

**Public Placements of Seasoned
Equity Issues in Japan**

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Abstract

In sharp contrast to results of empirical tests investigating the U.S. market, the announcement of a seasoned equity issue by Japanese firms causes stock prices to *increase*. A major institutional difference between the two markets involves the underwriting process through which the offer price is set. In the U.S., the offer price is typically set less than 24 hours before the stock is sold to the public. Offer prices in Japan, however, are announced a median of seven trading days before the end of the subscription period and is set at substantial discount below the current stock price. In addition, there are two ways to determine the offering prices, the *fixed price method* and the *formula price method*. The underwriters' certification hypothesis fits nicely under this institutional environment because fixed price issues offer more certification. Average announcement effect for firms using the fixed price method is positive, while the announcement effect is zero for the firms using the formula price method. In addition, after controlling for offering method, a significant negative correlation is found between the announcement day return and the discount. We also examine abnormal returns around the subscription period and issue day.

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PUBLIC PLACEMENTS OF SEASONED EQUITY ISSUES IN JAPAN

Empirical studies performed over the last several years have clearly documented that the average stock price reaction to the announcement of a public seasoned equity issue by a United States corporation is negative.¹ In sharp contrast to the U.S. result, evidence by Kato and Schallheim (1993) and Kang and Stulz (1995) support a positive (or at least non-negative) stock price reaction to the announcement of new equity issues by Japanese corporations. In this study, we provide additional evidence supporting a positive stock price reaction to the announcement of seasoned equity issues in Japan and a thorough empirical investigation of the entire period surrounding the new equity issue.

Three potential sources for the contrasting announcement effects of seasoned equity issues in Japan and the U.S. are: (1) institutional differences in the underwriting process and market microstructure, (2) firm specific differences, and (3) differences in general market conditions. In this study, we primarily focus on the first potential cause for the differences in the announcement-day effect.² We provide evidence that supports a significant role for the underwriter of Japanese equity issues that is consistent with the positive announcement-day effect. In addition, while our evidence contradicts the well-known theory developed by Myers and Majluf (1984), our results are supportive of the Cooney and Kalay (1993) modification to the Myers and Majluf model.³

The key difference between the U.S. and Japanese equity-issue processes is the timing and

¹ For examples, see Asquith and Mullins (1986), Masulis and Korwar (1986), Mikkelsen and Partch (1986), Schipper and Smith (1986), and Barclay and Litzenberger (1988).

² Kang and Stulz focus more attention on the second and third potential explanations for the differing announcement effects.

³ The predictions of the Ambarish, John, and Williams (1987) dividend signaling model and the Cooney and Kalay model are similar.

method of determining the offer price. In Japan, the offer price is determined several days before the beginning of the subscription period and one to two weeks prior to the issue day and is set at a substantial discount below the current market value for the firm's stock. We argue that this puts the Japanese underwriter in a position in which it certifies the discounted offer price as the minimum value for the issuing firm's common stock for the period between the offer-price determination day and the day that the stock issue has been fully subscribed. Intuitively, underwriter certification at the offer price “truncates” investors' distribution of possible stock values and leads to an upward re-evaluation of the stock price. In the U.S., offer prices are typically set less than 24 hours before the stock issue is sold to investors [Smith (1977)]; therefore, U.S. underwriters do not provide a similar guarantee of value.

The decline in the mean discount over the 20 years used in our study, as well as the cross-sectional variation in discounts across issuing firms fits nicely with the certification hypothesis: low discounts imply a high offer price, resulting in a high announcement return. Consistent with this, we find a statistically significant negative relationship between the discount and the announcement return. This result is robust to various specifications of the regression model, including a control for the declining discounts through time.

In December of 1983, near the mid-point of the sampling period used in this study, a new variation of the equity issue process was introduced in Japan called the formula-price stock offering. In this type of offering, the underwriter does not provide the same level of certification as the traditional fixed-price offerings outlined above. Consistent with this decreased level of certification, the average abnormal return surrounding the announcement of a formula-price offering is significantly lower than for a fixed-price offering.

Kang and Stulz find a negative stock price reaction on the common stock's issue day and we confirm this issue day result. Lease, Masulis, and Page (1991) present evidence concerning issue day effects in the U.S., arguing that there is an order-flow imbalance on the issue day because buyers can enter the primary market to save transaction costs. This imbalance in the secondary market leads to more trades at the bid price on the issue day. They do find order-flow imbalances in U.S. data, but do not find significant price reversals after the issue which would be expected as future closing prices are less likely to be at the bid price. Kang and Stulz do not find significant evidence supporting this explanation of the issue day price drop using Japanese data. Our results, however, do show significant price reversals after the issue date and therefore are consistent with the Lease, Masulis, and Page model.

This paper is organized as follows. Section I provides a brief history of seasoned equity issues in Japan, including some of the changes in the process precipitated by the powerful Japanese Ministry of Finance. Section II presents a theoretical argument of underwriter certification of issuing firm value and its effect on the announcement day stock price reaction. In this section, we also discuss theories addressing issue day stock price reactions. Section III presents the data description and methodology. Section IV exhibits our event study results and section V presents further tests of the certification hypothesis. We summarize our analysis in section VI.

I. BACKGROUND ON SEASONED EQUITY ISSUES IN JAPAN

Prior to the mid 1970s, almost all equity issues by Japanese firms were rights offerings to existing shareholders, with only the unpurchased shares being sold in the public market. The offer

price for the rights offering was typically set at 50 yen, which is par value for most Japanese stock. In January 1969, Nihon Gakki, a musical instrument maker, successfully made an underwritten public offering with the offer price based on the stock's market value [Kunimura and Iihara (1985), p. 231]. Since then, the number of public equity offerings has been increasing. The public offering price, although higher than the par value, was set at a substantial discount below the stock's market value until the early 1980s and many of the shares of these discounted issues were allocated to friendly investors or firms called *oyabike* (parent's advantage).

Until 1973, the *oyabike* issue, which resembles a private placement, dominated the equity issue market.⁴ However, in February of 1973, the Ministry of Finance (MOF) gradually started to restrict the *oyabike* transactions.⁵ This initial guideline restricted *oyabike* transactions to no more than 40 percent of new equity shares. In October 1976, the ceiling became 20 percent and finally, in February 1983, the MOF informally prohibited all *oyabike* transactions except for ESOPs (employee stock ownership plans), for maintaining the ownership structure for joint venture firms, and for subsidiaries issuing stock. Also during this period, the MOF placed restrictions on corporate purchases of newly issued shares. In February 1981, no more than 50 percent of new shares could be purchased by corporations; this number was reduced to 30 percent in February

⁴ There are several reasons why firms used the quasi-public issues with *oyabike* instead of a true private placement. First, the issuer uses the help of the underwriter to allocate the new shares to friendly investors or corporations which are in the issuing firm's *keiretsu* group (a unique Japanese form of industrial organization). Second, private placements restrict the firm from issuing new equity for two years. Third, private placements are often associated with firms that are in financial distress. Finally, the underwriter, being a member of the *keiretsu* group, receives financial support through the underwriting fees.

⁵ We describe the role of the MOF in loose terms. Although the major underwriters appear to restrict the *oyabike* on their own, the MOF often provided indirect or informal guidance.

1983.

Table 1 shows the time series of the average discount (percentage difference between the offer price and the stock's closing price on the day before the offer-price determination day). The average discount rates in the early 1970s were very high with offer prices typically more than 10 percent below the stock's market price. In February 1973, the MOF and the major underwriters informally agreed to lower the discount. In February 1977, the eight major underwriters announced a target range for the discount of less than 8 percent. The average discount finally fell to around 3 and 1/2 percent after 1983 (*oyabike* transactions were also eliminated in 1983).⁶

Currently, there are two ways to determine the offering price of a seasoned equity issue in Japan, the *fixed-price method* and the *formula-price method*. Until November 1983, however, the offering price could only be determined by the fixed-price method. For the fixed-price method, the offering price is announced several days before the beginning of the subscription period.⁷ To help shorten the interval between the announcement of the offer price and the subscription period, the MOF allowed the formula-price method to be introduced. Under the formula-price method, the offering price is determined based on a pre-specified day's closing price, usually only a few days before the beginning of the subscription period. In December 1983, NEC became the first firm to announce the use of a formula method offering with the new shares being issued in February 1984. Also under the formula-price method, a minimum offering price,

⁶ It is interesting to note that the *oyabike* transactions were allowed for convertible bonds and warrants issues until April 1988. For this period, convertible bonds and warrants could have been issued to maintain the corporate ownership structure.

