that we obtain from estimating the market model.

We define the explanatory variables as follows. Following Barclay and Smith (1995), we measure the market-to-book ratio, our proxy for growth opportunities, by (total assets-book value of equity + market value of equity)/total assets. Fraction placed equals (shares offered/shares outstanding after issue). Runup is the cumulative abnormal returns from days -59 to -2. The single investor dummy equals one if shares are sold to a single buyer and zero elsewhere. The 50% management control dummy equals one if management holdings fall below 50% after placement, and zero elsewhere. Ownership and Δownership are ownership concentration (i.e., holdings of directors and blockholders) and changes in ownership concentration, respectively.

Table 5 presents the regression results. Model 1 shows the results on information variables that are not associated with changes in ownership structure. Model 2 analyzes the effects of ownership changes. Model 3 combines Models 1 and 2. Models 4 and 5 are piecewise linear regressions with the Δownership variable splitting the total change in ownership into the portion moving the ownership level between 0% and 50% ($\Delta\text{ownership}_1$), 50% and 75% ($\Delta\text{ownership}_2$), and 75% and greater ($\Delta\text{ownership}_3$).[12] We cannot use the same turning points of 5% and 25% as in Wruck (1989), because there are only two firms in our sample with ownership concentration of less than 25%.

The F-value and adjusted R^2 for the complete linear regression Model 3 are 2.47 and 17.7%, respectively. The F-value and adjusted R^2 for the complete piecewise linear regression Model 5 are 2.81 and 23.2%, respectively. The F-values of the models are statistically significant, although they are lower than those reported in Wruck (1989) and Hertzel and Smith (1993). The adjusted R^2 of the models in this paper are also lower than those reported in previous U.S. studies.

Table 5 shows that the market-to-book ratio does not have significant explanatory power in all the regressions. This finding suggests that the announcement effects are unrelated to growth opportunities and contrasts with the evidence in Hertzel and Smith (1993), who find a positive relation between growth opportunities and abnormal returns. As we expected, fraction placed is not significant in all the regressions. The regulatory restriction on the issue size renders the variable ineffective in conveying information to the market. The coefficient on runup is positive and significant, suggesting that market reaction is less negative when the issue is preceded by large price runup.

[12] See Wruck (1989) for a description of piecewise regression using ownership concentration. We have also tried different combinations of turning points [(45%,70%), (45%,75%), (50%,70%), (50%,80%), and (60%,70%)], all of which yield qualitatively similar results. Note that the first quartile, median, and third quartile of ownership concentration in the sample are 46.4%, 60.5%, and 72.9%, respectively.

Table 5

Cross-sectional regressions of discount-adjusted abnormal returns

The dependent variable is the two-day (−1,0) discount-adjusted abnormal return. We calculate this variable by using market model parameters estimated for the period 200 days to 60 days before the announcement, using the Scholes and Williams (1977) technique. We weight our observations by the reciprocal of the residual variance from the market model. The sample comprises 51 private placements during the 1988–1993 period. We define the explanatory variables as follows: market-to-book = (total assets – book value of equity + market value of equity)/total assets; fraction placed = shares offered/shares outstanding after issue; runup = the cumulative abnormal returns from days −59 to −2; single investor dummy = one if placement shares are sold to one buyer and zero elsewhere; 50% management control dummy = one if management holdings fall below 50% after the issue and zero elsewhere; ownership = total holdings of directors and blockholders; Δownership = change in ownership; $\Delta\text{ownership}_1$, $\Delta\text{ownership}_2$, and $\Delta\text{ownership}_3$ = piecewise variables of Δownership with turning points at 50% and 75%. *t*-values are in parentheses.

