論　説

Stock Price Reaction to the New Public Equity Issues in Japan: New Evidence on the Efficiency of Japanese Stock Market

Athambawa Jahfer[a] and Tohru Inoue[b] *

Abstract: This paper investigates the effect of new public equity issues on stock prices in the Japanese capital market during the bubble and post-bubble periods. We find that the stock price reaction to the announcement of public equity issues is significantly positive during the bubble period and insignificantly negative during the post-bubble period. In regression analysis, we find that the key explanatory variable of new public equity issues is the future profitability of the firm. Also, investors are indifferent to the offering amount, director's shareholding, and investment expenditures. Hence, we show that Japanese capital market is becoming efficient after bubble.

JEL classification: G14

Keywords: Public equity issues; Abnormal return; Profitability; Japan

1 Introduction

Seasonal equity offerings (SEO) after the company were established in order to raise funds or to transfer the control of its management to a third party is a general practice followed by listed companies. There are three methods to issue shares, namely: public offering, private placements and right offering. A public offering is a method of granting the subscription right to an unspecified large number of investors. In Japan, from the early 1970s to the end of the 1980s, a great majority of companies issued new shares through public offerings, but as stock prices fell and remained at low levels in the 1990s, cases of public offering have decreased sharply. In a private placement, new shares are sold to institutional investors such as banks and insurance companies and/or high net worth individuals. A rights offering is a method that grants shareholders listed by a certain date the right to subscribe to a number of new shares proportionate to the number of shares they hold. However, this study focuses only the public equity issues in Japan.

Since the seminal contribution of Modigliani and Miller (1958), a number of studies investigate the stock price reaction to new equity issues. Modigliani and Miller (1958) state the irrelevance of capital

[a] Faculty of Management and Commerce, South Eastern University of Sri Lanka, Sri Lanka
[b] International Graduate School of Social Sciences, Yokohama National University, Yokohama, Japan.

structure on firm's value. Myers and Majluf (1984) state that under information asymmetry model of public seasonal equity offerings, firms undertake public offerings of seasonal equity only if they believe that the firm is overvalued. Lucas and McDonald (1990) extend the Myers and Majluf (1984) model and show that a firm with undervalued stock tends to delay issuing equity until its stock price rises to its fair value. If new investment projects arrive in an unbiased manner and unrelated to the firm's prior share price history, equity issues on average will occur after a period of positive abnormal returns to the firm and signal overvaluation of assets in place. Thus, firms that have high abnormal returns prior to the announcement of an equity issue are likely to show a more negative price reaction to the announcement.[1]

Asquith and Mullions (1986), Masulis and Korwar (1986), and Mikkelson and Partch(1986) all empirically observed that announcements of new equity issues are greeted by sharp declines in stock prices. Primary explanation for the negative return is asymmetric information, type of issue, price pressure and leverage. Contrary to these empirical studies Kang and Stulz (1996) find the puzzling result of a positive significant average abnormal return during the equity announcement period, but a significant negative return of 1.01% during the issue period for the study period 1985−1991 in Japan whereas it is negative in the United States.. Kang and Stulz explore four possible interpretations for the difference in results: institutional differences and/or market inefficiencies, deregulation effects: the 1980s were an abnormal period in Japan because of deregulation, bubble economy effects and differences in corporate control mechanisms. Kang and Stulz concluded that Japanese managers decide to issue shares based on different considerations than US managers. Similarly, Kato and Schallheim (1992), find that the average stock price reaction to the announcement of new equity issues is insignificantly different from zero for a sample covering the 1970s and 1980s. In particular, the stock price reaction is –0.96% for issues in the 1970s and 0.79% for the 1980s.2

Christensen et al. (1996) studied the stock price reaction to issues of common stock, straight debt, warrant bond, and convertible bonds by Japanese firms from 1984 to 1991. They found that the Japanese stock market reactions to announcements of common stock, straight debt and warrant bond offerings are quite similar to those of the U.S. market. Christensen et al. (1996) also observed that a significant amount of abnormal return does not appear on the announcement day. They pointed out that this is due to news leakage before the announcement date as underwriters used the intervals between board of directors' meetings and the announcement dates to gauge market sentiment and to work out placement of the issue. These matters are conducted informally between institutional investors and underwriters and they may have an influence on the market prior to the official announcement date because the announcement

---

[1] Cooney and Kalay (1993) extend Myers and Majluf (1984) framework by introducing the existence of negative NPV projects. They show that an announcement of seasonal equity offering (SEO) can contain favourable information about a firm and that a positive reaction upon the announcement of SEO is possible.

[2] Kato,K., and J.S.Schallheim (1992), Public and Private placements of seasonal Equity Issues in Japan, Unpublished paper , University of Utah.

[3] According to Christensen et al. (1996), there are four important announcement days in Japan, which are: first, media reports on potential new issues based on security analysts' conjectures and informal announcements from managers and underwriters. Next is the first announcement day, the day on which the firm's board of directors formally announces their intention to make the new issue. The announcement is generally made after markets have

process is different in Japan than in the US. In the US, there are two critical announcement dates, the announcement date and the issuance date, but in Japan there are four announcement days.[3]

Hanaeda (1993) investigates the stock price reaction of seasonal equity issues from 1975 to 1993. His study provides estimates of monthly market model prediction errors, where month 0 is the month of the offering. He finds a positive abnormal return for the offering month and the month before of slightly more than 1 percent. He provides no estimates of statistical significance.[4]

It is well known that Japanese financial system, characterized by the "main bank system" depends heavily on banks, with which borrowers have close relations in the financial system. This main bank plays an important role in corporate governance and functions as the major creditor. Ikeo and Hirota (1992) and Fukuda and Hirota (1996) find that main bank relations indeed affect the capital structure of Japanese firms. Therefore, the Japanese firms may determine financing behavior differently than American firms.

The objective of this paper is to ascertain the impact of new public equity issues on stock prices at the announcement date and the days immediately preceding and following the announcement date in the Japanese stock market, in order to investigate whether the stock price reaction to the new equity issues is indeed different in Japan. In addition, this paper compares the effect of new public equity issues during the bubble (1985−1992) and post-bubble period (1993−2000) in the Japanese stock market. The basic hypotheses are value maximization hypothesis, pecking order hypothesis, signaling hypothesis, agency cost theory, and price pressure.

The results on the stock price reaction to the public equity issues in Japan show that stock price reaction during the bubble period is positive. But, the stock price reaction is insignificantly negative during the post-bubble period, which is consistent with theoretical concepts and previous studies in USA. In regression analysis, the abnormal return is explained by the price pressure and profitability during the bubble period. But the abnormal return is explained only by the profitability during the post-bubble period. Signaling hypothesis is not supported during both bubble and post-bubble periods. Also, investors are indifferent to the offering amount, director's shareholding ratio and investment expenditures. Therefore, in contrast to previous studies, future profitability has the explanatory on the stock price reaction to the announcement of new public equity issues in Japan. These results are evidence to infer that the Japanese capital market is becoming efficient after the bubble period.

The remainder of this paper is organized as follows. Section 2 reviews theoretical background. Section 3 provides the data and descriptive statistics. The event study results are documented in section 4. Cross-sectional regression results are discussed in section 5. Concluding remarks are presented in the section 6.

---

closed for the day. The issue is announced at the Tokyo Stock Exchange. The firm submits a formal issue registration statement to the Japanese Ministry of Finance on this day or the next business day. The media reports the issue the following day and, usually, the firm does not release the issue price. Following the first announcement day is the second announcement day, wherein the firm officially states the issue's size, offering price, terms and issue date. The media reports this information the next day. The final day in the offering process is the issuance day.

[4] Hanaeda, H.,1993. Seasoned Equity Issues in Japan, in S.Takagi (ed.), Japanese Capital Market, Basil Blackwell, Oxford.

2　Theoretical background

2.1 Value Maximization and the Modigliani & Miller (MM) irrelevance theorem

If the firm maximizes its value, the variables related to its future profitability should have explanatory power on the stock price reactions to the announcements of new equity issues. In their 1958 article Modigliani and Miller (MM) proved, using a process akin to arbitrage, that the market value of a company is independent of its capital structure. This theory assumes perfect markets and perfect competition in which companies operate without taxes or transaction costs and where all relevant information is available without cost. Under these conditions, MM (1958) argued that modifying a company's capital structure does not change the companies' value or shareholders' wealth. More precisely, they prove that the market value of a firm depends only on its profit stream and is invariant to its capital structure. Their basic argument is that arbitrage precludes the market value of a firm to be altered by a change in a firm's financial policy when the profit flow is given. In the case where investors have the same financial opportunities as firms, investors can always undo the actions of firms on the financial markets.