⁷ In Japan, investors make orders to purchase new shares during the subscription period, normally two to five days long. Payment for the shares is made by the end of the subscription period with the new shares being issued to the purchasers several days later.

often set at 15 percent below the current stock price, is announced. If the offering price is below this minimum offering price, the offering is canceled. Fixed-price offerings cannot be canceled. Therefore, the two major differences between the fixed-price and formula-price method is the period of time between the offer-price determination day and the subscription period and the formula method's cancellation feature.

Prior to January 1983, Japanese Securities Exchange Law guidelines required a minimum of 30 days between the day the registration statement was filed with the MOF and the beginning of the subscription period. However, a shorter time period (23 days for the period, from 1983 to 1987 and 15 days for the period, from 1987 to 1988) is allowed for firms that meet certain disclosure guidelines established by the MOF; this requirement is typically only met by large, well-known firms. Starting in August of 1988, the minimum time was shortened to 15 days for all firms. Again, a shorter time interval (7 days) is allowed for certain firms. Once the minimum registration period is met, the equity offering is formally in effect and the underwriters can begin their sales activities.

One other restriction limits the ability of the firm to make a speedy issue of common stock. Japanese commercial law requires at least 14 days between the day all necessary information about the equity offering is released and the payment day (the payment day is the day that the underwriter pays the proceeds of the stock issue to the issuing firm). Therefore, under the formula price method, if the firm's announcement of the equity issue includes notice of which day the offer price will be determined, then the payment day can be as little as two weeks after the announcement day.

II. HYPOTHESES

Equity offerings by Japanese firms differ from U.S. corporate common stock offerings in two important ways. First, the offering price for a Japanese stock issue is determined several days before the subscription period while offer prices in the U.S. are set less than 24 hours before the new stock is sold to investors. Second, these offer prices are set at a substantial discount below the stock's market value on the offer-price determination day. New shares in the U.S. are not sold at a discount on the New York and American stock exchanges, although a discount does appear on the NASDAQ [Loderer, Sheehan, and Kadlec (1991)]. The significant time period between the determination of the offer price and the subscription period means that firm commitment offerings impose higher risks on Japanese underwriters than on their U.S. counterparts.

To minimize the potential for losses, we argue that the Japanese underwriter will refuse to offer stock of a corporation unless it can be assured that the "true" value of the common stock is no lower than the offering price. In this sense, we rely on the asymmetric information model developed by Myers and Majluf (1984) and extended by Cooney and Kalay (1993). In these models, managers possess more precise information about the value of a firm's existing assets and growth opportunities than potential purchasers of the firm's stock. A critical assumption is that managers cannot credibly reveal their private information to the public. For example, it is unlikely that outside investors would believe unsubstantiated claims by management. Moreover, a detailed information release to the public, defending a high value, could give an advantage to the firm's competitors.

It is possible, however, to make a stock offering to a small group of investors which would allow managers the ability to reveal their private information without fear of a disclosure to

competitors. Hertz and Smith (1993) use this explanation as a possible reason for the observed difference in stock market reaction for private vs. public issues of common stock. The announcements of private equity issues elicit a positive stock price reaction, both in the U.S. and Japan. [See also Wruck (1989) for U.S. evidence and Kato and Schallheim (1993) for evidence in Japan.]

In the same way, management can reveal their private information about firm value to the underwriter. Since the Japanese underwriter must agree on the stock's sales price well before the subscription period, its concerns are similar to the private investor. There are several compelling arguments for this assertion. First, during the time period between the offer-price determination day and the day the stock offering is fully subscribed, the stock's market value will likely move towards its true value as outside investors receive more information about the firm. Second, the underwriter has the incentive to properly price the new issue to maintain its reputation for future business and this concern for reputation makes the certification believable by investors.⁸ Third, Japanese underwriters are often members of the issuing firm's *keiretsu*, the uniquely Japanese form of industrial organization. If a member of the *keiretsu*, the underwriter is already closely tied to the issuing firm through interlocking boards of directors, the same close banking relation (called the *main bank*), and long-term business relations. This arrangement facilitates the easy transfer of the private information from the issuing corporation to the underwriter. For these reasons, the underwriter's agreement to sell the new stock issue signals (certifies) to the market that it thinks that the true stock value is at least as great as the offer price.

⁸ Evidence supporting underwriter reputation models are presented by Beatty and Ritter (1986) and Carter and Manaster (1990).

The certification hypothesis, in which the underwriter guarantees the value of the issuing firm, is not new. Booth and Smith (1986) argue that underwriters provide a valuable service by certifying the validity of the issuing firm's current stock price. Denis (1991) provides evidence consistent with the certification hypothesis in finding that the announcement day effects of traditional underwritten equity issues are less negative than those for shelf registration issues. Because underwriter certification is not provided with a shelf registration issue, a lower (more negative) stock price response is expected for a shelf issue than the non-shelf registered offerings.

The discount plays a pivotal role in our analysis. Because the discount measures the difference between the offer price and the market value measured on the day before the offer-price determination day, the underwriter's certification of value is of less significance if the discount is large. However, for low discounts, firm commitment offerings signal a high valuation for the firm, which we suggest translates to a *positive* announcement effect.

After November 1983, the selection by issuing firms and their underwriters of fixed-price versus formula-price offerings provides a unique test of this underwriter certification hypothesis. The main difference between these two types of offerings is the time period from the offer-price determination date to the subscription period.⁹ The shorter period for formula offerings reduces the probability that the stock price will fall below the offering price before investors have agreed to purchase the new shares of stock. Therefore, the formula-price method is less risky for the underwriter and does not provide the same level of certification as the fixed-price method.

This difference between the fixed-price and formula-price offerings are somewhat

⁹ Another difference between the two methods is the formula-price offering's cancellation feature. However, formula offerings can only be canceled up until the offer-price determination day. Therefore, this is no longer an important difference once the offer price has been set.

analogous to the difference between non-shelf and shelf offerings studied by Denis (1991) and in a similar way, stock price reactions to fixed-price offering announcements should be higher than the stock price reaction to formula-price offering announcements.

An explanation for the negative issue-day returns is provided by Lease, Masulis, and Page (1991). Their argument involves an order-flow imbalance on the issue day because, in the U.S., individuals can save transaction costs by purchasing in the primary market, where there are no brokerage commissions. This leaves the secondary market with primarily sell orders resulting in more transactions occurring at the bid than at the ask price. Following the stock issue date, normal amounts of buy and sell orders will cause an increase in the observed closing stock price. Since Japanese investors cannot purchase in the primary market on the issue day (they must subscribe during the subscription period which ends prior to the issue day), we should be able to observe an order-flow imbalance during the subscription period.

In addition, there certainly are incentives on the part of investors who purchased discount shares to sell on the issue day, causing a similar order-flow imbalance. Although there are no explicit bid and ask prices in the Japanese stock market, there are, naturally, implicit bid and ask prices. Thus a decline in stock prices on the issue day and a rebound stock price on the following day is consistent with this explanation.¹⁰

¹⁰ Parsons and Raviv (1985) provide a theoretical model that shows that new seasoned equity will be offered at a price below the market price. In their model of asymmetric information about heterogeneous investors, the underwriter will set the offering price below the price at which the most high-valuation investors are willing to purchase because of the fear of undersubscription. On the other hand, high-value investors bid up the market price to a level higher than the offering price because of the threat of oversubscription. This model predicts that the pre- and post-issue day stock price will be higher than the offer price. However, the Parsons and Raviv model requires that the offer price and the amount of under- or oversubscription be unknown. This is not the case in Japan.

III. DATA DESCRIPTION AND METHODOLOGY

A. *Sample Selection and Summary Statistics*

Our initial data base consists of all public, seasoned, common stock offerings from Japanese corporations listed in the first section of the Tokyo Stock Exchange (TSE) during the period January 1974 to March 1993. As discussed in the first section, public offering was not common among Japanese firms until early 1970s. Therefore, our period covers a majority of public offerings in Japan. Firm names, announcement and issue dates, discounts and offer prices were collected from various issues of the *Commercial Law Review*.