	Linear Regression			Piecewise Regression Linear	
Explanatory Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	−0.0034	−0.0199	−0.0260	−0.0054	−0.0158
	(−0.17)	(−1.43)	(−1.23)	(−1.04)	(−0.88)
Market-to-Book	−0.0047		−0.0030		0.0017
	(−0.61)		(−0.40)		(0.23)
Fraction Placed	0.1060		0.0686		0.0864
	(0.54)		(0.36)		(0.49)
Runup	0.0446		0.0451		0.0433
	(1.85)*		(1.97)*		(1.99)*
Single Investor Dummy		0.0542	0.0534	0.0445	0.0432
		(2.59)**	(2.53)**	(2.25)**	(2.19)**
50% Management		−0.0369	−0.0341	−0.0378	−0.0351
Control Dummy		(−2.23)**	(−2.02)**	(−2.34)**	(−2.14)**
Ownership		0.0003	0.0004		
		(1.28)	(1.49)		
ΔOwnership		−0.0005	−0.0003		
		(−0.80)	(−0.50)		
$\Delta\text{Ownership}_1$				0.0002	0.0005
				(0.36)	(0.72)
$\Delta\text{Ownership}_2$				−0.0014	−0.0013
				(−1.53)	(−1.42)
$\Delta\text{Ownership}_3$				−0.0026	−0.0025
				(−2.24)**	(−2.18)**
F-value	1.30	3.19	2.47	3.58	2.81
(P-value)	(0.286)	(0.022)	(0.033)	(0.009)	(0.014)
Adjusted R^2	1.8%	15.4%	17.7%	21.2%	23.2%
Durbin-Watson statistic	2.130	2.151	2.114	2.237	2.217

** Indicates statistical significance at the 0.05 level.
* Indicates statistical significance at the 0.10 level.

Consistent with the monitoring hypothesis, the coefficient on the single investor dummy is significantly positive. The coefficient on the 50% management control dummy is significantly negative, suggesting that management's decision to forgo absolute control of the firm is a significant negative signal about firm value. Holding other variables constant, firm value declines by about 3% when management dilutes their holdings to below 50%.

The coefficients on ownership and Δownership in the linear regressions are not significant. This finding could be due to the nonlinear relationship between the ownership variables and firm value. In the piecewise regression models, we find a positive but insignificant relation between changes in firm value and changes in ownership concentration when ownership concentration goes below 50%. We find a negative, also insignificant, relation when ownership concentration is between 50% and 75%. However, our results show that there is a significantly negative relation between changes in firm value and changes in ownership concentration when ownership concentration is greater than or equal to 75%. This evidence supports the notion that the liquidity effect of a reduction in ownership concentration is more significant when the pre-issue ownership concentration is high. Although the negative relation between announcement-period returns and changes in ownership concentration could also be caused by an entrenchment effect, we believe that the liquidity effect is a more plausible explanation, because the entrenchment effect is generally associated with lower levels of ownership concentration. For example, Morck, Shleifer, and Vishny (1988) find that the entrenchment effect dominates the alignment-of-interests effect in the range of 5% to 25% board ownership.

We also examine liquidity changes following the share placement at different levels of ownership concentration. We measure liquidity changes from [AD $-$ 250, AD $-$ 11] to [ID $+$ 11, ID $+$ 250], i.e., excluding ten trading days prior to the announcement date (AD) and ten trading days after the issue date (ID). We use the official listing date of the placement shares as the share issue date. The mean (median) lag between the announcement date (AD) and the share issue date (ID) is 26.4 (25.0) days. As Table 6 shows, we find that for the full sample, the mean and median increases in annualized average share turnover[13] following the placement are 10% and 1.7%, respectively. We use standard t-test and Wilcoxon signed rank test to test the significance of the mean and median changes in liquidity, respectively. We find that although the mean increase is significant at the 0.10 level using a two-tailed test, the

[13] Trading activity has been used as a proxy for liquidity by several studies (e.g., Loderer and Sheehan, 1993; Denis and Kadlec, 1994; Han, 1995). We compute share turnover as follows. We divide the daily number of shares traded by the number of shares outstanding before the issue day. From the issue day onward, we use the sum of old shares outstanding plus new shares issued as the denominator. We then annualize turnover by multiplying by 250. We compute annualized average share turnover over a time interval for each firm. This method of computing share turnover is similar to that used by Loderer and Sheehan (1993). Our conclusions remain unchanged when we use the annualized median share turnover. We obtain our trading volume data from the SES.