Hence, in a perfect capital market, only investment decisions are important in pursuit of wealth maximization. However, when these assumptions are relaxed, factors that could make capital structure important include taxes, agency costs, costs of financial distress, and information asymmetry. Notwithstanding, Modigliani and Miller have been criticized on the grounds that their theory assumes rational economic behavior and perfect market conditions, and that owners' goals are targeted only at maximizing profits.[5]

2.2 Hypotheses under Asymmetric Information

Pecking order hypothesis

The pecking order theory developed by Myers (1984) and Myers and Majluf (1984) state that firms prefer internal to external finance. If external finance is required, firms prefer debt to equity because of lower information costs associated with debt issues. Equity is issued only under duress. In contrast, Fama and French (2005) argued that financing decisions violate pecking order's central predictions about how often and under what circumstances firms issue equity and most firms issue or retire equity each year. The issues are on average large and they are not typically done by firms under duress. In the Myers and Majluf model, managers with superior information, acting in the best interests of existing shareholders, will issue equity when the equity is overpriced. Moreover, managers will pass up positive NPV investments if the equity necessary to finance them is sufficiently underpriced by the market. Therefore, the decision to issue equity or invest will convey negative information to the market and the price will drop at the announcement.

Several empirical studies such as Baskin (1989), Norton (1991), Griner and Gordon (1995), and Addedji (1998) have found evidence in support of the pecking order model. Jung, Kim and Stulz (1996) find mixed evidence on the pecking order hypothesis. Consistent with pecking order hypothesis, they find

---

[5] See Grabowksi and Mueller 1972, Managerial and stockholder welfare models of a firm expenditures, Review of Economics and Statistics 54, 9-24

that announcement returns are negative and significant for stocks and insignificant for bonds. However, they also find that some firms issued equity to fund good investment opportunities even though by doing so these companies resemble firms that issue debt. Other equity-issuing firms have poor investment opportunities and some debt capacity. Under the pecking order hypothesis, this situation is only possible if asymmetric information is not important. However, these companies also have more negative stock price reaction to equity issues than firms with better opportunities. Shyam-Sunder and Myers (1999) tested the static trade off model against the pecking order model.[6] They found that the pecking order is an excellent first-order descriptor of corporate financing behavior. Frank and Goyal (2003) argue that none of the predictions of the pecking order theory hold when a broad sample of firms and a longer time series is used. Internal financing is not sufficient to cover investment spending on average. External financing is heavily used. Debt financing does not dominate equity financing in magnitude. Net equity issues track the financing deficit quite closely, while net debt does not do so.

Signaling hypothesis

According to the signaling hypothesis, the management of a successful firm may choose real financial variables (such as financial leverage or dividend policy) to send unambiguous signals to the public about the future performance of the firm. Unsuccessful firms cannot mimic these signals because they do not have sufficient cash flows to meet the debt payments or pay the dividends (Ross, 1977). Alternatively, Miller and Rock (1985) hypothesize that investors can draw inferences about implied changes in expected net operating cash flows from corporate dividend and external financing announcements. They suggest that larger-than-expected dividend payments are associated with larger-than-expected internally generated cash flows from operations. Therefore, dividend increase represents good news for investors.

Agency cost theory

Agency cost theory emphasizes conflicts between insiders vis-à-vis the firm (management) and outsiders (shareholders) and between debt and equity holders. These conflicts may result in a wedge between the cost of internal and external finance. Jensen and Meckling (1976) argue that lower managerial ownership can result in higher agency costs and lower firm value (the alignment-of-interest 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. Holdernes and Sheehan (1988) find that the market reacts positively to a majority-block trade. Although the alignment-of-interest 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 as managerial equity ownership increases, the

---

[6] According to static trade-off model, a firm is regarded as setting a target debt level and gradually moving towards it and the 'optimal capital structure' is determined by trading off the costs and benefits of equity and debt, including tax shields, financial distress, and agency costs of debt and equity.

value of the firm first increases, then decreases.

2.3 Other hypotheses

Investment hypothesis

Miller and Rock (1985) theorized that firms are faced with constant investment requirements and thus any changes in external financing constitute negative signals about the firm's current earnings and potential earnings. McConnell and Muscarella (1995) found that share prices react positively to simultaneous announcements of investment opportunities or capital expenditure during announcements of seasoned equity issues.

Wealth transfer hypothesis

The wealth transfer hypothesis states that an unexpected issue of new equity reduces the risk of the firm's outstanding debt and consequently results in a wealth transfer from shareholders to bondholder. Thus, seasoned equity issues are associated with negative abnormal returns as the firm's debt to equity ratio increases (DeAngelo and Masulis, 1980; Masulis, 1983).

Price-pressure hypothesis

The price-pressure hypothesis advanced by Scholes(1972), contends that an increase in the supply of shares causes a decline in a firm's stock price because the demand curve for shares is downward sloping. The implication is that each firm's shares are unique, and close substitutes do not exist. Christensen, et al. (1996) concluded that even though price pressure is present due to the increased supply of securities, most of the change in stock prices could be attributed to an information effect.

3 Data and descriptive statistics

The sample for the study is selected from the listed firms of Tokyo Stock Exchange (TSE) over the period 1985−2000.[7] The analysis is divided into two sub-periods to explore the timing relationship i.e. the bubble period from 1985 to 1992, and the post-bubble and deregulation of straight bond market period from 1993 to 2000. The main sources of the data are Nikkei database, Shoji Home (Commercial Law Review) and Nihon Keizai Shinbun (the Japanese Economic Newspaper).[8] Sample firms must meet the following criteria: (a) it has a March fiscal year-end; (b) necessary financial data should be available in the Nikkei database; (c) the date of public announcement is available in the Nihon Keizai Shinbun and (d) stock price data must be available before and after the announcement. In addition, financial and utilities firms are excluded from the sample, since these types of firms are generally excluded from the studies on new equity issues.

---

[7] The number of listed firms on the Tokyo Stock Exchange ranges from 1476 in 1985 to 2055 in 2000. These figures refer to the 2003 Fact Book published by TSE.

[8] The Commercial Law Review is published three times a month. Every year at the end of June a special issue appears summarizing the previous year's April to March financing decisions by Japanese corporations. Nihon Keizai Shinbun is a comparable publication to the Wall Street Journal

Table 1

Distribution of new equity issues by year

Year	Public equity
1985	3
1986	31
1987	23
1988	24
1989	59
1990	91
1991	5
1992	2
1993	1
1994	1
1995	9
1996	5
1997	25
1998	4
1999	5
2000	22
Total	310

The issues data are collected from the "Shoji Home" (Commercial Law Review) as the main source and announcement dates are extracted from Nihon Keizai Shinbun.

Table 1 presents the distribution of new public equity issues by financial year over the period 1985−2000. The above sample selection criteria produce totally 310 public offerings for the whole sample period and 238 issues for the period 1985−1992 and 72 issues for the period 1993−2000. Though there are more new public equity issues, when the new equity issues are combined with financial data files, the size of new issues is reduced due to the availability of data.[9] Comparing the public equity issues between 1985 and 2000, the proportion of public equity issues is much smaller in 1992, 1993 and 1994 than in any other years during the sample period. Since the beginning of 1990, stock prices had plummeted − so steeply; in fact, that underwriting securities companies asked business corporations in March to postpone their equity financing plans, and public offering of new equity virtually came to a halt until March 1994.

4 Analysis of announcement effects

4.1 Methodology

This research employs the event study technique introduced by Ball and Brown (1968) and Fama et al. (1969) for finding the reaction of share prices to new equity offerings. The announcement date of public equity issues is defined as day $t = 0$. The event window is from day $t = -30$ to day $t = 210$. Estimation period is day $t = -40$ to day $t = -120$.