Firms that made simultaneous rights offerings, stock splits, or stock dividends were eliminated from our data set, as were 72 observations where the issuing firm was not included in our accounting data base (described below) or was not identified in that data base as a firm from the first section of the TSE as of the close of the month prior to the equity issue announcement. Twenty observations were eliminated where the firm's stock was sold via a "standby agreement" by the underwriter, leaving 703 "whole purchase" underwritten public offerings. Of these observations, 304 issued common stock only once during the period investigated in our study, 129 firms issued two times, 33 firms issued three times, 8 firms issued four times, and 2 firms issued five times. Stock return data was not available for a number of firms, particularly for those firms issuing during the late 1970s. This eliminated 72 observations from the sample. Another 58 observations were dropped due to a lack of sufficient returns data. This left a final total of 573 observations in our sample with announcement dates from February 1974 to August 1991.¹¹

¹¹ We require that returns are available for at least half of the estimation and event periods. Therefore, depending on the estimation technique, estimation period, and/or event period chosen,

Yearly number of offerings, average and total yen value of the stock offerings, and the average, maximum, and minimum discount are given in Table 1. Total issues and the yen value of those issues peaked in 1989; the Tokyo stock market also peaked in late 1989. Although there were 19 stock issues in 1990, all were announced by the end of February and issued to the public by April 2, 1990. The Tokyo stock markets crashed in early 1990. Several equity offerings using the formula method were canceled in early 1990 because the offering prices were not as high as the minimum offering prices. The MOF informally stopped public equity offerings in April of 1990.

The average discount has been declining over our sample period, falling from an average of 9.35 percent in 1974 to 3.50 percent on 1991. Most of this decrease occurred from the period 1976 to 1984. Market-wide figures, obtained from the TSE fact book and Daiwa Securities, are also presented for comparison purposes. Our sample includes 20 percent of the total number of public issues from TSE firms during this period, but encompasses 46 percent of the yen value of those issues.

Equity issues in our sample were spread among 23 of the 26 industry groups with most issue announcements from firms in the banking industry (71 issues). Trading companies and electronic companies followed with 56 and 55 issues respectively. Observations were also aggregated into major industry categories. A total of 364 of the equity issue announcements were made by manufacturing companies. Financial companies made 110 announcements, followed by: trading companies (56), retail/wholesale (29), transportation (9), and service (5).

the number of observations is sometimes less than 573.

B. *Time Line of the Stock Issue Process*

One of the important pieces of information in our data base consists of various announcement and transaction dates for seasoned equity issues. If one considers a time line of the dates involved in the offering process, it appears as follows:

1. **Analyst Announcement Day** (*Analyst Ann.*) - Newspaper date of a story reporting that a stock market analyst predicted a future common stock offering by the firm.
2. **Manager Announcement Day** (*Manager Ann.*) - Newspaper date of a story reporting that the firm's management disclosed that the firm will be issuing common stock in the near future.
3. **First Board Meeting** (*Board 1*) - The first board meeting date announcing the stock issue (used as first official announcement day for our sample). Information from the board meeting, including the offering method, fixed versus formula, is posted at the TSE and the registration statement is submitted to the MOF on this day or shortly after this date.
4. **Newspaper Announcement** (*News 1*) - Voluntary announcement in the newspaper, typically one day after the first board meeting. Some firms skip this announcement and make the formal announcement after the second board meeting (listed below as *News 2*).
5. **Second Board Meeting** (*Board 2*) - The second board meeting date. Detailed information about the offering is released, including offering price (and indirectly, the discount) if the fixed-price method is used. If a formula-price offering, the offer-price determination day, discount, and the cancellation price are announced. Information from this board meeting is posted after the close of the market and, therefore, would be reflected in the following day's stock price.¹²
6. **Newspaper Announcement** (*News 2*) - Announcement in the newspaper is required at this time. Only the earlier of the two dates, *News 1* or *News 2*, are collected.
7. **Formula Offer-Price Determination Day** (*Formula OP Det*) - For formula offerings the offer price is determined based on this day's closing price and the discount.
8. **Ending Date of the Subscription Period** (*Subscription - End*) - Stock price stabilization by the underwriters extends from the day after the offering-price is set to this day. The payment must be made by this day.
9. **Issue Day** - One day after the payment day. The payment day is the day that the firm receives

¹² Some firms combine the first and second board meetings, setting all the terms of the offering at the same time. In this case, the first and second board meeting dates would be the same.

the proceeds of the new issue (less commissions) from the underwriter.

Table 2 presents the average time between these various dates. For the entire sample, the median number of trading days between the first board meeting date and the issue day is 46 days. One of the advantages of the formula-price method of offering new equity is the shorter time from the announcement day to the issue day. Our sample statistics verify this shorter period; firms that employ the fixed-price offering method have a median of 50 trading days between the first board meeting date and the issue date as compared to 25 trading days for firms using the formula method. Because only fixed-price offerings were allowed during the first half of our sample period, we also examine issue announcements after November 1983 when both fixed-price and formula-price offerings were permitted. Although there is support for a shorter time between announcement and issue days in this later period, we still find that fixed-price offers result in a longer median time period from the announcement date to the issue day, 36.5 trading days vs. the 25 days for the formula method. Also, the offer price determination day and the end of subscription period is seven trading days for fixed offerings and only four trading days for formula offerings.

Another period of interest is the time between *Board 2* and *Formula OP Det*. For formula-price offerings, the offering is canceled if the offering price is below the minimum offer price; after *Formula OP Det*, the offering can no longer be canceled. The maximum, median, and minimum number of trading days between these two dates are 15, 5, and 2 days respectively.

For our event study analysis, we primarily use the first board meeting date as our announcement day. Announcements in the newspaper prior to the first board meeting obviously complicate the analysis. For example, security analysts speculated that 124 firms in our sample

would issue equity. These newspaper accounts of the analyst reports, found in the *Nihon Keizai Shinbun*, the Japanese equivalent of the *Wall Street Journal*, occurred an average of 51.6 trading days (48 days for the median) before the first board meeting date. For 112 firms in our sample, the *Nihon Keizai Shinbun* also contained a story reporting managers' announcement of an upcoming equity issue. These newspaper accounts of manager's announcements appeared on average 3.4 trading days (0 days for the median) before the first board meeting. Announcements of the new equity issue prior to the first board meeting will certainly diminish the surprise and will tend to bias our results toward the null hypothesis of no abnormal return.

The median time from the first board meeting date to the earlier of "News 1" or "News 2" (the first newspaper story after the first board meeting) is one trading day. Since the Kang and Stulz study uses the newspaper release date as the announcement date, their event window is approximately one day after our event window.

C. *Event Study Methods*

Cumulative abnormal returns over various event periods are calculated by subtracting the stock's normal return from its actual return. Daily stock returns were provided by Yamaichi Research Institute and Daiwa Securities. The Tokyo Stock Price Index (Topix), value weighted index of all first section firms from the TSE, was selected as the market index for our event study.

Korajczyk, Lucas, and McDonald (1990) caution researchers that abnormal return calculations over long periods tend to be sensitive to the method used to determine the normal return. Since some of these event periods are quite long, we calculate the normal return using

four different methods: ordinary least square (OLS) market-model method, Scholes-Williams (1977) method, mean-adjusted method, and the market-adjusted method. In addition, we investigate two different estimation periods, a post-issue day period and a pre-announcement day period. This results in seven different estimates of the abnormal return (the market-adjusted method does not use an estimation period). The post-issue estimation period is the 140 trading days starting 31 days after the issue date. The pre-announcement estimation period is the 140 trading days starting 390 trading days before the first board meeting date, *Board 1*.¹³ The post-issue estimation period is used to determine abnormal stock returns during the pre-announcement period and the pre-announcement estimation period is used to examine the post-issue period. Both estimation periods are used in the analysis of the period immediately surrounding *Board 1* and *Issue Day*. Significant run-ups or run-downs in the stock price during one or both of these periods could bias the calculation of the "normal" return. We address this bias by also calculating abnormal returns over the entire period employing the market-adjusted method which does not use an estimation period.

Several of the issuing firms' stocks trade infrequently. For the first two estimation methods, OLS and Scholes-Williams, we only use one-day returns in the estimation of the market

¹³ The post-issue estimation period begins 31 trading days after the issue day and the preannouncement estimation period ends 251 trading days before *Board 1*. These particular estimation periods were selected for two reasons. 1) The MOF closely examines the issuing firm's stock price volatility for the period starting three months, or approximately 70 trading days, before the first board meeting to one month, or approximately 23 trading days, after the issue day. Excess volatility is likely to result in the MOF's (informal) cancellation of the stock offering. During this period, therefore, the underwriter and issuing firm have an incentive to stabilize the stock price. 2) As documented in Table 3, in several instances analysts speculate that the sample firm will issue stock before the official announcement at *Board 1*. These newspaper stories are as much as 218 trading days before *Board 1*.

model parameters (alpha and beta). An observation is eliminated from the sample if there are fewer than 70 one-day returns in the 140-day estimation period. This requirement eliminates 43 of the 573 observations in our sample. To calculate the normal return under the mean-adjusted method, we use one-day and multiple-day returns. In this case, we require that there be at least 70 one-day or multiple-day returns during estimation period; therefore only 22 observations were eliminated using the mean-adjusted return method. No estimation period is used for the market-adjusted method allowing the use of all 573 observations.

