



Title	Realities in Tokyo Stock Exchange
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Citation	Economic journal of Hokkaido University, 32, 151-159
Issue Date	2003-07
Doc URL	http://hdl.handle.net/2115/5384
Type	bulletin (article)
File Information	EJHU_v32_p151-159.pdf



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Realities in Tokyo Stock Exchange

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This paper empirically examines the going public decision of 82 companies in Tokyo Stock Exchange (TSE) Market during 1997-2001 periods. In contrast to Jasdac OTC market, most retail & wholesale and service companies, rather than IT companies prefer TSE. The empirical evidence of this paper shows that there is also bubble-underpricing phenomenon in TSE particularly in 1999.¹⁾ This study reports that IPOs listed in TSE are generally old and high-sales firms. Moreover, it is remarkable to note that most of IPOs are managed with traditional style that major shareholder and CEO are same persons.

JEL Classification Numbers : G32, G24

Key Words : IPO, Tokyo Stock Exchange

1. Introduction

A number of papers show underpricing phenomenon. Extended literatures document characteristics of IPO firms and their accounting information. Due to boom in IT sector, initial returns of IPOs show tremendous performance. Recent study by Ljungqvist and William (2002) documented "dot.com" underpricing in the United States. Their papers showed that the initial return is very high during the boom of technology IPOs. The increase in initial return is attributed going public decision of IT particularly communication companies. In Japan many IT companies prefer going public in OTC (Jasdac). In addition, hard listing conditions of TSE make many small sized firms go public in Mothers and Nasdaq Japan that are recently established. The Japanese IPO market is comparable to the US market in terms of size, depth, yet possesses a few distinctive features such as management style of companies. Unlike OTC market, old and traditionally managed companies prefer TSE.

While previous empirical studies have examined the underpricing in Japanese stock markets, this study will contribute to the extant literature by examining both the price adjustment and management style of IPO company.

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I thank Professor Yasuyuki Hamada for providing data from Nomura Securities and helpful comments.

1) Underpricing, initial return and first-day return are used as synonyms in this paper.

The structure of the paper is organized as follows. Section 2 describes IPO literatures, Section 3 describes the sample, data source and methodology. Section 4 reports empirical results. Finally, Section 5 concludes.

2. Literature Survey

Numerous studies have found that initial public offerings are generally underpriced. There are several explanations about underpricing. Among them signaling hypothesis, winner's curs, market feedback hypothesis and informational cascades are popular ones. Allen and Faulbert (1989), Grinblatt and Hwang (1989), Welch (1989) formulized that underpriced IPOs "leave a good taste" for investors. In this strategy it is supposed that IPOs will be followed with seasoned offerings. Beatty and Ritter (1986), Rock (1986) based their explanations on the information asymmetry. Indeed, investors face an adverse selection problem. That is, informed investors get which they ask for. Other investors are allocated a smaller fraction of most desirable new issuers. According to market feedback hypothesis underwriters may underprice IPOs to induce investors to reveal information during pre-issue period. This hypothesis is closely related to partial adjustment phenomenon that many of researchers claim that level of underpricing depends on the price adjustment in the offer price range. In their paper, Benveniste and Spindt (1989), Hanley (1993), Habib and Ljungqvist (2001) showed that there is a relation between initial return and revisions in the offer price from the filing of the preliminary prospectus to the offer date. Information and demand gathered by underwriters affect the final offer price, size of the issue and hence, level of underpricing. Issues that have upward revisions in the offer price are thus hypothesized to have favorable information revealed during pre-issue period and also show greater underpricing than other IPOs. Underpricing the IPO, however, may develop bandwagon effects. Issuers may want to underprice an issue to induce a cascade in which potential investors pay attention to other investors purchasing and follow those purchases.

In IPO the shareholders are much concerned about the value of offerings. Particularly when there are lots of secondary shares offerings, it directly affects the wealth of shareholders. The offsetting adjustments of primary and secondary shares usually depend on demand of investors during book building process. The wealth-maximizing behavior of shareholders is consistent with the level of underpricing. The willingness of selling shareholders is associated with convincing power of underwriters, operating performance and characteristics of IPO companies. Young firms are the ones rarely have secondary offerings. IPOs in TSE usually tend to offer more shares especially primary shares. It is observed that old firms that prefer going public in TSE issue more shares

and the fraction of total number of shares offered to pre-issue shares is high. Ang et al (2003) reported that when revealed demand is strong, insiders issue more shares (primary and/or secondary). The amount of the offering secondary shares, effect might have been reflected in the pre-offer pricing.