Daily abnormal return (AR) on day t for each firm during the event window is calculated using the following equation:

[9] Offerings made twice in a year are considered as one offering.

$$AR_{it} = R_{it} - E(R_{it}) \tag{1}$$

where $AR_{i,t}$ = abnormal return associated with firm i on day t, $R_{i,t}$ = return of stock of firm i observed on day t, $E(R_{i,t})$ = expected rate of return on stock of firm i in period t. The Market Model states the following linear relation between stock returns and market returns:[10]

$$E(R_{it}) = \alpha + \beta_i R_{Mt} \tag{2}$$

where $E(R_{i,t})$ = expected rate of return on stock i at period t; $R_{M,t}$ = rate of return of the market portfolio in period t; α_i = intercept of stock i, β_i = slope coefficient of stock i.

Average abnormal return (*AAR*) on day t is defined as the average abnormal return across all stocks. It is calculated as follows

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{it} \tag{3}$$

where AAR_t = average abnormal return on day t; $AR_{i,t}$ = abnormal return of stock i on day t; N = total number of public issues.

The cumulative abnormal return for each firm i, $CAR_{i,}$, are formed by summing average abnormal return over the event time as follows:

$$CAR_{i,K,L} = \sum_{t=k}^{L} AAR_{it} \tag{4}$$

Where, $CAR_{i,K,L}$ is for the period from t = day K until t = day L.

Cumulative abnormal return over the event time from day K until day L are calculated by

$$CAR_{K,L} = \frac{1}{N}\sum_{i=1}^{N} CAR_{i,K,L} \tag{5}$$

4.2 Findings: Announcement effects

Bubble period (1985−1992)

Table 2 presents the average abnormal returns and cumulative abnormal return for the sample of public equity issues between 1985 and 1992. The abnormal return on the announcement day is significantly positive at 1% level. Abnormal returns just before the announcement day $t = -1$ and on day $t = -21$ are significantly positive at 5% level. Meanwhile, following the announcement day, the abnormal return is significantly negative on day $t = 24$, and significantly positive on days $t = 12$ and $t = 13$ at 10% level.

Figure 1 plots the cumulative abnormal returns of public equity issues during the period 1985−1992. During this period, public equity issuing firm's stock price experiences an upward drift from $t = -20$ days

[10] Sharpe's (1964) Market Model is used to establish the expected rate of return as below.

Table 2

Average abnormal return and average cumulative abnormal returns for the sample of new public equity issues from 1985 to 1992

DAY	AR	t-test		CAR	t-test		DAY	AR	t-test		CAR	t-test	
-30	0.15%	0.743		0.15%	0.743		1	0.20%	1.014		3.53%	3.103	***
-29	0.02%	0.102		0.17%	0.597		2	–0.09%	–0.445		3.44%	2.978	***
-28	–0.17%	–0.836		0.00%	0.005		3	0.08%	0.406		3.52%	3.004	***
-27	–0.04%	–0.183		–0.04%	–0.087		4	–0.09%	–0.453		3.43%	2.884	***
-26	–0.08%	–0.420		–0.12%	–0.266		5	0.20%	1.015		3.63%	3.013	***
-25	0.11%	0.532		–0.01%	–0.026		6	0.21%	1.055		3.85%	3.145	***
-24	–0.12%	–0.579		–0.13%	–0.242		7	0.19%	0.919		4.03%	3.253	***
-23	0.07%	0.322		–0.06%	–0.113		8	0.01%	0.029		4.04%	3.215	***
-22	–0.12%	–0.582		–0.18%	–0.300		9	0.18%	0.890		4.22%	3.316	***
-21	0.45%	2.242	**	0.27%	0.424		10	0.05%	0.245		4.27%	3.313	***
-20	0.02%	0.099		0.29%	0.434		11	0.22%	1.069		4.48%	3.438	***
-19	–0.06%	–0.317		0.23%	0.324		12	0.33%	1.654	*	4.81%	3.650	***
-18	0.04%	0.192		0.27%	0.365		13	0.33%	1.647	*	5.14%	3.857	***
-17	–0.01%	–0.025		0.26%	0.345		14	0.30%	1.469		5.44%	4.033	***
-16	–0.04%	–0.221		0.22%	0.276		15	0.14%	0.670		5.57%	4.088	***
-15	0.11%	0.549		0.33%	0.405		16	–0.11%	–0.530		5.47%	3.966	***
-14	0.02%	0.082		0.34%	0.412		17	–0.13%	–0.661		5.33%	3.829	***
-13	0.25%	1.263		0.60%	0.699		18	–0.08%	–0.376		5.26%	3.736	***
-12	0.13%	0.657		0.73%	0.831		19	–0.25%	–1.217		5.01%	3.527	***
-11	0.22%	1.113		0.95%	1.058		20	0.16%	0.783		5.17%	3.602	***
-10	0.18%	0.885		1.13%	1.226		21	–0.14%	–0.708		5.03%	3.469	***
-9	–0.01%	–0.068		1.12%	1.184		22	0.08%	0.382		5.11%	3.488	***
-8	–0.04%	–0.192		1.08%	1.117		23	–0.28%	–1.374		4.83%	3.269	***
-7	0.06%	0.296		1.14%	1.154		24	–0.38%	–1.902	*	4.45%	2.983	***
-6	0.15%	0.763		1.29%	1.284		25	–0.05%	–0.265		4.39%	2.920	***
-5	0.13%	0.662		1.42%	1.388		26	0.05%	0.240		4.44%	2.926	***
-4	0.07%	0.343		1.49%	1.429		27	–0.04%	–0.195		4.40%	2.876	***
-3	0.32%	1.591		1.81%	1.704	*	28	–0.16%	–0.772		4.25%	2.751	***
-2	0.08%	0.394		1.89%	1.747	*	29	–0.04%	–0.184		4.21%	2.704	***
-1	0.56%	2.804	**	2.46%	2.230	**	30	0.12%	0.583		4.33%	2.756	***
0	0.87%	4.329	***	3.33%	2.971	***							

*, ** and *** denote significance at the 10%, 5% and 1% levels respectively. 0 = Announced date

The sample includes 238 public equity issues during 1985–1992.

Table 3

Average abnormal return and average cumulative abnormal returns for the sample of new public equity issues from 1993 to 2000

DAY	AR	t-test		CAR	t-test	DAY	AR	t-test		CAR	t-test	
-30	–0.44%	–0.980		–0.44%	–0.980	1	0.01%	0.032		3.85%	1.504	
-29	0.32%	0.708		–0.12%	–0.192	2	–0.24%	–0.538		3.61%	1.387	
-28	0.32%	0.716		0.20%	0.256	3	–0.27%	–0.601		3.34%	1.264	
-27	–0.26%	–0.567		–0.06%	–0.061	4	0.00%	–0.009		3.33%	1.244	
-26	–0.25%	–0.559		–0.31%	–0.305	5	0.17%	0.382		3.51%	1.290	
-25	–0.13%	–0.289		–0.44%	–0.396	6	–0.49%	–1.079		3.02%	1.095	
-24	–0.36%	–0.783		–0.79%	–0.663	7	–0.70%	–1.555		2.31%	0.828	
-23	0.17%	0.377		–0.62%	–0.487	8	0.37%	0.824		2.69%	0.950	
-22	–0.03%	–0.075		–0.66%	–0.484	9	0.20%	0.449		2.89%	1.009	
-21	0.12%	0.258		–0.54%	–0.378	10	–0.40%	–0.885		2.49%	0.858	
-20	–0.01%	–0.027		–0.55%	–0.368	11	0.20%	0.432		2.68%	0.914	
-19	0.05%	0.111		–0.50%	–0.321	12	–0.56%	–1.241		2.12%	0.714	
-18	–0.05%	–0.101		–0.55%	–0.336	13	–0.26%	–0.581		1.86%	0.619	
-17	0.11%	0.236		–0.44%	–0.261	14	–0.11%	–0.236		1.75%	0.577	
-16	0.14%	0.309		–0.30%	–0.172	15	–0.15%	–0.330		1.60%	0.522	
-15	–0.05%	–0.110		–0.35%	–0.194	16	0.15%	0.335		1.76%	0.565	
-14	0.26%	0.574		–0.09%	–0.049	17	–0.13%	–0.280		1.63%	0.519	
-13	0.76%	1.678	*	0.67%	0.348	18	–0.49%	–1.087		1.14%	0.358	
-12	1.09%	2.404	**	1.76%	0.890	19	–0.57%	–1.255		0.57%	0.177	
-11	–0.18%	–0.393		1.58%	0.780	20	–0.57%	–1.262		–0.01%	–0.001	
-10	0.12%	0.255		1.70%	0.817	21	–1.19%	–2.626	***	–1.19%	–0.366	
-9	–0.33%	–0.730		1.37%	0.643	22	–0.32%	–0.705		–1.51%	–0.459	
-8	0.46%	1.008		1.82%	0.838	23	–0.94%	–2.064	**	–2.45%	–0.736	
-7	1.05%	2.326	**	2.88%	1.296	24	–0.34%	–0.751		–2.79%	–0.830	
-6	0.19%	0.410		3.06%	1.352	25	–0.57%	–1.260		–3.36%	–0.991	
-5	–0.36%	–0.803		2.70%	1.168	26	–0.79%	–1.733	*	–4.14%	–1.212	
-4	–0.23%	–0.505		2.47%	1.049	27	–0.97%	–2.135	**	–5.11%	–1.482	
-3	0.17%	0.378		2.64%	1.101	28	–0.30%	–0.654		–5.41%	–1.554	
-2	0.52%	1.144		3.16%	1.295	29	–0.69%	–1.520		–6.10%	–1.737	*
-1	0.85%	1.870	*	4.01%	1.614	30	–0.31%	–0.687		–6.41%	–1.811	*
0	–0.17%	–0.366		3.84%	1.522							