IV. EVENT STUDY RESULTS

A. *Event Period Abnormal Returns*

Figure 1 graphs the average cumulative abnormal return using the market-adjusted method for the period from 500 trading days before the announcement of the equity issue (*Board 1*) to 550 trading days after announcement. The asymmetrical alignment of days reflects the fact that the issue date is a median of 46 trading days after *Board 1*. All observations as well as two subsamples are presented on the graph: fixed-price offerings from December 1983 to August 1991, and formula-price offerings over the same period. On average, issuing firms from all samples outperform the market during the pre-announcement period. The abnormal performance after announcement also appears to be positive. It is also interesting to note that firms that issue using the fixed-price method appear to experience a greater pre-announcement abnormal price increase than firms using the formula-price method.

Table 3 presents the mean cumulative abnormal return for five periods of interest. The first two, *Board 1*_{-500 to -2} (Panel A) and *Board 1*_{-70 to -2} (Panel B), are used to investigate abnormal

returns during the pre-announcement period. The immediate effect of the equity issue announcement is calculated by examining the three days surrounding the first board meeting, *Board I_{-1 to +1}* (Panel C). The period from one day before the first board meeting to one day after the issue date, *Board I₋₁ to Issue Day₊₁* (Panel D), is intended to pick up the entire abnormal stock price effect associated with the announcement and issue of common stock. Finally, the post-issue period is also presented, *Issue Day_{+2 to +500}* (Panel E). Because the announcement effects in Japan differ so significantly from the results of numerous studies in the U.S, Table 3 presents results using all four estimation techniques, OLS market model, Scholes-Williams, mean-adjusted, and market-adjusted, and both estimation periods, pre-announcement and post-issue.

Supporting the information presented in Figure 1, Japanese firms, like U.S. firms, issue following a statistically significant abnormal stock price increase. For the preannouncement period *Board I_{-500 to -2}*, all of the statistically significant results are positive. For the period from 500 to 2 trading days before the announcement, the average CAR ranges from +17.4 percent to +52.5 percent. As a comparison to U.S. results, Asquith and Mullins (1986) report a mean CAR for seasoned equity issues on the AMEX and NYSE of 40.4 percent for the period from 490 to 11 days prior to the announcement.¹⁴

For the pre-announcement period *Board I_{-70 to -2}*, the results are mixed. The mean-adjusted returns using the post-issue estimation period and market-adjusted returns are significantly positive, but the OLS market model and Scholes-Williams model using the pre-announcement estimation period show significant negative abnormal returns. The other three estimates are

¹⁴Loughran and Ritter (1995) report a 72 percent mean raw return during the year before issue.

insignificant. An explanation for these conflicting results is seen by examining the market-adjusted cumulative abnormal returns for the two estimation periods. The CAR for the pre-announcement estimation period (*Board I*_{-390 to -251}) is +7.73 percent (t-stat = 7.89) and the CAR for the post-issue estimation period (*Issue Day*_{+31 to +170}) is +1.89 percent (t-stat = 2.20). Therefore, the estimates of “normal” returns are likely to be high, resulting in a downward bias in the calculation of abnormal event-period returns, particularly using the pre-announcement estimation period. One other explanation that is consistent with the lower abnormal returns during the period from 70 to 2 days before the announcement concerns the possibility of (informal) stock price stabilization by the underwriter.

Panel C of Table 3 reports the mean *CAR* for the three-day event period around *Board I*, which ranges from +0.36 percent to +0.72 percent, depending on the estimation method and estimation period chosen. The result is consistent with Kato and Schallheim (1993) and Kang and Stulz (1995). The result is statistically significant and robust to the different estimation methods and periods. These results are in sharp contrast to the results in the U.S. where equity issue announcements elicit an abnormal stock return of approximately -3 percent [Smith (1986)].

The evidence for a positive announcement effect is reinforced by examination of the period from one day before the first board meeting to one day after the issue date. All methods using a post-issue estimation period and the market-adjusted return method show positive and highly significant mean *CARs*, ranging from +2.35 percent to +4.38 percent. Consistent with the downward bias discussed above, the use of a pre-announcement estimation period dampens the results considerably with each method showing insignificant t-stats.

For the post-issue period, *Issue Day*_{+2 to +500}, the *CAR* is significantly negative. Again, the

use of the pre-announcement estimation period causes a downward bias in the CARs. This bias is confirmed by the significant positive market-adjusted CARs of 6.22 percent and 9.93 percent for the two post-issue periods. In fact, the market-adjusted returns are significantly positive for all five periods shown in Table 3. These positive abnormal returns do not appear to be caused by the risk level of these stocks, or by changes in risk. The average Scholes-Williams beta for these issuing stocks is 0.982 before announcement and 0.966 after issue.

As mentioned above, a number of the sample firms trade infrequently. To reduce the bias associated with infrequent trading, the remainder of this paper will use the method developed by Scholes and Williams to calculate alpha and beta estimates from a post-issue estimation period. We use the post-issue estimation period to avoid the downward bias presented by the pre-announcement estimation period. This approach is consistent with the methodology used by several researchers using U.S. returns [see Mikkelsen and Partch (1986), Masulis and Korwar (1986)].

In summary, the results in Table 3 supports the following conclusions: 1) Consistent with empirical studies investigating the U.S. market, Japanese firms issue equity following a statistically significant run-up in stock price. 2) Unlike the U.S., the equity issue announcement effect is positive in Japan. In particular, the three-day announcement period return is significantly positive, around one-half percent and the announcement day to issue day return also appears to be significantly positive.

B. Daily Abnormal Returns Around the Announcements, Subscription period and Issue Days

Daily prediction errors for the period from 5 days before to 5 days after the announcement

date, *Board 1*, are presented in Panel A of Table 4. Significantly positive abnormal returns are found for the day before and the day of the first board meeting, but insignificant results for the day after the board meeting. The significant return on the day before the board meeting is not easily explained, but is consistent with the leakage of information.¹⁵ The result also is consistent with increased risk and return around information events where the event date is known in advance.¹⁶

Panel B presents the daily prediction errors around the second board meeting. The mean abnormal return is insignificantly positive. Although the actual discount is announced, investors should be able to anticipate the discount as of the first board meeting date based on recent experience with equity issues. Therefore, the announcement effect of the discount on the second board meeting day, on average, is close to zero.

Panel C presents the daily prediction errors around the subscription period. The mean abnormal returns are significantly positive until the end of the subscription period and then, a significantly negative abnormal return is observed on the following day. This is consistent with the stock price stabilization by the underwriters because price stabilization is allowed during this period by the MOF. The Lease, Masulis and Page's order flow imbalance "argument" does not appear to hold during the subscription period in Japan.

Panel D presents the daily prediction errors around the issue date. Day 0, the issue date, is

¹⁵ We use a three-day period around the first board meeting to calculate the abnormal announcement return, therefore including day -1. However, the mean two-day CAR (for days 0 and +1) is also significantly positive with a point estimate of 0.29% and a *t*-stat of 2.25.

¹⁶ Kalay and Loewenstein (1985) discuss this point in terms of dividend announcement and ex-dividend dates. There is also a growing body of rational expectations models in the accounting literature that suggests rational risk and return increases prior to accounting information releases, e.g. Demski and Feltham (1994).

significantly negative, however, the mean abnormal return for day +1 is significantly positive indicating a rebound in stock prices. Although Japanese investors are not able to purchase new shares on the issue day, a part of the investors who purchased new shares at discount have incentive to sell these new shares on the issue day. This sequence of prices, negative on the issue day and rebounding prices after the issue day is consistent with the Lease, Masulis, and Page "order-flow imbalance" argument.

C. Comparison with the Kang and Stulz (1995) study

Kang and Stulz, investigating the period from 1985 to 1991, calculate cumulative abnormal returns with reference to the newspaper announcement day of the common stock issue rather than the board meeting date used in this study. In addition, their sample excludes "financial" companies, i.e., banks, securities firms, and insurance companies, but includes both first and second section TSE firms. For the 185 public offering announcements included in their study, they report a mean cumulative abnormal return for days -1 and day 0 of 0.0051 (t -stat = 2.32) and 0.0045 (t -stat = 1.73) for days -1, 0, and +1.

In order to compare our results with the Kang and Stulz study, we restrict our data set to non-financial companies and calculate *CARs* around the earlier of the following newspaper story dates: *Manager Ann.*, *News 1*, or *News 2*. We find a mean cumulative abnormal return of 0.0047 (t -stat = +3.33) for days -1 and 0 and a mean of 0.0039 (t -stat = +2.26) for days -1, 0, and +1, with 404 and 395 observations respectively. These results are qualitatively similar to both our full sample and to the results of Kang and Stulz.