Table 6

Liquidity changes surrounding private placements

This table presents annualized average share turnover over the periods [AD − 250 to AD − 11] and [ID + 11 to ID + 250] for the full sample and the three subsamples by ownership concentration. We define the periods in terms of days relative to announcement date (AD) and issue date (ID). The mean (median) lag between the announcement date (AD) and the share issue date (ID) is 26.4 (25.0) days. For each cell, we report the mean value and, in parentheses, the median value. For the comparison of means, we report the mean difference, the median difference in parentheses, and the percentage of positive difference in square brackets. We use *t*-tests and Wilcoxon signed rank tests to test the significance of the mean and median differences, respectively.

	Annualized Average Share Turnover		
Ownership Concentration	In Period AD − 250 to AD − 11	In Period ID + 11 to ID + 250	Mean Difference
All	49.3%	59.3%	10.0%*
(N = 51)	(43.1%)	(50.6%)	(1.7%)
			[52.9%]
<50%	60.4%	65.5%	5.1%
(N = 14)	(47.2%)	(57.9%)	(−0.3%)
			[50.0%]
≥50% and <75%	49.3%	54.8%	5.5%
(N = 29)	(43.1%)	(50.6%)	(−2.3%)
			[48.3%]
≥75%	29.6%	64.8%	35.2%*
(N = 8)	(25.2%)	(54.6%)	(17.5%)*
			[75.0%]

* Indicates statistical significance at the 0.10 level.

median increase is not. However, for the subsample of firms with ownership concentration ≥75%, the mean and median increases in share turnover are much greater at 35.2% and 17.5%, respectively. Both are significant at the 0.10 level using a two-tailed test. For the subsamples of firms with pre-announcement ownership concentration of (i) <50% and (ii) ≥50% and <75%, the mean and median changes in share turnover are small and statistically insignificant. The results suggest that the impact on post-issue stock liquidity is greater when the pre-issue ownership concentration is high.[14]

To further check that our results are not driven by information effects, we also test the significance of several other variables, although we do not report the results. We find that two other proxies for growth opportunities, return on equity and dividend yield, are also not significant. We define return on equity as earnings before

[14] We also examine the role of share turnover and changes in share turnover in our regression models for the full sample and for the subsample of firms with ownership concentration ≥75%. The results are not significant, especially for the firms with high ownership concentration, perhaps because of the small sample size.

extraordinary items divided by the book value of common equity as of year-end prior to the announcement. We measure dividend yield as total dividends paid for the fiscal year divided by the market value of equity as of year-end prior to the announcement.

We also test the importance of two alternative proxies for financial slack: operating income divided by total assets (as in Smith and Kim, 1994) and cash and short-term investments divided by total assets (as in Krishnamurthy, Spindt, Subramaniam, and Woidtke, 2000). Both variables are not significant. Thus, there is no evidence suggesting that the overall negative wealth effect could be due to the market perception that managers are using the private placement to build up excess slack.

We also find that firm size (our proxy for the degree of information asymmetry) and financial distress dummy are not significant. We measure firm size as log of (shares outstanding prior to placement multiplied by the share closing price at day -2). We also use the share closing prices at day -30 and day -60 to compute firm size, and the results are similar. Following Hertzel and Smith (1993), we measure our financial distress dummy as one if the firm experiences two consecutive years of negative earnings prior to the placement announcement, if the firm is selling assets to raise cash, or if other news of imminent financial distress is found. We can classify only two firms in our sample as experiencing financial distress.

The overall results in this study suggest that in explaining the announcement returns in our sample firms, other than runup, the information effects unrelated to changes in ownership structure are less important than ownership structure effects.