*, ** and *** denote significance at the 10%, 5% and 1% levels respectively. 0 = Announced date

The sample includes 72 public equity issues during 1993−2000.

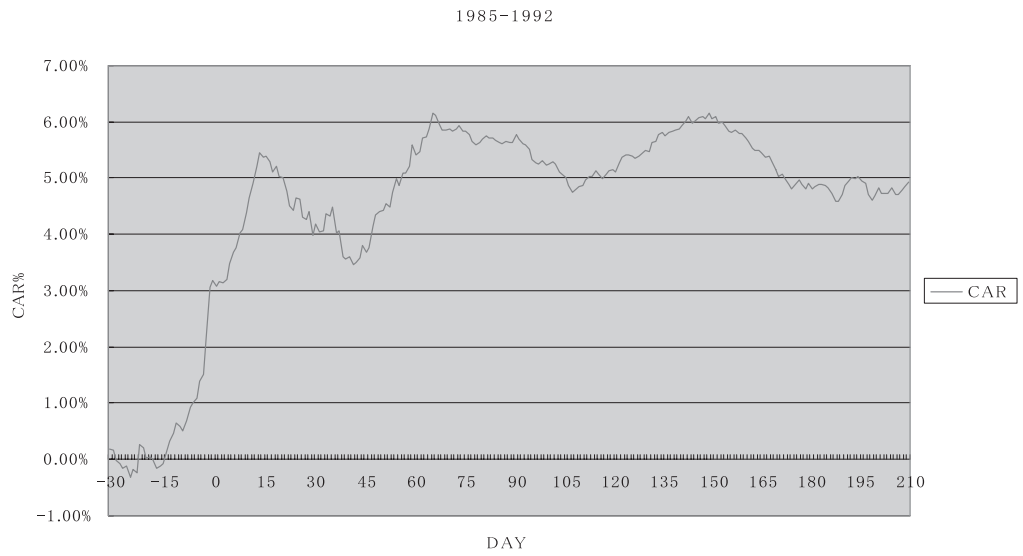

Figure 1 Average cumulative abnormal returns for the sample of new public equity issues from day -30 before announcement to day 210 after the announcement for the period 1985−1992.

before announcement until t = 15 days after the announcements. After that date, the stock price of public equity issuing firms experiences a straight downward flow for 45 days. In the long run, cumulative abnormal return is almost stable. There is no run up in share price observed.

Post-bubble period (1993−2000)

The results of average abnormal return and cumulative abnormal return for the sample of public equity issues between 1993 and 2000 are presented in Table 3. The abnormal return for the announcement day is insignificantly negative. Abnormal returns just before the announcement day $t = -1$ and on day $t = -13$ are significantly positive at 10% level and the abnormal return on day $t = -7$ and $t = -12$ are significantly positive at 5% level. Meanwhile, following the announcement day, the abnormal returns are significantly negative on day t = 21 at 1%, and days t = 23 and t = 27 at 5% level and day t = 26 at 10% level. Moreover, there are no significant positive abnormal returns after the announcements.

Figure 2 plots the cumulative abnormal returns of public equity issues during the period 1993−2000. The announcement effects are concentrated between day t = 0 and t = 4. It is observable that there is a slow downward drift from day t = 1 to day t = 14 after the announcement, but after that date there is a straight downward drift in the long run.

Whole sample period (1985−2000)

For the whole sample period, the abnormal return for the announcement day is significantly positive at 1% level. This result is much similar with Kang and Stulz (1996). Figure 3 plots the cumulative abnormal returns of public equity issues during the period 1985−2000. From the figure, it is clear that the

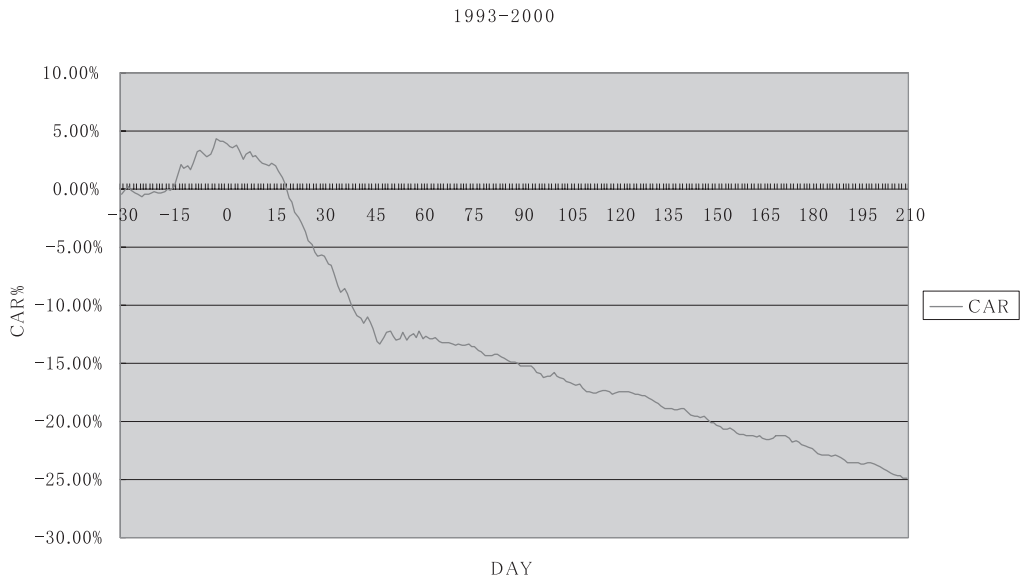

Figure 2　Average cumulative abnormal returns for the sample of new public equity issues from day -30 before announcement to day 210 after the announcement for the period 1993−2000.

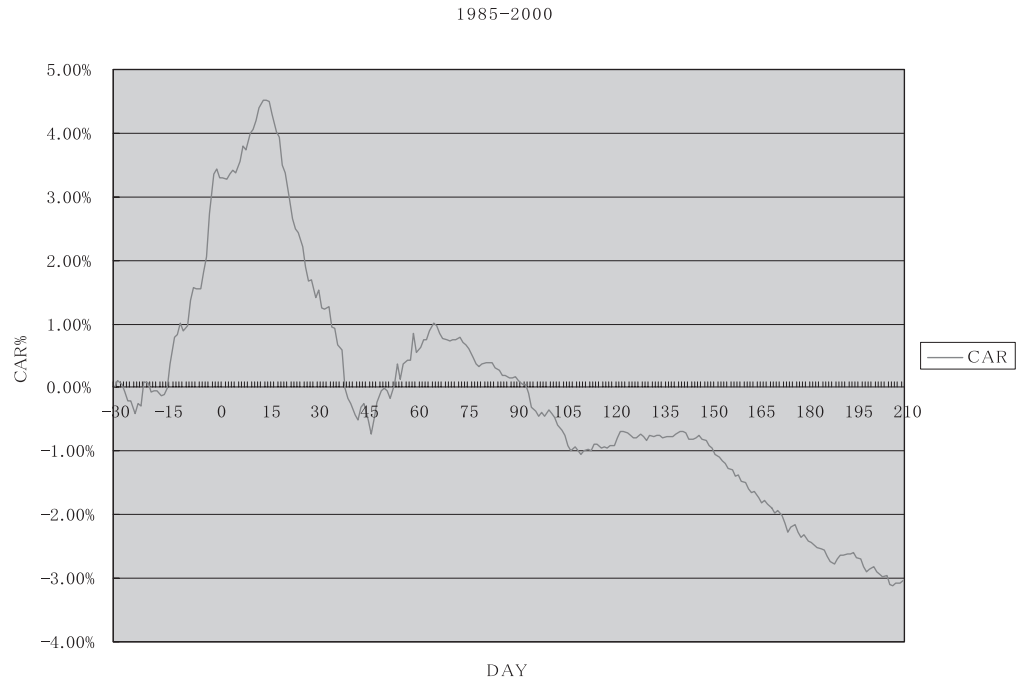

Figure 3　Average cumulative abnormal return for the sample of new public equity issues from day -30 before announcement to day 210 after the announcement for the period 1985−2000.