Kang and Stulz also document a drop in stock price on the issue day, but find no evidence

of a price rebound. Kang and Stulz speculate that a possible explanation for the negative return on the issue day involves stock price stabilization by the underwriter. If the stock price was supported until the stock issue day, then a decline in stock price would be expected after the issue is sold to the public and price support is removed. However, this argument is not consistent with the equity offering process around the issue day. As described in the previous section, payment is made during the subscription period, which is several days before the issue day in Japan. The price stabilization by the underwriters is allowed only until the end of the subscription period.

We find a significant negative abnormal return on the issue day and a significant positive return on the day after the issue day, supportive of a price rebound. In addition to the issue day, we observe negative excess returns on the day after the end of the subscription period. Removal of the underwriter's stock price support at the end of the subscription period is consistent with a fall in the stock price on the following day.

V. TESTS OF ABNORMAL RETURNS, DISCOUNTS, AND OFFERING METHOD

Certification hypothesis predicted a negative relationship between the announcement return and the offer price's discount below the market price; in other words, the higher the discount, the lower the certification, and the lower the announcement effect. The offering method is also an important determinant of the degree of underwriter certification. Because of the shorter time period between the offering-price determination day and the subscription period, underwriter certification should play less of a role in the market's reassessment of firm value with formula-price offerings than with fixed-price offerings. In addition, formula offerings can be canceled up until the offer-price determination day, making the whole issue of underwriter certification

possibly moot. For both of these reasons, announcement effects for formula-price offerings should be lower than for fixed-price offerings.

In this section, we perform two sets of tests regarding the certification hypothesis. First, we look at the mean announcement period CARs and variability of stock returns for the two offering methods: fixed-price and formula-price offerings. Second, we use multiple regressions to analyze the role of the discount, offering method, and additional control variables to explain the announcement period CARs.

A. Abnormal Returns and the Offering Method

Table 5 presents abnormal returns results for two event periods: 1) one day before to one day after the first board meeting, and 2) one day after the second board meeting; and for two distinct time periods, before the formula offering was introduced and after the formula offering was introduced. The first official announcement of the upcoming equity issue and of the offering method, fixed-price versus formula-price, is made at the first board meeting. The announcement of the discount and other details of the upcoming stock issue are made at the second board meeting and are posted after the close of trading; therefore the announcement effect for the second period of investigation can be narrowed to one day.

The effect of the offering method on stock prices is observed by partitioning the sample into four subsamples: from 1974 to November 1983, from December 1983 to August 1991, fixed-price offerings from December 1983 to August 1991, and formula-price offerings over this same period. This partition of the sample allows the analysis of differences in the fixed and formula subsamples over the period when both were available to issuing firms and their underwriters.

Figures for the entire sample are provided for comparison purposes.

All event periods show positive and significant abnormal returns for the 12/83 to 8/91 fixed-price offerings. Event-period abnormal returns for the formula-price offerings are insignificantly different from zero and are significantly lower than the fixed-price offering sample. In summary, examination of the data split into the two types of offerings indicates that the overall positive announcement effect is almost entirely attributable to the fixed-price offerings.

Several studies have identified high pre-announcement variance and high pre-announcement stock price run-up as exerting a negative influence on the equity issue announcement return [for example, see Loderer, Cooney, and Van Drunen (1991), Dierkens (1991), Korajczyk, Lucas, and McDonald (1990) and Chow Masulis and Nanda (1993)]. Table 5 shows that these effects are reversed for our sample; high pre-announcement variance and high pre-announcement run-up are associated with fixed-price offerings, which exhibit the highest announcement effects. In addition, the variance change during the offering period is significantly negative for the firms with fixed offerings. The results are consistent with the certification hypothesis and contrast with U.S. results.

For U.S. issuers, Dierkens (1991), argues that high pre-announcement variance is a proxy for high investor uncertainty about firm value. Also, an abnormal stock price increase followed by a stock issue can signal overvaluation in the firm's stock price.¹⁷ Consider a subset of firms with high pre-announcement variance and high pre-announcement stock price run-up. Potential

¹⁷Korajczyk, Lucas, and McDonald (1990) call this the "naive trading rule" hypothesis and offer this as a possible explanation for the observed preannouncement stock price increase and subsequent announcement day price drop. However, they do not find evidence supportive for this hypothesis.

investors in these companies would be uncertain about its value and would presume, if the firm announces a stock issue, that it is overvalued. In this setting, a stock issue announcement should result in a sharp decline in stock prices. It is possible that the firm's true value is actually above the current stock price, but that this undervaluation could not be credibly communicated to potential investors.

Unlike the U.S., the equity issuance process in Japan allows firms to signal their undervaluation through underwritten equity offerings. The highest level of underwriter certification is provided by fixed-price offerings. Therefore, undervalued firms that have high pre-announcement stock price variance and high pre-announcement stock price run-up would benefit the most from a fixed-price offering. In these offerings, underwriters certify that the correct value for the stock is at least as great as the offer price. This not only causes an increase in stock value on the equity issue announcement date, but also causes a decrease in investor uncertainty about the true firm value. The decrease in residual equity variance after the stock issue observed with the fixed-price subsample is consistent with this story. Firms with lower pre-announcement variance and stock-price run-up, on the other hand, would not need the same level of certification and could use formula-price offerings. With the lower level of certification, investor uncertainty will not decline as much as with a fixed-price offering.

B. Regression Equations

A complete investigation of the certification hypothesis is performed with a multiple regression analysis. We divide our sample into the before 1983 period (fixed offering only) and the after 1983 period (both fixed and formula offerings). For each subsample, we run two

regressions. In regression one, the three-day CARs around the first board meeting date is used as a dependent variable. In the second regression, the abnormal return on the day after the second board meeting is used as a dependent variable.

According to the certification model, *Offering Method* (a dummy variable equal to 0 if a fixed-price offering and 1 if a formula-price offering) should be negatively related to the *Board 1* announcement return for the second period. *Expected Discount* is also used as an independent variable for the first regression to capture the effect of the discount. Investors should be able to anticipate the discount as of the first board meeting date based on recent experience with equity issues. A reasonable approximation for the public's anticipated discount is the average discount for all sample firms during each of the years in our study. Since the average discount fell during our sample period, the expected discount also proxies for the year of announcement (the correlation between the expected discount and year of announcement is -0.90826). We expect to observe a negative relationship between the expected discount and the three day CARs.

In the second regression, *Discount Forecast Error* is used as an explanatory variable. *Discount Forecast Error* is defined as the actual discount minus the expected discount. If the discount forecast error is negative, the underwriter's guarantee of value is at a higher level than expected. This will cause investors to revise their estimate of firm value upward. Therefore, according to the certification model, *Discount Forecast Error* should be negatively related to the *Board 2* announcement return, especially for fixed price method firms. *Discount forecast error* of the formula offering firms is not as important as that of the fixed offering firms because there exists a cancellation option as well as the shorter interval between price determination day and the subscription period.

The following control variables are added and presented in the first regressions: *Issue Size*, *Firm Size*, *Keiretsu* status, and industry classification dummy variables. *Issue Size*, *Firm Size*, and industry are traditional variables used in many empirical studies to control for contracting costs, information costs, and risk. *Issue Size* is calculated as the number of shares issued in the stock offering divided by the firm's outstanding shares as of the end of the month prior to the first board meeting. The firm's relative size in relation to all other first-section firms is measured by the percentile ranking of the issuing firm's market value of equity as of the end of the month prior to the first board meeting.¹⁸

The dummy variable *keiretsu* (value of one if a *keiretsu* firm) was added to control for this uniquely Japanese form of industrial organization. Communication of the firm's private value to the underwriter is more likely if the underwriter is a member of the issuing firm's *keiretsu* group. Since the ability to convey the firm's true value to the underwriter is a critical assumption in the certification model, the *keiretsu* dummy should be positively related to the announcement return. Furthermore, the offering method may be a proxy for the *keiretsu/non-keiretsu* classification if the *keiretsu* firms are more likely to use fixed-price offering, for example.

The results are presented in Table 6. Consistent with the underwriter certification model, *Offering Method* is highly significant for the second period. The regression coefficient for

¹⁸ The percentile ranking is equal to a fraction, the numerator of which is the number of firms from the first section of the TSE with a market value of equity (MVE) less than the MVE of the issuing firm, divided by the total number of firms in the first section of the TSE (excluding the issuing firm and other firms with missing values). For example, a value of 0.70 means that the issuing firm's MVE is greater than 70% of all other first section TSE firms as the end of the month prior to the first board meeting.