Recent studies show convincing evidence that huge progress in technology stipulates the IPO market. In their paper, Loughran and Ritter (2001) reported 71.7% initial return in 1999 and 56.2% in 2000. During the internet bubble the average first day return in US roughly doubled comparing to 1980's and 1990's. Concerning the Japanese initial return, Hebner and Hiraki (1993) examined 350 listed IPOs and documented 32% initial return. Cai and Wei (1997) studied initial and long-term performance of IPOs listed on the Tokyo Stock Exchange (TSE). They reported 48.7% initial return for 180 IPOs over the period of 1971-92. Furthermore, Beckman et al (2001) studied underpricing in Japan between 1980-1998 reported mean 31.5% initial return.

3. Data and Methodology

The sample size consists of 82 IPOs in Tokyo Stock Exchange Market. The sample period is from 1997 to 2001. The book building system was introduced in the late of 1997 in Japan. Therefore, some of the IPOs in 1997 were on auction basis. Nomura Securities data base provides detailed offering information such as number of the shares offered by the firm, offer and closing price and accounting information of each firm prior to floatation such as sales, net income have been obtained from Nomura Securities. Kaisha Shiki Ho (Japan Company Handbook) provides industry classification of each IPO of several versions since 1997. TOPIX index prices are taken from Nihon Kezai Shimbun.

Initial return is calculated as percentage change of the price of stock i from offer price ($p_{i,o}$) to the first day price of time t ($p_{i,t}$).

$$IR_{i,t} = \frac{p_{i,t}}{p_{i,o}} - 1 \quad (1)$$

Revision in the offer price range is changing from final offer price to expected offer price where $p_{i,o}$ final offer price and $p_{i,e}$ expected price is. Expected offer price is the midpoint of maximum and minimum offer price.

$$\Delta P = \frac{p_{i,o}}{p_{i,e}} - 1 \quad (2)$$

Multiple regression results show the determinants of underpricing in TSE. In all models, initial return is dependent variable. All variables are chosen on the basis of their association with initial return.

$$IR = \varphi_0 + \varphi_1 LNAGE + \varphi_2 TSE + \varphi_3 RVS + \varphi_4 MNG + \varphi_5 OFFER + \varepsilon \quad (3)$$

The subsets of variable descriptions are listed here :

LNAGE : is the natural logarithm of the age of the company, calculated by subtracting the foundation year of the firm from the year of IPO. This variable is used as a proxy for ex-ante uncertainty. It is expected to have inverse relation between age of company and initial return.

MNG : is dummy variable which takes on the value of 1 if firm's CEO and major shareholder is not same person, 0 for others. This variable reflects the internal control of the company. Indeed, old firms in Japan are assumed to be managed by major shareholder. The role of the CEO may affect the date of IPO, underwriter choice, and investors' decision.

TOPIX : shows % change in the equally weighted TOPIX index from offer date to filing day. The filing days are reported in Tsubasa Securities data set. This variable shows the market trend, explaining that underpricing may be the result of rising (bull) or falling (bear) market between the fixing last offer price and first trading day.

RVS : is revision in the offer price range from final offer price to expected offer price. Upward revisions in the range have positive effect to underpricing.

OFFER : is the fraction of total number of shares offered to pre-issue shares outstanding. The offer variable is employed to capture the tendency of firm in testing the confidence of issuer about offerings and may signal the quality of the IPO. The value of the firm may be positively related to the equity retained in the firm by the shareholders.

4. Empirical Results

Table 1 provides summary of industries and returns. The highest initial return, 55.41 %, is in communication industry. Service, retail & wholesale, construction firms preferred going public in TSE. The most underpriced firms belong to communication industry whereas an overpricing is observed in real-estate sector. It is important to note that in both industries the sample size is not fair enough.

Most of the service industry firms prefer going public in OTC market. 26.8 % of IPOs on Jasdak are made of service companies such as computer hardware and software firms. Wholesale and retailers also prefer OTC mostly. Even tough quantity of communication firms is few, initial return is the highest among others.