Table 4

Average Cumulative abnormal return around the announcement day of public offerings

Interval	1985-2000	1985-1992	1993-2000
AD 0	0.63%	0.87%	–0.17%
	(3.027)***	(4.329)***	–0.366
AD−1 to AD−30	2.815%	2.455%	4.005%
	(2.264)**	(1.858)*	(1.729)*
AD−1 to AD 0	1.259%	1.434%	0.681%
	(6.006)***	(5.383)***	(1.379)
AD−1 to AD 1	1.419%	1.638%	0.696%
	(3.021)***	(2.834)***	(0.743)
AD 1 to AD 30	–1.611%	1.002%	–10.247%
	(–1.584)	(0.999)	(–4.933)***
AD−1 to AD 30	–0.352%	2.436%	–9.566%
	(–0.253)	(1.742)*	(–3.994)***

*, ** and *** denote significance at the 10%, 5% and 1% levels respectively. AD: Announcement date;
0 = Announced date, t-statistics are in parentheses.

announcement effects are concentrated between day $t = -15$ and $t = 15$ and also, there is a straight downward drift from day $t = 15$. From these plots, the information leakage appears to occur from day $t = -15$.

4.3 Comparison of announcement effects between bubble and post-bubble period

The summary of average cumulative abnormal return around the announcement day of equity issues is presented in Table 4. In order to capture any information leakage before the announcements of public equity issues and any delayed response if the announcements had been made after close of the trading day, 3 days CAR (from day $t = -1$ to day $t = 1$) is calculated. 3 days CAR is significantly positive during 1985−1992 but insignificantly positive during 1993−2000. The positive abnormal returns provide evidence that public equity offerings during the bubble period in Japan are associated with good news. The CAR for the 30 days before the announcement day is positively significant during the bubble and the post-bubble periods. The presence of significant positive abnormal return prior to the announcement date lends support to Myers and Majluf's (1984) prediction that firms will sell seasonal equity issues after a period of share price increases. However, another plausible explanation for these positive abnormal returns is the occurrence of information leakage prior to the announcement day. This may result in speculative trading with superior information to achieve abnormal returns.

After the announcement of new equity public issues 30 days CAR is calculated (day $t = 1$ to day $t = 30$). During the bubble period, the 30 days abnormal return is insignificantly positive. In the post-bubble period, the 30 days abnormal return is significantly negative. This result also lends support to Myers and Majluf's (1984) prediction that stock price will decrease after the new equity issues.

For comparison, 32 days CAR is calculated (day $t = -1$ to day $t = 30$). During the bubble period, the 32 days abnormal return is significantly positive at 10% level and it is significantly negative at 1% level during the post-bubble period.

4.4 Stock price performance of public equity issues in the long run

Kang et al. (1999) find that in Japan, new equity issuing firms' long-term equity performance is poor (except for right equity issues) compared to non-issuing firms even though the stock price reaction to convertible debt and equity issues is not negative when the issue announcement is made.[11] Loughran and Ritter (1995) and Spiess and Affleck-Graves (1995) show that seasoned equity issues in the United States are followed by abnormally low stock returns for five years.

We find that public equity issuing firms are performing well in the long run for the period 1985−1992, but the equity issuing firms are performing poorly during the period 1993−2000. It is clear that cumulative abnormal returns exhibit a downward drift during the post-bubble as opposed to the bubble period.[12] Though the findings for the period 1985−1992 are in contrast to Kang et al. (1999), the findings are consistent for the period 1993−2000.

5 Cross-sectional Analysis

5.1 Methodology and Variables

To inspect combined effects of various relevant variables in order to shed light on the competing hypotheses, the following multivariate regressions are estimated to examine the magnitude of the stock price reaction to the new equity issues announcements. In order to verify surrounding the announcements days effects, the regressions are estimated using 3-day CAR (day $t = -1$ to day $t = 1$), 30-day CAR (day $t = 1$ to day $t = 30$) and 32-day CAR (day $t = -1$ to day $t = 30$) as dependent variables. The explanatory variables: offered amount to market value of firm (OAMV), directors' share holding ratio (DIR), dividend payout ratio (POR), market value leverage (MVL), price (LP), q ratio (QRA), expected q ratio (EQR), innovation of q ratio (IQR), total investment ratio (TINVR), net cash flow (NCF) and debt change rate (DCR) are chosen to test competing hypotheses.[13] Some of these variables are commonly used as proxies for various hypotheses in other studies. To our knowledge, the variables i.e. QRA, EQR, IQR and DCR are not used in the previous studies. The q variables are introduced to explain the impact of profitability of the firms on abnormal returns when new public equity issues are announced.

$$\text{Model 1:CAR} = \alpha_0 + \beta_1 \text{OAMV}_i + \beta_2 \text{MVL}_i + \beta_3 \text{DIR}_i + \beta_4 \text{POR}_i + \beta_5 QRA_i + \beta_6 \text{TINVR}_i + \beta_7 \text{NCF}_i + \beta_8 \text{LP}_i + \beta_9 \text{DCR}_i + \varepsilon_i$$

---

[11] Kang, Kim and Stulz (1999) investigate for the sample period 1980−1988.

[12] See figures 2 and 3.

[13] Q ratio (QR) is measured as return on asset for year t divided by interest rate of fiscal year. QRA is the return on asset for the year t-1 divided by the interest rate of previous fiscal year.

EQR is calculated as

$$ROA_t = \alpha_0 + \sum_{i=1} \alpha_1 ROA_{t-i} + \varepsilon_t$$

$$ROA^e_{t+1} = \hat{\alpha}_0 + \hat{\alpha}_1 ROA_t + \hat{\alpha}_2 ROA_{t-1}$$

$$EQR = ROA^e / i$$

Where; i = interest rate

IQR is the innovation of QR (QR − EQR)

$$\text{Model 2:CAR} = \alpha_0 + \beta_1 \text{OAMV}_i + \beta_2 \text{MVL}_i + \beta_3 \text{DIR}_i + \beta_4 \text{POR}_i + \beta_5 \text{TINVR}_i + \beta_6 \text{NCF}_i + \beta_7 \text{LP}_i + \beta_8 \text{ECR}_i + \beta_9 \text{IQR}_i + \beta_{10} \text{DCR}_i + \varepsilon_i,$$

where:

Offered amount to market value of firm (OAMV): Krsker (1986) generalizes the model of Myers and Majluf (1984) and concludes larger issues are associated with greater adverse selection costs. Millar and Rock (1985) also hypothesize a negative relationship between issue size and the stock price reaction to the announcement of the new equity issues. In Millar and Rock's model, large unanticipated external financing conveys negative information about internal cash flows from operations. Therefore, it is predicted that abnormal return will be negatively related to offered amount to market value of firm. Asquith and Mullins (1986) use the variable OAMV as a proxy to test the price pressure hypothesis. Hence, OAMV is negatively related to the abnormal return under the price pressure hypothesis.

Dividend payout ratio (POR): Larger dividend payments are associated with larger internally generated cash flows from operations. Therefore, dividend payment increases represent good news for investors, which could result in positive association with stock price under the signaling hypothesis. But under the pecking order hypothesis, the association between dividend ratio and abnormal return is predicted to be negative or zero. The framework in Myers and Majluf (1984) implies that the higher the level of asymmetric information, the higher the likelihood of underinvestment. Myers and Majluf suggest that a firm can reduce underinvestment by increasing the amount of slack through retention, which implies lower dividends.

