The Underreaction Hypothesis and the New Issue Puzzle: Evidence from Japan

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This article investigates the long-term equity performance of Japanese firms issuing convertible debt and equity. We find that issuing firms perform poorly (except for equity rights issues) compared to nonissuing firms even though the stock-price reaction to convertible debt and equity issues is not negative for Japanese firms. This underperformance is strongest for firms issuing public convertible debt. In contrast to the United States, poor performance is not concentrated in smaller firms and in firms with a high market-to-book ratio. Simple behavioral explanations advanced for the new issue puzzle in the United States do not seem consistent with the Japanese experience.

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 the next five years. At this point a generally accepted explanation for these findings does not exist. Though Loughran and Ritter (1995) argue that these results are explained by managers exploiting temporary share overvaluation and Daniel, Hirshleifer, and Subrahmanyam (1998) provide a model explaining why the market underreacts to the information content of corporate events, others question the findings altogether. For instance, Brav, Géczy, and Gompers (1995) argue that underperformance is weak among large firms when it is evaluated using the Fama and French (1993) three-factor model. Fama (1998) goes further and views these results as normal random variation that occurs in efficient markets.

In this article we investigate the long-term performance of Japanese security-issuing firms. This evidence is, in itself, interesting because of the importance of the Japanese capital markets, but studying long-term returns

in Japan can also help us better understand the long-term performance of U.S. security-issuing firms. We examine whether long-term performance following a corporate event is explained by the hypothesis that the market impounds only part of the information content in the share price at the announcement of a corporate event. We call this hypothesis the underreaction hypothesis. This explanation of long-term performance following corporate announcements is of crucial importance for our understanding of financial markets. If the market fails to impound information in stock prices quickly, markets are not efficient, and short-window event studies provide a biased estimate of the shareholder wealth effect of corporate announcements. In the United States, the evidence shows that equity and convertible debt issues are bad news for the issuing firms. Hence, if the market underreacts to the announcement of such issues, they should be followed by poor abnormal returns.[1] In Japan, the stock-price reactions to equity issues and to convertible debt issues are significantly positive [see Kato and Schallheim (1992) and Kang and Stulz (1996)]. Consequently the underreaction hypothesis predicts that Japanese firms that issue equity and convertible debt should not underperform firms that do not issue.

This study allows us to investigate the underreaction hypothesis for another reason. Our sample includes private issues. Such offerings make it possible for management to convey private information to the buyers of the newly issued securities. Hertzel and Smith (1993) argue that this explains why announcements of private equity sales have a significant positive average abnormal return in the United States. These issues have positive announcement returns in Japan also. These announcement returns suggest that private issues do not appear to occur as a response of management to a temporary overvaluation of a firm's equity. Finding negative long-term abnormal returns following private issues would therefore be inconsistent with the hypothesis that negative long-term abnormal returns following equity issues occur because of a temporary overvaluation corrected by the market over time.

Our results show that convertible debt- and equity-issuing firms in Japan underperform comparable firms that do not issue. Both convertible debt-issuing firms and equity-issuing firms underperform for at least five years. More surprisingly, the performance of firms issuing equity privately is not different from the performance of firms issuing equity publicly. Our results for equity-issuing firms are generally consistent with those of Loughran and Cai (1998), who show, for a large sample of public equity issues from 1971 to 1992, that these firms underperform firms that do not issue equity. Overall our evidence cannot be explained by the underreaction hypothesis. Fama

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[1] See Smith (1986) for a review of the evidence on the announcement returns of such issues. Kahle (1996) and McLaughlin, Saffieddine, and Vasudevan (1998) document the long-term underperformance of convertible debt-issuing firms in the United States.

and French (1998) argue that it is useful to investigate whether patterns in security returns documented in the United States hold in other countries to ensure that such patterns are not the outcome of data mining. Hence our evidence of poor long-term performance of security-issuing firms in Japan makes it less likely that the new issue puzzle is the product of normal random variation in returns as suggested by Fama (1998).

The article proceeds as follows. In Section 1 we review the evidence on security issues in Japan and the implications for the long-term performance of the issuing firms in light of the U.S. evidence. In Section 2 we present our data and our procedures. In Section 3 we document the poor performance of issuing firms in Japan. In Section 4 we examine the relation between announcement returns and long-term returns for equity-issuing firms in Japan and the United States. Section 5 discusses the implications of our results in explaining the new issue puzzle.