Table1. Distribution of TSE IPOs by Industry

Industry Classification	# of IPOs	Percentage %	Initial Return %
Banking and Finance	3	3.7	2.5
Chemicals	4	4.9	21.73
Communication	2	2.4	55.41
Construction	8	9.8	6.97
Electronics	5	6.1	21.53
Food	4	4.9	12.52
Machinery	3	3.7	2.91
Manufacturing	5	6.1	12.34
Real-estate	3	3.7	-12.74
Retailer	7	8.5	12.88
Wholesale	8	9.8	8.13
Others*	8	9.8	21.45
Service*	22	26.8	22.97
Total	82	100	15.65

- * There is only one company for medicine, metal, non-steel, paper, rubber, transportation, vehicle, and warehouse. These companies are shown in "other" industry group.
- ♣ Industry classification is based on Nikkei Shimbun. There is no special classification for PC, IT, hard-software companies. They are generally shown in "service" industry.

Figure 1 . Graph for Initial Returns in Different Industries

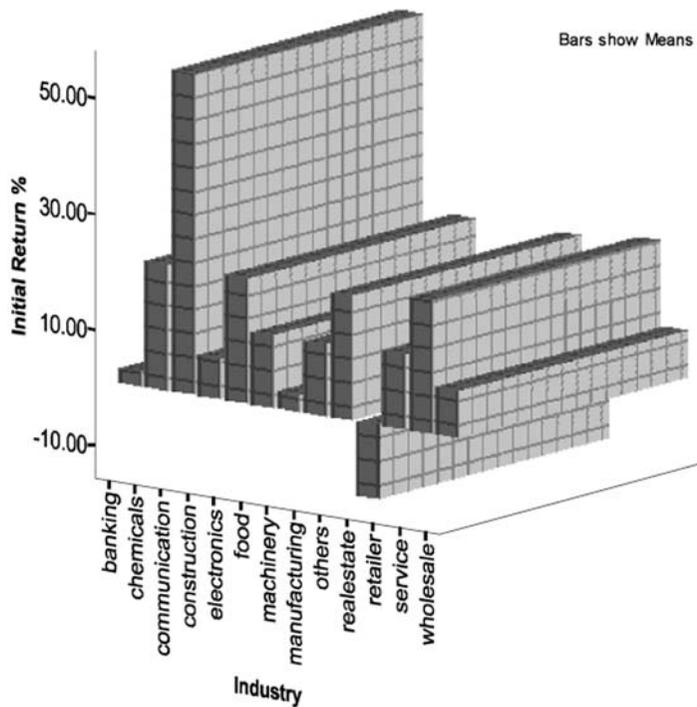


Figure 1 also shows the distribution of initial return among industries. It is clear that boom in IT especially in communication industry has also effect in TSE market. In general, IT firms prefer OTC market. Moreover, introduction of Mothers and Nasdaq Japan stock markets has great impact for young, fast growing firms.²⁾ Still few IT companies prefer TSE because of hard listing conditions and attractions of newly established stock markets.

Table 2 provides the type of the offering regarding to sample. Out of 82 IPOs, 4 (5%) are offering only primary shares, 9 (11%) IPOs involve with only secondary shares without new issues and majority 69 (84%) are offering both primary and secondary shares. In terms of initial return IPOs with only new issues have higher returns even higher than 5 years average first-day return. The quantity of secondary offerings is higher than the number of primary offerings but results very poor initial returns. The evidence in Table 2 is consistent with the hypothesis that firms with high confidence about their offerings avoid selling more secondary shares. Tendency of selling more secondary shares may indicate uncertainty about the offering.

Table 2 . Type of IPO Offering

Type of IPOs	# of IPOs	% of Total	% IR
Primary Offering	4	5	22.39
Secondary Offering	9	11	2.00
Both	69	84	17.04
Total	82	100	15.65

Table 3 . Summary Statistics for 82 IPOs in TSE

Panel A : Descriptive Statistics for Initial Returns

Year	# of IPOs	Mean %	Medium %	Minimum %	Maximum %
IR ⁹⁷	19	2.65	2.15	-17.89	18.73
IR ⁹⁸	16	14.99	7.30	-17.39	101.92
IR ⁹⁹	8	71.25	73.86	-20.83	152.73
IR ⁰⁰	26	11.71	4.9	-39.64	92.86
IR ⁰¹	13	9.11	2.22	-12.38	60.40
IR ⁹⁷⁻⁰¹	82	15.65	4.69	-39.64	152.73

Panel B : Characteristics of IPOs

Age Quintile	# of IPOs	IR	Sales (¥ Million)	% Traditional Management
Young	21	19.62	171182	19
2	20	24.51	50087	30
3	22	10.96	86186	23
Old	19	7.35	159115	16
Total	82	15.65	116047	22

2) Mothers was established in late 1999 and Nasdaq Japan was in mid 2000.