Expected Discount is negative and significant for the first period and insignificant for the second period. The coefficient of *Discount Forecast Error* is insignificantly negative for the first period and significantly negative for the second period. A significantly positive coefficient for (*Discount Forecast Error*) x (*Offering Method*) indicates that *Discount Forecast Error* is not critical for formula offerings. None of the control variables show any significance except for several industry dummy variables as reported in Table 6.

These results provide evidence in favor of the certification model. Namely, CARs around the first board meeting date are higher when expected discounts are small and when the fixed-price offering method is used. In addition, after controlling for the size of the expected discount and the offering method, *Discount Forecast Error* exhibits a negative and significant coefficient for the fixed offering firms when regressed against the *Board 2* announcement return. This evidence indicates that, other things equal, investors react positively when the actual discount is less than the expected discount.

VI. SUMMARY AND CONCLUSIONS

Equity issue announcement effects, on average negative in the U.S., are significantly positive in Japan. This paper, which is the first comprehensive study of Japanese equity issues over the period 1974 - 1991, explores the contribution of a different equity issue process in explaining the difference in results across the two countries. Unlike U.S. equity issues, Japanese underwriters using the fixed-price offering method set the offer price a median of seven trading days before the end of the subscription period. The underwriters' certification of value causes investors, uncertain of the firm's true value, to revise their expectation of firm value upward upon

announcement of the upcoming stock offering. In this certification model, the offer price represents the minimum possible value for the firm's stock. Therefore, the higher the offer price, in relation to the firm's stock price, the higher the announcement effect. The offer-price discount, equal to the percentage difference between the market value of the firm's stock and the offer price, is predicted to be negatively correlated with the announcement effect. In a formula-price offering, the offer price is set closer in time to the subscription period, and the stock offering may be canceled if there is a significant decline in stock price. Since formula-price offerings do not provide the same level of certification as fixed-price offerings, the announcement effect should be lower.

Results consistent with the underwriter certification model are presented. Namely, the average announcement effect for firms using the fixed-price method is positive, but the average announcement effect is zero for firms using the formula-price offering method. (Announcement effect for both types of offerings, however, are higher than equity issue announcement effects in the U.S.) Discount also plays an important role in the announcement period stock price changes. After controlling for the offering method, a significant negative correlation is found between the announcement day return and the expected discount. A significant negative relationship is also observed between the discount forecast error and the abnormal returns on the day the actual discount is announced for fixed offerings. High preannouncement variance and high preannouncement run-up is observed for the fixed price offering firms. The decrease in residual equity variance after the equity issue is also observed. These results are also consistent with certification hypothesis.

During the subscription period, positive abnormal returns are observed. However, the

stock price significantly fell, on average, on the following day. This finding is consistent with the underwriter stock price stabilization. We also investigate issue-day stock returns. Similar to U.S. equity issues, stocks decline on the issue day, but rebound after the announcement day. This pattern of daily stock price changes is consistent with the order-flow imbalance model presented by Lease, Masulis, and Page (1991).

Table 1
Descriptive Statistics

Yearly number and value (in billions of Yen) of common stock offerings, and percentage discount (one minus the offer price divided by the closing stock one day before the offer-price determination day). Panel A: Sample firms and market-wide figures for the period 1974-1993. Panel B: Firms using the fixed-price offering method vs. the formula-price offering method for the period 12/1983 - 1993.

Panel A: Sample Firms and Market-Wide Figures

Year	Sample Firms			Market-Wide Figures		
	Number of Observations	Total Value of Offering (Avg. Value)	Mean Discount [Min - Max]	Number of Observations	Total Value of offering (Avg. Value)	Mean Discount*
1974	10	31 (3.10)	9.35% [7.41% - 10.96%]	193	277 (1.44)	9.66%
1975	19	108 (5.67)	9.69% [8.37% - 10.91%]	103	222 (2.16)	9.56%
1976	29	118 (4.08)	9.68% [8.64% - 10.01%]	181	500 (2.76)	9.54%
1977	21	90 (4.29)	9.03% [7.03% - 9.98%]	238	604 (2.54)	7.63%
1978	6	27 (4.53)	6.91% [6.44% - 7.46%]	195	565 (2.90)	6.29%
1979	10	74 (7.42)	5.72% [5.07% - 6.28%]	229	629 (2.75)	5.71%
1980	68	419 (6.16)	5.54% [3.86% - 6.51%]	218	881 (4.04)	5.37%
1981	64	548 (8.56)	4.87% [3.78% - 5.65%]	249	1396 (5.61)	4.79%
1982	65	537 (8.25)	4.80% [3.88% - 5.09%]	209	1103 (5.28)	4.79%
1983	17	157 (9.22)	4.51% [3.77% - 4.91%]	72	472 (6.56)	4.43%
1984	34	400 (11.78)	3.47% [2.78% - 4.47%]	128	821 (6.41)	3.42%
1985	25	281 (11.23)	3.385% [2.87% - 3.99%]	103	506 (4.91)	3.35%
1986	23	199 (8.64)	3.37% [2.88% - 3.58%]	76	400 (5.26)	3.39%
1987	32	821 (25.66)	3.38% [2.70% - 3.57%]	99	1394 (14.08)	3.42%
1988	49	1211 (24.72)	3.38% [2.46% - 3.50%]	157	2582 (16.45)	3.23%
1989	81	3418 (42.19)	3.42% [2.91% - 3.50%]	227	5830 (25.68)	3.38%
1990	19	801 (42.16)	3.36% [2.95% - 3.50%]	121	1975 (16.32)	3.38%
1991	1	22 (21.62)	3.50% [3.50% - 3.50%]	27	126 (4.67)	3.48%
1992	0			3	4 (1.33)	3.47%
1993	0			4	7 (1.75)	
All Years	573	9261 (16.16)	4.93% [2.46% - 10.96%]	2832	20294 (7.17)	

* Mean discount for the market was provided by Daiwa Securities for a 4/1 to 3/31 fiscal year. To match with the other data as closely as possible, the mean discount for 4/1/74 - 3/31/75 was given in the row "1974" with other years presented in a similar manner.

Table 1
Descriptive Statistics - Continued

Panel B: Fixed-Price and Formula-Price offerings (1984 - 1993)

Year	Fixed-Price Offerings			Formula-Price Offerings		
	Number of Observations	Total Value of Offering (Avg. Value)	Mean Discount [Min - Max]	Number of Observations	Total Value of offering (Avg. Value)	Mean Discount*
1984	18	160 (8.90)	3.66% [2.88% - 4.47%]	15	233 (15.53)	3.22% [2.78% - 3.86%]
1985	12	105 (8.74)	3.44% [2.88% - 3.99%]	13	176 (13.53)	3.33% [2.87% - 3.90%]
1986	12	117 (9.77)	3.39% [2.88% - 3.58%]	11	81 (7.41)	3.35% [2.97% - 3.50%]
1987	23	588 (25.57)	3.37% [2.70% - 3.57%]	9	233 (25.89)	3.40% [2.78% - 3.50%]
1988	17	564 (33.17)	3.41% [2.90% - 3.50%]	32	647 (20.23)	3.36% [2.46% - 3.50%]
1989	11	133 (12.11)	3.33% [2.95% - 3.49%]	70	3284 (46.92)	3.43% [2.91% - 3.50%]
1990	5	81 (16.13)	3.37% [2.97% - 3.50%]	14	720 (51.46)	3.36% [2.95% - 3.50%]
1991	0			1	22 (21.62)	3.50% [3.50% - 3.50%]
1992	0			0		
1993	0			0		
Total	98	1748 (17.84)	3.43% [2.70% - 4.40%]	165	5397 (32.71)	3.38% [2.46% - 3.90%]

Table 2
Average Number of Days Involved in Issue Process

Number of trading days between various event days involved in the announcement and issue of common stock. Variable definitions are provided in the text.