1. The Information Content of Security Issues in Japan and the Underreaction Hypothesis

The U.S. evidence shows that stock prices fall significantly with the announcement of a public equity issue or a public convertible debt issue, do not fall with a public debt issue or rights offering, and increase significantly with a private equity issue [see Smith (1986)]. Kang and Stulz (1996) examine the abnormal returns associated with security issues in Japan from January 1985 to May 1991. They document significant average abnormal returns for public equity issues of 0.45%, for private equity issues of 3.88%, for rights issues of 2.21%, and for convertible issues of 0.83%. They find insignificant abnormal returns for domestic warrant bond issues and straight debt issues. Kang et al. (1995) show that offshore convertible bond issues by Japanese firms have an insignificant average abnormal return, but offshore warrant bond issues have a significant positive average abnormal return of 0.61%. Kato and Schallheim (1992, 1996) report positive similar abnormal returns for firms that issue public equity and private equity over the same sample period.

The existing evidence is therefore that the issue of an information-sensitive security is bad news in the United States but not in Japan. Kang and Stulz (1996) argue that this is because corporate governance differs between Japan and the United States. To understand their argument, it is best to start from the most commonly advanced explanation for the U.S. results. This explanation is based on the work of Myers and Majluf (1984). They argue that managers who put significant weight on the wealth of existing short-term shareholders would rather give up profitable investment opportunities than issue undervalued equity. With this reasoning, therefore, the announcement of an equity issue informs investors of the bad news that managers believe that the equity is overvalued. As shown by Myers and Majluf (1984), this

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argument depends crucially on the objective function of managers. If managers do not put weight on existing short-term shareholders, then equity issue announcements do not have an adverse impact on shareholder wealth in their model. The standard argument concerning corporate governance differences between Japan and the United States is that U.S. managers care about existing short-term shareholders but Japanese managers do not. This is because Japanese firms are controlled by long-term shareholders in contrast to U.S. firms.[2] As a result, one would expect a negative reaction to equity issue announcements in the U.S. but not in Japan.

There are several other explanations advanced in the literature for the positive stock-price reaction to new issues in Japan. One explanation is that security issues in Japan could signal favorable information about investment opportunities [Cooney and Kalay (1993)]. Another explanation is that the issuing process in Japan is such that underwriters provide more certification than in the United States because they have more at stake [Cooney, Kiyoshi, and Schallheim (1997)].

All these explanations for the nonnegative stock-price reaction associated with the issue of information-sensitive securities in Japan support the view that the issue of such securities is not bad news, in contrast to the United States. If the long-term abnormal returns following corporate announcements were explained by the underreaction hypothesis, then one would expect Japanese firms to perform better than nonissuing firms following security issues.

2. The Data

We obtained the list of firms issuing equity and convertible debt from the Tokyo Stock Exchange Annual Securities Statistics from 1980 to 1988. We only consider firms for which data are available on the Pacific Basin Capital Market Research Center files for Japan. We then impose the following criteria on our sample of issuing firms:

1. The offerings by utility and finance firms are excluded (industry codes 501, 511, 512, 513, and 801). This criterion makes our sample comparable to the samples used for U.S. studies.
2. The offering firm must be listed on the Tokyo Stock Exchange at least one month before the issue is offered. This ensures that the issue is not an initial public offering and that we know the market value of the firm before the issue.

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[2] For instance, Thurow (1993, p. 136) states that "the United States has organized a system that is the exact opposite of that of Germany and Japan. Those countries have organized a system (business groups) to minimize the influence of impatient shareholders, while the United States has organized a system (fund dominance) to maximize the influence of impatient shareholders."

Table 1
Sample of security issues from 1980 to 1988

Year	Convertible debt issues			Multiple issues	Equity issues		
	Domestic public issues	Offshore			Private	Public	Rights
		Private	Public				
1980	12	36	16	4	11	152	0
1981	30	43	28	1	15	163	5
1982	37	50	18	4	8	116	17
1983	34	71	10	14	14	42	2
1984	65	74	15	19	8	59	2
1985	82	45	15	19	12	44	12
1986	108	23	1	0	12	44	5
1987	182	32	4	3	13	36	3
1988	158	72	2	2	17	71	5
All	708	446	109	66	110	727	51

The sample includes all the issues of convertible debt and seasoned equity obtained from the Tokyo Stock Exchange Annual Securities Statistics for firms with data available from the PACAP files that are not financial firms and utilities and that meet our sampling criteria.