7. Conclusion

Recent papers on private equity placements include Wruck (1989) and Hertzel and Smith (1993). Both papers find a positive announcement effect. Wruck finds that ownership effects can partially explain the positive announcement return whereas Hertzel and Smith find that information effects are more important in their sample. In this study we examine private equity placements in a different regulatory environment. We find that, on average, Singapore private placements indicate a negative abnormal return and a reduction in ownership concentration. This evidence is consistent with the alignment-of-interests hypothesis and the signaling hypothesis.

The overall negative market reaction is also consistent with the overvaluation of assets-in-place hypothesis. These results contrast with previous findings in Wruck (1989) and Hertzel and Smith (1993). Our results may be explained by the dilutive nature of private placements in Singapore, a consequence of the unique regulations in Singapore: The Stock Exchange of Singapore restricts sales to management and existing blockholders, and imposes a cap on issue size.

Another interesting result of our study is that when ownership concentration is very high, the relation between announcement returns and changes in ownership concentration is significantly negative. One possible explanation is that the favorable impact of higher post-issue stock liquidity is greater when the pre-issue ownership concentration (free float) is high (low). We find that the post-issue liquidity increase is

more pronounced at high pre-issue ownership concentration levels. We argue that this liquidity effect induces the negative relation between abnormal returns and changes in ownership concentration at high concentration levels.

Our results also show that when issues are placed to a single investor, the market reacts positively. This finding supports the monitoring hypothesis. When managers dilute their holdings to below 50%, the market interprets this as a significantly negative signal about firm value.

We find that announcement of a private placement is accompanied by a smaller market reaction if it is preceded by a significant pre-announcement price increase. We also find that for our sample, other than pre-announcement runup, information effects unrelated to ownership changes are less important.

References

Agrawal, A. and G.N. Mandelker, 1990. Large shareholders and the monitoring of managers: The case of antitakeover charter amendments, *Journal of Financial and Quantitative Analysis* 25, 143–161.

Ambarish, R., K. John, and J. Williams, 1987. Efficient signaling with dividends and investments, *Journal of Finance* 42, 321–344.

Amihud, Y. and H. Mendelson, 1986. Asset pricing and the bid-ask spread, *Journal of Financial Economics* 17, 223–249.

Asquith, P. and D.W. Mullins, Jr., 1986. Equity issues and offering dilution, *Journal of Financial Economics* 15, 61–89.

Barclay, M.J. and C.G. Holderness, 1991. Negotiated block trades and corporate control, *Journal of Finance* 46, 861–878.

Barclay, M.J. and C.W. Smith, Jr., 1995. The maturity structure of corporate debt, *Journal of Finance* 50, 609–631.

Brickley, J.A., R.C. Lease, and C.W. Smith, 1988. Ownership structure and voting on antitakeover amendments, *Journal of Financial Economics* 20, 267–292.

Brous, P.A. and O. Kini, 1994. The valuation effects of equity issues and the level of institutional ownership: Evidence from analysts' earnings forecasts, *Financial Management* 23, 33–46.

Denis, D.J. and G.B. Kadlec, 1994. Corporate events, trading activity, and the estimation of systematic risk: Evidence from equity offerings and share repurchases, *Journal of Finance* 49, 1787–1811.

Dodd, P. and J. Warner, 1983. On corporate governance: A study of proxy contests, *Journal of Financial Economics* 11, 401–438.

Fama, E.F. and M.C. Jensen, 1983. Separation of ownership and control, *Journal of Law and Economics* 26, 301–325.

Fields, L.P. and E.L. Mais, 1994. Managerial voting rights and seasoned public equity issues, *Journal of Financial and Quantitative Analysis* 29, 445–457.

Han, K.C., 1995. The effects of reverse splits on the liquidity of the stock, *Journal of Financial and Quantitative Analysis* 30, 159–169.

Hertzel, M. and R.L. Smith, 1993. Market discounts and shareholder gains for placing equity privately, *Journal of Finance* 48, 459–485.

Holderness, C.G. and D.P. Sheehan, 1988. The role of majority shareholders in publicly held corporations, *Journal of Financial Economics* 20, 317–346.