Directors' share holding ratio (DIR): It is predicted to have a positive association with abnormal returns under the agency cost theory.

Market value leverage (MVL): With tax advantages from debt financing, a new equity issue may reduce a firm's stock price if it reduces the firm's debt ratio (Modigliani and Miller, 1963). In addition, an unexpected reduction of financial leverage will reduce the risk of the firm's outstanding debt and consequently result in a wealth transfer from shareholders to bondholder. Thus, seasoned equity issues are associated with negative abnormal returns as the firm's debt to equity ratio increases (DeAngelo and Masulis, 1980; Masulis, 1983)

Q ratio (QRA): This is the proxy for profitability, which is predicted to be positively correlated with abnormal returns.

Expected Q ratio (EQR): This variable is a proxy for future profitability. Positive association between expected profitability and abnormal return is predicted.

Table 5

Hypothesized signs of variables on abnormal return to the new equity issues

Variables	MM Hypothesis	Pecking order	Signaling Hypothesis	Agency cost
Dividend payment ratio	?	-	+	+
Price change rate	0	-	+	?
Offered amount/Market value	-	-	?	?
Director's shareholding ratio	?	?	+	+
Market value leverage	+	+	-	-
Return on asset/Interest	+	+	+	?
Expected return on asset/Interest	+	+	+	?
Innovation of return on asset/Interest	+	+	+	?
Total Investment ratio	+	+	+	-
Net cash flow	0	+	+	+
Δ Debt rate	0	+	-	?

Innovation of Q ratio (IQR): This variable is a proxy for current and expected profitability and it is expected to be in positive association with abnormal returns.

Total investment ratio (TINVR): In order to test investment/capital and research and development expenditure effect on abnormal return, this variable is used. McConnell and Muscarella (1995) found that share prices react positively to simultaneous announcements of investment opportunities or capital expenditure during announcements of seasoned equity issues. We hypothesize that there will be positive relationship between capital expenditure and abnormal return.

Net cash flow ratio (NCF): This variable is a proxy for the cash flow and positive association with abnormal return is predicted under the pecking order hypothesis.

Debt change rate (DCR): To test the impact of debt change on the abnormal return, this variable is included in the regression analysis. Under the rescue or financial restructure hypothesis, association with abnormal return is predicted to be positive.

Price (LP): To inspect the previous fiscal year-end price effect on abnormal return, the LP variable was tested. Under the price pressure hypothesis, price should be negatively associated with the abnormal return. Myers and Majluf also hypothesized that firms undertake public offerings of seasoned equity only after a period of share price increases. Therefore, it is hypothesized that there will be a negative relationship between LP and the abnormal return.
The hypothesized signs of the independent variables are presented in Table 5.

5.2 Shareholders' equity purchasing ratio

Public equity issues purchasing ratio by the shareholders is presented in Table 6. During the bubble period, individual investors and financial institutions have bought 24% and 22% of shares respectively. 10

Table 6

Shareholders' public equity purchasing ratio

	1985-2000		1985-1992		1993-2000	
Type of shareholders	Yen (Million)	%	Yen (Million)	%	Yen (Million)	%
10 largest shareholders	1,738,353	15.32%	1,175,448	13.66%	562,905	20.49%
Block shareholders	1,623,068	14.30%	1,180,674	13.73%	442,394	16.10%
Mutual funds	563,025	4.96%	389,150	4.52%	173,875	6.33%
Directors	176,373	1.55%	26,111	0.30%	150,262	5.47%
Financial institutes	2,337,582	20.60%	1,931,362	22.45%	406,220	14.78%
Underwriters and investment bankers	249,726	2.20%	233,978	2.72%	15,748	0.57%
Other firms	1,348,398	11.88%	1,080,927	12.57%	267,471	9.73%
Foreign investors	806,805	7.11%	510,173	5.93%	296,632	10.79%
Individual investors	2,506,717	22.09%	2,074,336	24.11%	432,381	15.74%
Total	11,350,047	100%	8,602,159	100%	2,747,888	100%

largest shareholders, block shareholders, financial institutions and individual investors have bought shares much more than others during the post bubble period. We can observe in Table 7 that purchasing ratio by the individual shareholders decreases but the purchasing ratio by the 10 major shareholders and block shares increase during the post-bubble period.

5.3 Findings: Multivariate Regression Analysis

Bubble period (1985−1992)

Table 7 presents the multivariate regression results for the bubble period. During this period, the regression results based on 3-day CAR in Model 1 and 2 indicate that amount offered to market value, market value leverage and directors shareholding ratio are insignificantly negatively associated with abnormal returns.

The coefficient of variable LP is significantly negatively associated with 3-day cumulative abnormal returns in Model 2. Also, the variable LP is significantly negatively associated with 30-day and 32-day CAR in Model 1 and 2. This finding is further consistent with a suggestion by Myers and Majluf (1984).

The profitable variables EQR and IQR are significantly positively related to 3-day CAR. These profitable variables are insignificantly negatively associated with 30-day CAR while insignificantly positively associated with 32-day abnormal return. The regression results based on 3-day CAR show that the variable QRA has an insignificant negative coefficient, but it has insignificantly positive coefficient based on 30-day and 32-day CAR. However, DCR is significantly positively associated with 3-day abnormal return in Model 1. We do not find any other significant effects during this period.

Hence, the regression results for the bubble period imply that stock price effect on the announcements day is due to expected profitability and price while the effects after the announcements are due to price only. Insignificant regression results of NCF and TINVR are supporting evidence to the value maximization hypothesis. The variable for dividend payment is insignificantly negatively associated. This shows that investors are indifferent to the level of dividend payments. Signaling hypothesis is not supported.

Table 7

Multivariate regression results of cumulative abnormal returns on firm characteristics: Bubble period (1985-1992)

	3-day CAR		30-day CAR		32-day CAR	
Regression	Model1	Model2	Model1	Model2	Model1	Model2
C	0.0757	0.0810	0.1999	0.1835	0.2861	0.2716
	(2.067)**	(2.228)**	(2.087)**	(1.908)*	(2.731)***	(2.579)***
OAMV	–0.0017	–0.0023	–0.0032	–0.0030	–0.0043	–0.0044
	(–0.758)	(–0.898)	(–0.536)	(–0.509)	(–0.662)	(–0.678)
MVL	–0.0038	–0.0074	–0.0269	–0.0187	–0.0334	–0.0257
	(–0.214)	(–0.440)	(–0.587)	(–0.423)	(–0.665)	(–0.531)
DIR	–0.0004	–0.0004	0.0012	0.0012	0.0011	0.0011
	(–0.677)	(–0.633)	(0.671)	(0.664)	(0.606)	(0.612)
POR	0.0004	–0.0001	0.0004	0.0002	0.0006	0.0002
	(0.650)	(–0.012)	(0.282)	(0.762)	(0.396)	(0.714)
QRA	–0.0072		0.0134		0.0106	
	(–1.216)		(0.862)		(0.619)	
TINVR	0.0042	0.0026	0.0055	0.0082	0.0102	0.0123
	(1.236)	(0.826)	(0.614)	(0.998)	(1.051)	(1.364)
NCF	–0.0009	–0.0002	–0.0075	–0.0079	–0.0095	–0.0088
	(–0.099)	(–0.024)	(–0.306)	(–0.321)	(–0.351)	(–0.327)
LP	–0.0180	–0.0213	–0.0618	–0.0555	–0.084	–0.0799
	(–1.569)	(–1.852)*	(–2.058)**	(–1.843)*	(–2.565)**	(–2.419)**
EQR		0.0187		–0.0133		0.0036
		(2.439)**		(–0.652)		(0.162)
IQR		0.0188		–0.0135		0.0035
		(2.449)**		(–0.661)		(0.156)
DCR	0.0019	0.0018	0.0015	0.0018	0.00241	0.0026
	(1.655)*	(1.563)	(0.510)	(0.590)	(0.731)	(0.784)
R^2	0.0391	0.0626	0.0343	0.0373	0.0477	0.0481
Adjusted R^2	0.0012	0.0207	–0.0038	–0.0051	0.0101	0.006
N	238	238	238	238	238	238

The dependent variables are the 3-day CAR (day $t = -1$ to day $t = 1$), 30-day CAR (day $t = 1$ to day $t = 30$) and 32-day CAR (day $t = -1$ to day $t = 30$). OAMV is offered amount in year t / market value of equity at the end of year t-1. DIR indicates shareholding ratio of directors. POR is dividend payout ratio for the previous year. Q ratio (QR) is measured as return on asset for year t divided by interest rate of fiscal year. QRA is the return on asset for the year t-1 divided by the interest rate of previous fiscal year. EQR indicates the expected Q ratio; IQR is the innovation of QR (QR-EQR). Market Value Leverage (MVL) is the end of year prior to the new issues. Log price (LP) is the natural log of the price at the year-end prior to the issuing year. Δ Debt rate (DCR) is calculated as at the end of current fiscal year debt minus at the end of previous fiscal year debt and divided by at the end of previous year debt. TINVR is measured as investment plus research and development expenditure and divided by at the end of previous fiscal year book value of depreciable asset. Net cash flow (NCF) defined as the ratio of current profit for the year t-1 plus depreciation and amortization for the year t-1to the book value of asset for the year t-1.　*, ** and *** indicate statistical significance at the 10% , 5% and 1% level, respectively. The t-statistics are in the parentheses.