The resulting sample comprises 888 equity offerings and 1,329 convertible bond offerings. Table 1 shows how our sample is distributed among different types of issues. In our analysis, we want to be able to compare long-term returns for different security types. To avoid having results confounded by firms that have multiple issues during a month, we treat these issues separately. Specifically, multiple issues include those offerings where a firm issues the same (or different) types of securities both privately and publicly in the same month, or a firm issues the same (or different) types of securities both in Japan and overseas markets in the same month. Convertible issues are more frequent in the second half of the sample, whereas equity issues are more frequent in the first half of the sample. Note that the sample excludes offshore warrant issues and straight debt issues. During our sample period there were very few straight debt issues because of issuing restrictions. Warrant bond issues became numerous only after 1986.[3]

In the United States, large numbers of firms delist from exchanges, so survivorship biases can substantially affect inferences about long-term performance. The PACAP database only has firms that survived until 1990, and therefore has a survivorship bias. In the United States, such a bias is a serious problem. It is not for Japan. During the period we use for our tests, 1980 to 1993, 64 firms delisted from the Tokyo Stock Exchange. This corresponds to about four firms per year, and the largest number of delistings in our sample is 10 in 1995. About one-third of the delisted firms would have been part of our issuing sample. Consequently the survivorship bias does not affect our conclusions.

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[3] See Kang et al. (1995) for a discussion of the evolution of eligibility criteria and of the growth of the offshore warrant bond market.

3. The Performance of Issuing Firms

In this article we are interested in finding out how issuing firms perform relative to nonissuing firms. Since our sample includes convertible issues and since these issues are much more important in Japan than in the United States, we have a much larger ratio of issues to listed firm-years than is typical for U.S. studies of equity-issuing firms. Consequently we cannot answer the question that interests us by computing abnormal returns relative to a broad Japanese index. [4] This would overstate the performance of issuing firms substantially because a large fraction of the firms in such an index would have issued securities in the recent past so that the index would reflect the performance of issuing firms. We therefore directly compare the performance of issuing firms to the performance of matching nonissuing firms, which amounts to using the matching firm approach recommended by Barber and Lyon (1997).

In our first set of tests we use a firm's capitalization as the matching criterion. Later we also use market-to-book in our matching procedure. If market-to-book is a proxy for overvaluation as some argue, then it is important to first compare issuing firms to other firms that are not systematically overvalued. For each issuing firm we choose a matching firm as follows. Since we have data for security issues since 1980 we select eligible matching firms that have not issued equity or convertible debt during the prior five years or since 1980, whichever period is shorter. We then choose the matching firm with the market value, the month before the issue, that is closest but higher than the market value of the issuing firm. The lack of a list of issues for the period before 1980 means that we may potentially understate underperformance since some matching firms may have issued equity or convertible debt during the past five years. However, before 1980, the eligibility conditions for domestic public convertible issues were so stringent that there were almost no such issues. When a matching firm issues or is delisted, we replace it with the firm that initially was the second closest in market value to the issuing firm. In U.S. studies, convertible debt-issuing firms are generally not excluded in the matching samples for equity-issuing firms. To the extent that convertible debt-issuing firms might resemble equity-issuing firms in their long-term performance, including convertible debt-issuing firms as matching firms may overstate the performance of equity-issuing firms relative to the population of firms that do not issue equity in any form. This issue is much more important in Japan than in the United States because most Japanese debt issues are convertible debt issues. We trim the sample by eliminating size-adjusted returns below the 5th percentile and

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[4] We did perform such a computation. None of our conclusions are altered, but as expected the excess returns fall in absolute value by about half compared to the estimates obtained using the matching-firm approach.

above the 95th percentile. The conclusions of our study are not affected if we take the outliers into account, but the magnitude of the underperformance is.