Holmström, B. and J. Tirole, 1993. Market liquidity and performance monitoring, *Journal of Political Economy* 101, 678–709.

Holthausen, R.W., R.W. Leftwich, and D. Mayers, 1990. Large-block transactions, the speed of response, and temporary and permanent stock-price effects, *Journal of Financial Economics* 26, 71–95.

Hubbard, R.G. and D. Palia, 1999. A reexamination of the conglomerate merger wave in the 1960s: An internal capital markets view, *Journal of Finance* 54, 1131–1152.

Jensen, M.C., 1986. Agency costs of free cash flow, corporate finance, and takeovers, *American Economic Review: Papers and Proceedings* 76, 323–329.

Jensen, M.C. and W.H. Meckling, 1976. Theory of the firm: Managerial behavior, agency costs, and capital structure, *Journal of Financial Economics* 3, 305–360.

Kang, J. and R.M. Stulz, 1996. How different is Japanese corporate finance? An investigation of the information content of new security issues, *Review of Financial Studies* 9, 109–139.

Kato, K. and J.S. Schallheim, 1993. Private equity financing in Japan and corporate grouping (Keiretsu), *Pacific-Basin Finance Journal* 1, 287–307.

Korajczyk, R.A., D.J. Lucas, and R.L. McDonald, 1990. Understanding stock price behavior around the time of equity issues, in *Asymmetric Information, Corporate Finance, and Investment*, ed. G. Hubbard (University of Chicago Press, Chicago, IL), 257–277.

Krishnamurthy S., P. Spindt, V. Subramaniam, and T. Woidtke, 2000. Do shareholders gain from private placements? *Working Paper*, Tulane University.

Leland, H.E. and D.H. Pyle, 1977. Information asymmetries, financial structure, and financial intermediation, *Journal of Finance* 32, 371–387.

Loderer, C.F. and D.P. Sheehan, 1993. Seasoned stock offerings and bid-ask spread, *Working Paper*, Pennsylvania State University.

McConnell, J.J. and H. Servaes, 1990. Additional evidence on equity ownership and corporate value, *Journal of Financial Economics* 27, 595–612.

Mikkelson, W.H. and R.S. Ruback, 1985. An empirical analysis of the interfirm equity investment process, *Journal of Financial Economics* 14, 523–553.

Morck, R., A. Shleifer, and R. Vishny, 1988. Management ownership and market valuation: An empirical analysis, *Journal of Financial Economics* 20, 293–315.

Myers, S.C. and N.S. Majluf, 1984. Corporate financings and investment decisions when the firm has information that investors do not have, *Journal of Financial Economics* 13, 187–221.

Pound, J., 1988. Proxy contests and the efficiency of shareholder oversight, *Journal of Financial Economics* 20, 237–265.

Sanger, G.C. and J.J. McConnell, 1986. Stock exchange listings, firm value, and security market efficiency: The impact of NASDAQ, *Journal of Financial and Quantitative Analysis* 21, 1–25.

Scholes, M. and J. Williams, 1977. Estimating betas from nonsynchronous data, *Journal of Financial Economics* 5, 309–327.

Shleifer, A. and R. Vishny, 1986. Large shareholders and corporate control, *Journal of Political Economy* 94, 461–488.

Smith, R.L. and J. Kim, 1994. The combined effects of free cash flow and financial slack on bidder and target stock returns, *Journal of Business* 67, 281–310.

Stock Exchange of Singapore. Annual *Factbook*, 1988 to 1993.

Stulz, R.M., 1988. Managerial control of voting rights: Financing policies and the market for corporate control, *Journal of Financial Economics* 20, 25–54.

Wruck, K.H., 1989. Equity ownership concentration and firm value: Evidence from private equity financings, *Journal of Financial Economics* 23, 3–28.

Yeo, G.H.H., S.S. Chen, K.W. Ho, and C.F. Lee, 1999. Effects of executive share option plans on shareholder wealth and firm performance: The Singapore evidence, *Financial Review* 34, 1–20.