Table 8

Multivariate regression results of cumulative abnormal returns on firm characteristics: Post-bubble period (1993–2000)

	3-day CAR		30-day CAR		32-day CAR	
Regression	Model1	Model2	Model1	Model2	Model1	Model2
C	0.0856	0.0385	0.3232	0.2731	0.3731	0.2878
	(0.576)	(0.297)	(0.944)	(0.868)	(1.015)	(0.860)
OAMV	–0.0624	–0.0742	–0.1470	–0.1632	–0.1807	–0.2020
	(–0.551)	(–0.715)	(–0.564)	(–0.644)	(–0.645)	(–0.756)
MVL	–0.0770	–0.0485	–0.1822	–0.1481	–0.2543	–0.2008
	(–1.071)	(–0.755)	(–1.103)	(–0.942)	(–1.433)	(–1.213)
DIR	–0.0005	–0.0007	–0.0006	–0.0002	–0.0003	–0.0006
	(–0.994)	(–1.373)	(–0.006)	(–0.199)	(–0.272)	(–0.562)
POR	–0.0007	0.0001	–0.0016	–0.0014	–0.0015	–0.0012
	(–0.222)	(0.436)	(–2.181)**	(–2.198)**	(–1.925)*	(–1.786)*
QRA	0.0039		0.0049		0.0071	
	(2.811)***		(1.535)		(2.075)**	
TINVR	0.0128	–0.0039	0.0357	0.0128	0.0418	0.0118
	(0.529)	(–0.174)	(0.645)	(0.233)	(0.703)	(0.203)
NCF	–0.0125	–0.0133	0.1205	0.1202	0.0955	0.0951
	(–0.351)	(–0.406)	(1.475)	(1.514)	(1.089)	(1.136)
LP	–0.0203	–0.0076	–0.1136	–0.1006	–0.1213	–0.0983
	(–0.483)	(–0.206)	(–1.176)	(–1.124)	(–1.168)	(–1.043)
EQR		0.0086		0.0117		0.0158
		(4.608)***		(2.554)**		(3.272)***
IQR		0.0087		0.0117		0.0159
		(4.616)***		(2.558)**		(3.279)***
DCR	0.0346	0.0165	0.0443	0.0187	0.0721	0.0382
	(1.345)	(0.666)	(0.750)	(0.319)	(1.135)	(0.616)
R^2	0.2219	0.3599	0.1275	0.1871	0.1564	0.2431
Adjusted R^2	0.1089	0.2550	0.0008	0.0539	0.0339	0.1189
N	72	72	72	72	72	72

The dependent variables are the 3-day CAR (day $t = -1$ to day $t = 1$), 30-day CAR (day $t = 1$ to day $t = 30$) and 32-day CAR (day $t = -1$ to day $t = 30$). OAMV is offered amount in year t / market value of equity at the end of year t-1. DIR indicates shareholding ratio of directors. POR is dividend payout ratio for the previous year. Q ratio (QR) is measured as return on asset for year t divided by interest rate of fiscal year. QRA is the return on asset for the year t-1 divided by the interest rate of previous fiscal year. EQR indicates the expected Q ratio; IQR is the innovation of QR (QR-EQR). Market Value Leverage (MVL) is the end of year prior to the new issues. Log price (LP) is the natural log of the price at the year-end prior to the issuing year. Δ Debt rate (DCR) is calculated as at the end of current fiscal year debt minus at the end of previous fiscal year debt and divided by at the end of previous year debt. TINVR is measured as investment plus research and development expenditure and divided by at the end of previous fiscal year book value of depreciable asset. Net cash flow (NCF) defined as the ratio of current profit for the year t-1 plus depreciation and amortization for the year t-1to the book value of asset for the year t-1.

*, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. The t-statistics are in the parentheses.

Post-bubble period (1993–2000)

The multivariate regression results for the post-bubble period are reported in Table 8. The regression results indicate that the variables QRA, EQR and IQR are significantly positively related to 3-day and 32-day cumulative abnormal return. The variables EQR and IQR are also significantly positively related to 30-day CAR and QRA has an insignificant positive coefficient during this period. These results support the value maximization hypothesis.

Insignificant negative association of the variables OAMV, MVL and DIR show that investors are indifferent to the OAMV, level of leverage and directors' shareholding ratio.

The variable LP is insignificantly negatively associated with 3-day, 30-day and 32-day CAR during the period. The effect of this variable is consistent with Myers and Majluf (1984).

The coefficient for dividend payment is significantly negatively related to 30-day as well as 32-day CAR and it is insignificantly associated with 3-day CAR. These results suggest the inconsistence of the signaling hypothesis. But these results support the Myers and Majluf (1984) prediction. We do not find any other significant effects on CAR.

Whole sample period (1985–2000)

In the multivariate regression analysis for the whole sample period, which is not presented here, it was found mixed results supporting to the value maximization, price pressure and agency hypothesis.

6　Concluding remarks

This paper investigates the stock price reaction to new public equity issues announcements during the bubble and post-bubble periods. New public equity issues keep decreasing after bubble period. We find a significantly positive stock price reaction to the new public equity issues on the announcement day (0.87% significant at 1% level) during the period 1985–1992 and an insignificant negative stock price reaction on the announcement day (–0.17%) during the period 1993–2000. Positive stock price reaction during the bubble period is much similar to Kang and Stulz (1996) and Kato and Schallheim (1992). In contrast with Kang and stulz, it finds a negative abnormal return (insignificant) during the post-bubble period, which is consistent with previous theoretical concepts.

In the regression analysis for the bubble period, it finds that 3-day CAR is significantly positively related to current and future profitability variables and debt change rate while it is significantly negatively associated with price. Also, LP is significantly negatively associated with 30-day CAR and 32-day CAR. The association of variable LP is consistent with Myers and Majluf (1984) and the price pressure hypothesis.

During the post-bubble period, only the variables of profitability are　significantly positively related to 3-day CAR. Current and future profitability variables are significantly positively related with 30-day CAR, too. Moreover, dividend payment ratio is significantly negatively associated with 30-day CAR. Regression results using 32-day CAR show further evidence for the future profitability impact on new equity issues during the post-bubble period. The regression results based on 32-day CAR indicate that the profitable variables are significantly positive and dividend payment ratio is significantly negative during the post-bubble period. It is notable that the variable LP is insignificantly negatively associated in all

cases during this period.

In contrast to previous studies, that abnormal return on the announcement of new equity issues is explained by the asymmetric information, leverage, agency, and signaling, the stock price reaction is explained by profitability in Japan. Specially future profitability has the explanatory power to explain the positive abnormal return during bubble period. Also, there is a price pressure effect on the new public equity issues during the bubble period. The abnormal return is explained by current and future profitability during the post-bubble period. Signaling hypothesis is not explained by the variable during both periods. Therefore, we conclude that Japanese capital market is becoming efficient after the bubble period.[14]

What we emphasize in this study that the future profitability has the explanatory power to explain the stock price reaction on the announcements of public equity issues compared to other factors.[15] It is notable that when we regressed without profitability variables, we got mixed results of a few hypotheses which weakly support to pecking order hypothesis with some inconsistent outcome.

In addition, it was found in a regression that offered amount to market value is also significantly negative during bubble period and insignificantly negative during the post-bubble period whereas the variables for profit are significantly positive. Asquith and Mullions (1986) use the variable OAMV as a proxy for price pressure hypothesis. Accordingly, these results support to our conclusion that market efficiency has been improved after the bubble period.