From	Period To	Mean Days	Median Days	Max Days	Min Days	Number of Observations
Panel A: All Offerings						
Analyst Ann	Board 1	51.59	48	218	0	124
Management Ann	Board 1	3.43	0	87	0	112
Board 1	News 1 or News 2	1.28	1	15	0	539
Board 1	Board 2	27.71	31	78	0	573
Board 2	Subscription - End	7.64	8	20	4	573
Subscription - End	Issue Day	7.31	8	16	3	573
Board 1	Issue Day	42.65	46	94	12	573
Panel B: Fixed Offerings (All Years)						
Board 2	Issue Day	15.46	15	20	12	408
Board 1	Issue Day	49.67	50	94	14	408
Board 2	Subscription-End	7.22	7	14	4	408
Panel C: Fixed Offerings (December 1983 - August 1991)						
Board 2	Issue Day	15.17	15	18	12	98
Board 1	Issue Day	37.41	36.5	62	20	98
Board 2	Subscription-End	7.17	7	14	4	98
Panel D: Formula Offerings (December 1983 - August 1991)						
Formula OP Det	Issue Day	8.95	9	15	6	165
Board 1	Issue Day	25.27	25	50	12	165
Formula OP Det	Subscription-End	3.98	4	6	3	165
Board 2	Formula OP Det	4.72	5	15	2	165

Table 3
Event Period Abnormal Returns

Cumulative abnormal returns, *t*-statistics, fraction positive, and number of observations for five different event periods surrounding the announcement and issue of common stock. Normal returns are calculated using one of four different methods: OLS market-model method, Scholes-Williams method, mean-adjusted method, and market-adjusted method. For the first three methods, both a preannouncement (390 trading days to 251 trading days before the first board meeting date announcing the stock issue) and a post-issue estimation period (31 trading days to 170 trading days after the stock issue date) are used to calculate the normal return.

Method	Est. Period	Mean	<i>T</i> -Stat	Frac. Pos.	Number
Panel A: Event Period = <i>Board I</i> _{.500 to -.2}					
OLS	Post	0.1959	4.73	0.6129	465
Scholes-Williams	Post	0.1737	4.17	0.6022	465
Mean Adj.	Post	0.5248	12.03	0.7286	479
OLS	Pre	NA	NA	NA	NA
Scholes-Williams	Pre	NA	NA	NA	NA
Mean Adj.	Pre	NA	NA	NA	NA
Mkt. Adj.	NA	0.3017	16.46	0.7605	501
Panel B: Event Period = <i>Board I</i> _{.70 to -.2}					
OLS	Post	-0.0032	-0.44	0.4961	518
Scholes-Williams	Post	-0.0066	-0.91	0.4923	518
Mean Adj.	Post	0.0403	4.83	0.5855	538
OLS	Pre	-0.0357	-4.07	0.4131	443
Scholes-Williams	Pre	-0.0372	-4.23	0.4131	443
Mean Adj.	Pre	-0.0032	-0.36	0.5083	482
Market Adj.	NA	0.0167	3.16	0.5143	560
Panel C: Event Period = <i>Board I</i> _{-.1 to +1}					
OLS	Post	0.0062	4.41	0.5432	521
Scholes-Williams	Post	0.0062	4.34	0.5509	521
Mean Adj.	Post	0.0058	3.44	0.5444	529
OLS	Pre	0.0049	2.95	0.5113	442
Scholes-Williams	Pre	0.0050	2.96	0.5045	442
Mean Adj.	Pre	0.0036	1.95	0.5117	471
Market Adj.	NA	0.0072	5.38	0.5626	551

Table 3
Event Period Abnormal Returns - Continued

Method	Est. Period	Mean	T-Stat	Frac Pos	Number
Panel D: Event Period = <i>Board I_{-j}</i> to <i>Issue Day_{+j}</i>					
OLS	Post	0.0257	4.00	0.5151	530
Scholes-Williams	Post	0.0235	3.66	0.5151	530
Mean Adj.	Post	0.0433	6.00	0.5808	551
OLS	Pre	-0.0013	-0.20	0.4605	443
Scholes-Williams	Pre	-0.0020	-0.31	0.4447	443
Mean Adj.	Pre	0.0115	1.65	0.4865	483
Market Adj.	NA	0.0438	8.12	0.5724	573
Panel E: Event Period = <i>Issue Day_{+2 to +500}</i>					
OLS	Post	NA	NA	NA	NA
Scholes-Williams	Post	NA	NA	NA	NA
Mean Adj.	Post	NA	NA	NA	NA
OLS	Pre	-0.3307	-6.72	0.3801	392
Scholes-Williams	Pre	-0.3228	-6.47	0.3801	392
Mean Adj.	Pre	-0.2156	-4.78	0.4149	429
Market Adj.	NA	0.0993	6.65	0.6015	527

Table 4
Daily Prediction Errors

Daily prediction errors, *t*-statistics, fraction positive, and number of observations for the 11-trading days around the date of the first board meeting announcing the stock issue, the date of the second board meeting announcing details of the stock offering, the end of the subscription period, and the issue date. Normal returns are calculated using the Scholes-Williams method with a post-issue estimation period (31 days to 170 days after the stock issue date).

	Panel A: Board 1				Panel B: Board 2			
Day	Mean	<i>T</i> -Stat	Frac. Pos.	Num	Mean	<i>T</i> -Stat	Frac. Pos.	Num
-5	-0.0002	-0.1978	0.4615	494	-0.0010	-1.1807	0.4425	504
-4	0.0000	-0.0051	0.4593	492	0.0006	0.7409	0.4902	508
-3	0.0003	0.3399	0.4959	492	-0.0000	-0.0302	0.4832	507
-2	0.0012	1.3257	0.4578	498	0.0007	0.8270	0.4883	512
-1	0.0030	2.8625	0.5010	499	0.0006	0.6798	0.4932	513
0	0.0041	4.1726	0.5380	500	0.0018	1.8452	0.4775	511
+1	-0.0012	-1.1580	0.4589	499	-0.0000	-0.0263	0.4035	518
+2	-0.0019	-2.0886	0.4320	500	-0.0003	-0.3394	0.4308	513
+3	-0.0014	-1.7141	0.4436	505	-0.0001	-0.1586	0.4608	510
+4	-0.0011	-1.3187	0.4391	501	0.0003	0.3267	0.4648	512
+5	0.0004	0.4527	0.4800	500	0.0013	1.4683	0.4708	514
	Panel C: End of Subscription Period				Panel D: Issue Day			
Day	Mean	<i>T</i> -Stat	Frac. Pos.	Num	Mean	<i>T</i> -Stat	Frac. Pos.	Num
-5	-0.0010	-1.3105	0.4128	516	0.0006	0.7099	0.4708	514
-4	-0.0013	-1.4664	0.4425	513	0.0024	2.6671	0.5020	512
-3	0.0014	1.6692	0.4775	511	-0.0019	-1.9742	0.4082	512
-2	0.0020	2.3783	0.5078	512	-0.0005	-0.6068	0.4434	512
-1	0.0014	1.8714	0.4603	517	0.0005	0.5271	0.4746	512
0	0.0022	3.0309	0.5106	519	-0.0049	-3.8699	0.3176	507
+1	-0.0024	-2.9005	0.4186	516	0.0029	2.8441	0.4903	514
+2	0.0009	1.0508	0.4873	511	0.0015	1.7350	0.5230	522
+3	-0.0001	-0.1228	0.4542	513	0.0005	0.5453	0.4702	521
+4	0.0014	1.5389	0.4609	512	0.0020	2.2975	0.4780	523
+5	-0.0012	-1.2316	0.4280	507	0.0000	-0.0137	0.4332	524

Table 5
Fixed-Price and Formula Offerings

Cumulative abnormal returns, *t*-statistics, fraction positive, and number of observations for four different event periods surrounding the equity issue announcement day (*Board 1*), the announcement day of the discount (*Board 2*), and issue day of common stock. Normal returns are calculated using the Scholes-Williams method with a post-issue estimation period (31 days to 170 days after the stock issue date). *Preannouncement Variance* is the residual equity variance calculated over the period from 500 days before to 71 days before the first board meetings. *Variance Change* is equal to the post-announcement residual equity variance calculated over the period from 71 days after to 500 days after the issue date minus the *Preannouncement Variance*. *, **, *** indicate that the mean value for the fixed-price subsample (12/83 - 8/91) is significantly different than the mean CAR for the formula-price subsample (12/83 - 8/91) at the 10 percent, 5 percent, and 1 percent levels of significance respectively.