The empirical evidence in Table 3 Panel A shows that in spite of few IPOs in 1999, the initial return is quite remarkable due to huge underpricing in communication and IT industries. In 1997, the first day return of 19 firms is the lowest among other years. Returns increased in 1998, peaked in 1999 and then started to decline during 2000-2001. The maximum initial return was realized in 1999 and the lowest one was in 2000.

In Panel B the firms are divided into age deciles. For the entire sample 25th, 50th and 75th percentiles of the age distribution are 20 years, 32 years and 43 years old at the time of going public. The firms between 20-32 years old have the highest initial returns. The oldest IPOs are the ones that have lowest first-day return. Also noteworthy is that the oldest firms mean sales are higher than that of others. Additionally, Panel B suggests surprising evidence that old firms hire outside CEO rather than young ones. In other words, major shareholders in young firms are likely to manage company themselves.

The results of multiple are reported in Table 4. A positive relationship between underpricing and upward revision is expected. Multiple regression has been used to address the determinants of initial return in TSE. The results are robust to White's (1980) heteroskedastic correction. Additionally, multicollinearity is found not to be problematic. Initial return is the dependent variable (calculation is shown in Methodology part). In Model 1 LNAGE, RVS, TOPIX variables are controlled. Statistically significant relationships were

Table 4 . Multiple Regression for Initial Return

	Model 1	Model 2	Model 3
Intercept	-0.22 (-0.81)	-0.05 (-0.43)	-0.34 (-1.26)
LNAGE	0.04 (0.67)		0.05 (0.93)
RVS	0.83** (2.52)	0.81** (2.50)	0.73** (2.29)
TOPIX	-1.15*** (-3.89)	-1.14*** (-3.86)	-1.23*** (-4.23)
MNG			0.19** (2.30)
OFFER	0.77* (1.97)	0.67* (1.87)	0.88** (2.29)
Adjusted R ²	0.22	0.23	0.26
F ²	6.68***	8.82***	6.70***
# of IPOs	82	82	

T-ratios are computed using White's (1980) heteroskedasticity-adjusted standard errors. T-ratios are shown in parentheses.

*10% significance level

** 5 % significant level

*** 1 % significant level

found for revision in the offer range and market movement. The coefficient of TOPIX variable is significant at 1 % and revision variable with a coefficient of 0.83 is significant at 5 %. There is a negative relation between TOPIX index and initial return. This variable indeed is intended to measure the effect of the market. The negative sign indicates the effect of bear market. In Model 2 and 3 the sign is also negative and significant too.

The IPOs in TSE had also upward revisions during the filing procedures and this revision has positive effect on initial return. The IPOs, when last offer price is higher than the expected offer price have more underpricing than others. In three of the models there is no significant relation between underpricing and age of the company. The sign of LNAGE is positive but this variable with coefficient of 0.04 and 0.05 is statistically not enough to explain underpricing. Positive relation of age indicates that generally old firms prefer going public in TSE. On the other hand, OFFER variable is significant with positive relation. The greater the fraction of total number of shares to pre-issue shares has positive impact on underpricing. In Model 3 different combinations of variables employed considering the internal control in the publicly opened firm. The result suggests that traditionally managed IPO firms have initial returns. The coefficient of MNG variable is 0.19 and statistically significant at 5 %.

5. Conclusion

This paper aims to provide underpricing evidence in the IPO market by examining the Tokyo Stock Exchange market. Using a sample of 82 firms listed in TSE the average initial return of 15.65% is found. The investigation of factors influencing the underpricing shows that IPOs in TSE are traditionally managed old companies that are specializing in retail, wholesale and manufacturing businesses rather than IT. No significant relation is determined between the initial return and age of the companies in TSE. In spite of the positive relation, this factor is not statistically enough to explain underpricing. Furthermore, fraction of total number of offerings to pre-issue shares is higher in TSE offerings. IPOs tend to offer in large numbers that the finding is somehow related to age of the company.

To summarize the empirical findings of this paper, although many young IT companies do not prefer TSE, many IPOs in this stock market have high initial returns particularly in 1999. The analyses are carried out the fact that increase in the underpricing can be attributed to revision in the filing procedure of offer price.

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