Acknowledgements

The authors would specially like to thank to Professor. Yazuhiro Yonezawa,Waseda University, for his guidance and encouragement at the early stage of this paper and Professor. Yukihiro Asano and Professor. Hiroshi Morita for their helpful comments.

References

Adedeji, A., 1998. Does the Pecking Order Hypothesis Explain the Dividend Payout Ratios of Firms in the UK, *Journal of Business Finance and Accounting* 25 (9), 1127−1155.

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

Ball, R., Brown, P., 1968. An empirical evaluation of accounting income figures. *Journal of Accounting Research*, 159 −178 (Autumn).

Baskin, J.,1989. An Empirical Investigation of the Pecking Order Theory, *Financial Management*, 18, 26−35

Bowyer,Jr.J. and J.Yawitz, 1980. The effect of New equity issues on utility stock prices, *Public Utilities Fortnightly* 105, 25−28

Christensen, D.G.,Faria, H.J.,Kwok, C.C.Y.,Bremer,M.,1996. Does the Japanese stock market react differently to public security offering announcements than the US stock market?, *Japan and the World Economy*, 99−119.

[14] We checked the serial correlation of abnormal return after the new equity issues announcement. It is found that an improvement of serial correlation during the post bubble period than bubble period which support the improvement of market. Estimation $AR_{it} = Ci + \rho_i \ AR_{i,t-1} + €_{it}$ H0: $\rho_i = 0$ is not rejected at 5% level. The regression results for bubble period for the sum of 218, FRHO is 91.59 and for the post-bubble period for the sum of 69 FRHO is 95.83.

[15] In order to check the effect of change of stockholding structure of the firm, we regressed with the variable of change rate of 10 largest stockholder's holding ratio, where it was found that the 10 largest shareholding change rate does not have the explanatory power. This results further supports to our conclusion.

Cooney, John W.,Jr. and Anver Kalay, 1993. Positive information from equity issue announcement, *Journal of Financial Economics* 33, 149−172.

DeAngelo,H.,Masulis, R.W.,1980. Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics* 32, 293−332.

Donaldson, G., 1961. Corporate Debt Capacity: A Study of Corporate Debt Policy and the Determinants of Corporate Debt Capacity. *Harvard Business School, Boston*.

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

Fama, E.F., Fisher, L., Jensen, M.C., Roll, R., 1969. The adjustments of stock price to new information. *International Economic Review* 10, 1−21.

French, K.R. 1980. Stock returns and the weekend effect, *Journal of Financial Economics* 8, 55−69.

Frank,M.Z and Goyal,V.K.,2003. Testing the pecking order theory of capital structure, *Journal of Financial Economics* 67,217−248.

French,K. and Fama,E.F.,2005. Financing decisions: Who issues stock? *Journal of Financial Economics* 76, 549−582.

Fukuda, A., and Hirota, S., 1996. Main bank relationships and capital structure in Japan, *J. Japan. Int. Econ.* 10, 250−261.

Grabowksi and Mueller 1972, Managerial and stockholder welfare models of a firm expenditures, *Review of Economics and statistics* 54, 9−24

Griner, E. H. and Gordon, L. A., 1995. Internal Cash Flow, Insider Ownership, and Capital Expenditures: A Test of the Pecking Order and Managerial Hypothesis, *Journal of Business Finance and Accounting* 22, 179−197.

Gultekin and Gultekin,1983. Stock market seasonality: International evidence, *Journal of Financial Economics* 12, 469−481.

Hanaeda, H.,1993. Seasoned Equity Issues in Japan, in S.Takagi (ed.), *Japanese Capital Market*, Basil Blackwell, Oxford.

Hertzel,M. and R. Smith, 1993. Market discounts and shareholder gains for placing equity privately. *Journal of Finance* 48, 458−485.

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

Ikeo, K., and Hirota, S., 1992. Kigyo no ShihonKosei to Mein Bankyu [Corporate capital structure and the main bank in Japan], *in" Gendai Nihon no Kinyu Bunseki* [Structural Analyses of the Japanese Financial System]" (A. Horiuchi and N. Yoshino, Eds.), 39−71, Univ. of Tokyo Press, Tokyo.

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.K., Kim, Y.C. and Stulz, R.M.,1999. The Under reaction Hypothesis and the New Issue Puzzle: Evidence from Japan. *The Review of Financial Studies* 12, 519−534.

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

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

Keim, D.1983. Size-Related Anomalies and stock return seasonality: Further Empirical Evidence, *Journal of Financial Economics* 12, 13−32.

Krasker, W.S, 1986. Stock price movements in response to stock issues under asymmetric information, *Journal of Finance* 41, 93−105.

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

Lintner, J.,1956. Distribution of Incomes of Corporations among Dividends, Retained Earnings, and Taxes, *American Economic Review* 46, 97−113.

Loderer, C., Zimmerman, H., 1988. Stock offerings in a different institutional setting: the Swiss case, 1973−1983, *Journal of Banking Finance* 12, 35−378.

Loughran,T. and Ritter,J.R., 1995. The new issues puzzle, Journal of Finance 50, 23−51.

Lucas, Deborah and Robert McDonald, 1990. Equity issues and Stock price dynamics, *Journal of Finance* 45, 1019−1044.

Masulis, R.W.,1983. The impact of capital structure change on firm value: Some estimates, *Journal of Finance* 38, 107−129.

McConnell,J.J.,Muscarella, C.J.,1985. Corporate capital structure decisions and the market value of the firm. *Journal*

of Financial Economics 14, 399−422.
Masulis, Ronald W., and Ashok W. Korwar, 1986. Seasoned Equity Offerings: An Empirical Investigation, *Journal of Financial Economics* 15, 91−118.
Mikkelson, W. H. and Partch, M. M.,1986. Valuation Effects of Security Offerings and the Issuance Process, *Journal of Financial Economics* 15, 31−60.
Miller, M., Rock, K., 1985. Dividend policy under asymmetric information, *Journal of Finance*, 40, 1031−1052.
Modigliani, F., and Miller, M. H.,1958. The cost of capital, corporate finance, and the theory of investment, *American Economic. Review* 48, 261−297.
Modigliani, F., and Miller, M. H.,1963. Corporate income taxes and the cost of capital: A correlation , *American Economic. Review* 53, 433−443.
Myers, S.C., 1984. The capital structure puzzle, *Journal of Finance* 39, 575−592.
Myers, S., and Majluf, N., 1984. Corporate financing and investment decisions when firms have information that investors do not have, *Journal of Financial Economics* 13, 187−221.
Pettway, R.H., K. Takasai and M.T. Young, 1991. International bank capital standards and the costs of issuing capital securities by Japanese banks, *Journal of Banking and Finance* 15, 559−580.
Ross,S.,1977.The determination of financial structure: The incentive-signaling approach, *Bell Journal of Economics* 8, 23−40.
Schoes, M.S., 972. Market for securities: Substitution versus price pressure and the effects of information on share prices. *Journal of Business* 45 (April), 179−211.
Sharpe, W.F., 1964. Capital asset prices: A theory of market equilibrium under condition of risk. *Journal of Finance* 19, 425−442.
Smith, C.W., Watts, R.L., 1992. The investment opportunity set and corporate financing, dividend, and compensation policies, *Journal of Financial Economics* 32, 263−292.
Shyam-Sunder, L. Myers, S. C., 1999. Testing the Static Trade-off Model against Pecking Order Model of Capital Structure, *Journal of Financial Economics* 51, 219−244.
Spiess, D.K. and Affleck-Graves,J.,1995. Underperformance of long-run returns following seasoned equity offerings, *Journal of Financial Economics* 38, 243−267.
Stephen P. Ferris, Gregory Noronha, Thomas McInish, 1997. New equity offerings in Japan: an examination of theory and practice, *Journal of International Financial Markets, Institutions and Money* 7,185−200.
Stulz, R.M.,1988. Managerial control of voting rights: Financing policies and the market for corporate control, *Journal of Financial Economics* 20, 25−54.

〔Athambawa Jahfer, Professor, Faculty of Management and Commerce, South Eastern University of SriLanka〕
〔Tohru Inoue, Professor, International Graduate School of Social Sciences, Yokohama National University〕
〔2009年３月18日受理〕