Panel A				
All Observations				
<u>Event Period</u>	Mean	T-Stat	Frac. Pos.	Num
<i>Board 1</i> $_{-1 \text{ to } +1}$	0.0062	4.339	0.5509	521
<i>Board 2</i> $_{+1}$	-0.0000	-0.026	0.4035	518
<i>Board 1</i> $_{-1}$ to Issue Day $_{+1}$	0.0235	3.662	0.5151	530
<i>Board 1</i> $_{-500 \text{ to } -2}$	0.1737	4.174	0.6022	465
<i>Preannouncement Variance</i>	0.00046	NA	1.0000	436
<i>Variance Change</i>	-0.00008	-6.024	0.4020	398

Panel B				
Offerings from Feb. 1974 to Nov. 1983 (Fixed-Price Offerings)				
<u>Event Period</u>	Mean	T-Stat	Frac. Pos.	Num
<i>Board 1</i> $_{-1 \text{ to } +1}$	0.0056	2.987	0.5589	263
<i>Board 2</i> $_{+1}$	-0.0035	-3.235	0.3244	262
<i>Board 1</i> $_{-1}$ to Issue Day $_{+1}$	0.0394	3.930	0.5867	271
<i>Board 1</i> $_{-500 \text{ to } -2}$	0.2478	4.073	0.6172	209
<i>Preannouncement Variance</i>	0.00042	NA	1.0000	188
<i>Variance Change</i>	-0.00011	-6.224	0.3245	151

Panel C				
Offerings from Dec. 1983 to Aug 1991				
<u>Event Period</u>	Mean	T-Stat	Frac. Pos.	Num
<i>Board 1</i> $_{-1 \text{ to } +1}$	0.0068	3.147	0.5426	258
<i>Board 2</i> $_{+1}$	0.0036	2.332	0.4844	256
<i>Board 1</i> $_{-1}$ to Issue Day $_{+1}$	0.0069	0.882	0.4402	259
<i>Board 1</i> $_{-500 \text{ to } -2}$	0.1132	1.993	0.5898	256
<i>Preannouncement Variance</i>	0.00049	NA	1.0000	248
<i>Variance Change</i>	-0.00006	-3.206	0.4494	247

Table 5
Fixed-Price and Formula Offerings - Continued

Panel D				
Fixed-Price Offerings from Dec. 1983 to Aug 1991				
<u>Event Period</u>	Mean	T-Stat	Frac. Pos.	Num
<i>Board 1_{-1 to +1}</i>	0.0155	3.761	0.6458	96***
<i>Board 2₊₁</i>	0.0115	3.423	0.5579	95***
<i>Board 1₋₁ to Issue Day₊₁</i>	0.0475	2.932	0.5938	96***
<i>Board 1_{-.500 to -.2}</i>	0.2978	2.932	0.6458	96**
<i>Preannouncement Variance</i>	0.00058	NA	1.0000	96***
<i>Variance Change</i>	-0.00013	-4.509	0.3152	92***

Panel E				
Formula-Price Offerings from Dec. 1983 to Aug 1991				
<u>Event Period</u>	Mean	T-stat	Frac. Pos.	Num
<i>Board 1_{-1 to +1}</i>	0.0017	0.712	0.4815	162***
<i>Board 2₊₁</i>	-0.0012	-0.918	0.4410	161***
<i>Board 1₋₁ to Issue Day₊₁</i>	-0.0171	-1.981	0.3497	163***
<i>Board 1_{-.500 to -.2}</i>	0.0024	0.036	0.5563	160**
<i>Preannouncement Variance</i>	0.00044	NA	1.0000	156***
<i>Variance Change</i>	-0.00001	-0.492	0.5290	155***

Table 6
Regression Results

Coefficients and (*t*-stats) for a regression of the three-day *CAR* around the first board meeting date, $CAR_{-1 \text{ to } +1}$ (*Board 1*), and the day after the second board meeting, AR_{+1} (*Board 2*), against various explanatory and control variables. The respective regression equations are estimates over two periods: February 1974 to November 1983 (only fixed offerings allowed) and December 1983 to August 1991 (fixed and formula offerings allowed).

	Dependent Variables			
	2/1974 - 11/83		12/83 - 8/1991	
	$CAR_{-1 \text{ to } +1}$ (Board 1)	AR_{+1} (Board 2)	$CAR_{-1 \text{ to } +1}$ (Board 1)	AR_{+1} (Board 2)
Intercept	0.0253 (1.740)	-0.0061 (-0.814)	-0.0299 (-0.446)	-0.0083 (-0.820)
Expected Discount	-0.3481 (-3.454)		0.9048 (0.463)	
Disc. Forecast Error		-0.3767 (-1.561)		-2.4521 (-2.384)
Offering Method Dummy			-0.0128 (-2.664)	
Offering Method Dummy x Disc. Forecast Error				2.1114 (1.580)
Issue Size	0.0838 (1.099)	0.0197 (0.445)	0.0716 (0.884)	0.0098 (0.172)
Firm Size Percentile	-0.0076 (-0.834)	-0.0041 (-0.768)	0.0072 (0.652)	0.0033 (0.431)
Keiretsu	-0.0037 (-0.834)	-0.0158 (-0.615)	0.0017 (0.248)	-0.0030 (-0.637)
<u>Significant Industry Dummies</u>				
Trading Companies	0.0174 (2.009)			
Glass Companies		0.0178 (2.849)	0.0386 (2.525)	
Service Companies		-0.0373 (-2.108)		
Electronic Companies				0.0188 (2.196)
Banking Companies				0.1587 (1.985)
F-Statistic [p-value]	1.641 (0.0319)	1.632 (0.0334)	1.329 (0.1422)	1.185 (0.2543)
Adjusted R ²	0.0576	0.0571	0.0310	0.0178
Observations	263	262	258	256

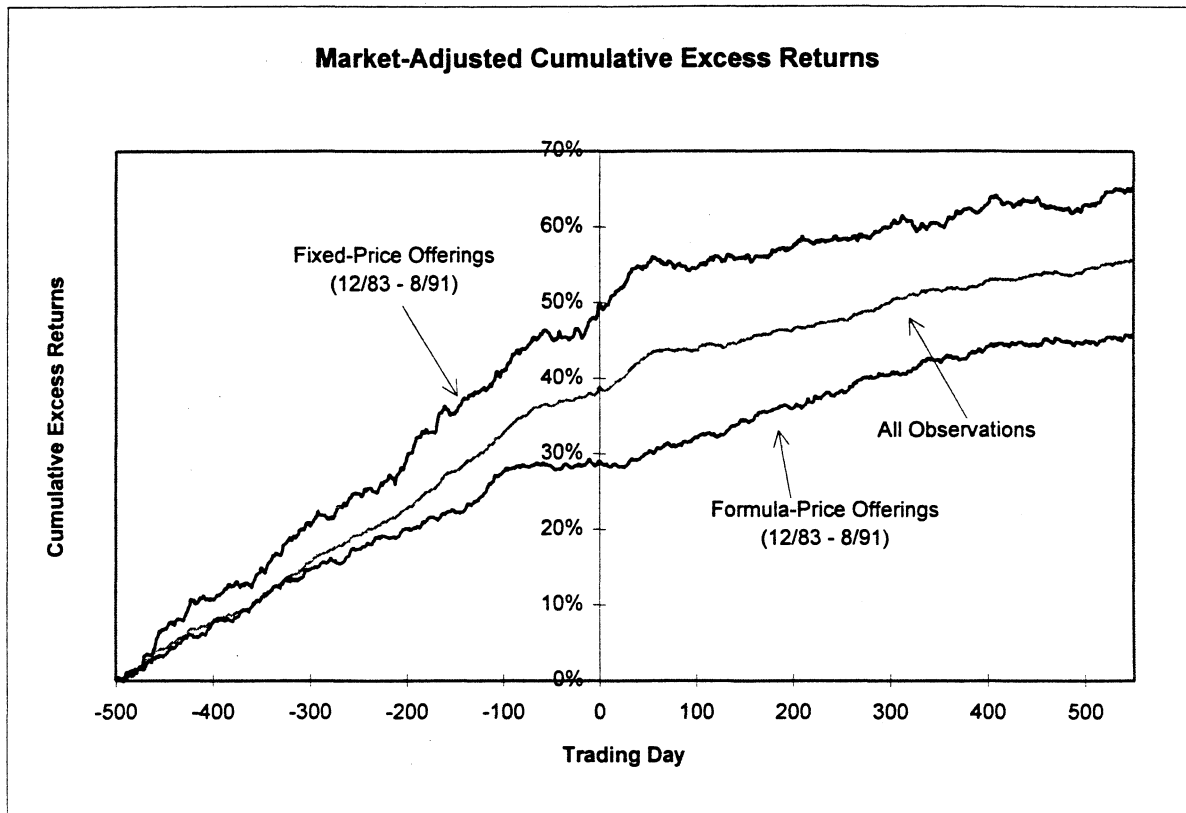


Figure 1. Market-adjusted cumulative excess returns. Mean cumulative excess returns are calculated for all observations and two sub-samples (fixed-price offerings and formula-price offerings announced during the period from 12/83 to 8/91) using the market-adjusted method for a 1051-trading day period surrounding the announcement of an equity issue. Only single-day returns are used in the calculation of the mean return and the TOPIX index is used as the market index. Day 0 is the day of the board meeting announcing the stock issue.

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