Since the postissue period overlaps across firms and the postissue return distribution of our sample firms is skewed, statistical inferences made from cross-sectional t-statistics may not be appropriate. Therefore we calculate p-values that are estimated by the bootstrap procedure used by Ikenberry, Lakonishok, and Vermaelen (1995). For each issuing firm we randomly choose a matching firm listed on the Tokyo Stock Exchange that is in the same size quintile as the issuing firm during the issue month. Financial and utility firms and firms that issued either equity or convertible bonds in the past five years are not used as matching firms. We repeat this matching process for all issuing firms. This group of matching firms becomes one matching portfolio. Then we take the average of holding period returns of these firms to obtain the return for the matching portfolio. We repeat this process 100 times to obtain 100 matching portfolio returns whenever possible. It would not be possible to repeat the process more often given the number of nonissuing firms available. The p-value is the rank of the mean return for the issuing firms relative to the 100 returns from the bootstrap procedure. In other words, we rank the mean holding period returns of the issue sample and the pseudo-sample from 1 to 101, and divide the rank by 101 to obtain the fractional rank. The p-value of the two-tailed test is two times the lesser of the fractional rank or one minus the fractional rank.

Table 2 shows that issuing firms, except for firms with rights offerings, significantly underperform over three years irrespective of the security issued. The estimate of average excess returns for rights issues is negative when we exclude outliers and positive when we include them. The long-term abnormal returns are skewed so that the median abnormal return is generally smaller in absolute value than the mean abnormal return. The abnormal performance is generally significant for medians using the signed-rank test. Statistical inference using t-tests and using bootstrap p-values leads to similar conclusions. For the five-year period, the average excess returns are significantly negative for all issuing firms, including those with rights offerings.

Table 1 shows that there is substantial variation over time in the frequency of issues. This raises the question of whether the underperformance we document is concentrated in a few years. Table 3 shows the results for the three-year average excess return per cohort year. We do not report the five-year average excess returns to save space. For domestic issues of convertible debt, the negative average excess returns are significant in 1981, 1982, 1984, 1985, 1986, and 1987. If we focus on the five-year average excess returns instead, six years are significantly negative and one year is significantly positive. It does not appear, therefore, that underperformance is concentrated in part of the sample period. Investigating this issue further, we divide the sample into one subperiod from 1980 to 1984 and a second subperiod from

Table 2
Average and median excess returns for three-year and five-year periods

	Convertible issues				Equity issues		
	Domestic public issues	Offshore issues		Multiple issues	Private	Public	Rights
		Private	Public				
Panel A. Three-year period (%)							
Average	−24.99	−33.77	−25.62	−38.95	−19.99	−22.10	−10.29
Bootstrap p-value	.02	.02	.08	.10	.02	.02	.26
t-statistic	−8.03	−8.80	−3.43	−3.94	−2.14	−6.71	−0.79
Median	−15.32	−27.90	−19.75	−20.41	−17.69	−16.08	−9.08
Median p-value	<.01	<.01	<.01	<.01	.02	<.01	.42
Panel B. Five-year period (%)							
Average	−40.55	−77.34	−100.30	−111.10	−51.18	−74.06	−47.37
Bootstrap p-value	.02	.02	.06	.02	.02	.02	.06
t-statistic	−9.42	−11.61	−6.53	−6.27	−3.70	−13.24	−2.06
Median	−13.73	−41.04	−73.60	−83.58	−33.42	−47.50	−24.24
Median p-value	<.01	<.01	<.01	<.01	<.01	<.01	.07

The sample includes all the issues of convertible debt and seasoned equity obtained from the Tokyo Stock Exchange Annual Securities Statistics for firms with data available from the PACAP files that are not financial firms or utilities. Excess returns are buy-and-hold returns of issuing firms minus buy-and-hold returns of a firm with similar equity capitalization. Outliers with excess returns below the 5th percentile and above the 95th percentile are excluded.

1985 to 1988. While we do not report the results here, the three-year average excess returns for these two subperiods are indistinguishable for any type of issue. The five-year average excess returns for the second subperiod are significantly higher than those for the first subperiod for the issuing firms that underperform in the sample, but issuing firms still underperform significantly in the second subperiod. Across the three-year and five-year excess returns the only cohort that has a significant positive average excess return is the 1988 cohort, where the average excess return is significantly positive for the five-year period.

Turning to equity issues, public equity issues have significant negative excess returns for seven years. Private equity issues have negative average excess returns in eight of the nine years. The sample sizes each year for the private equity issues average about 12 issues a year, so it is not surprising that the excess returns are not significant for yearly cohorts for these issues. There is, however, no evidence that the average returns for private equity issues are significantly different from those for the public equity issues. Two years have a significant negative excess return for rights issues and one year has a positive significant excess return.

The underperformance documented using the size matched firm approach is not due to a small number of years in the sample period. The question that

Table 3
Three-year average excess returns for each cohort year from 1980 to 1988

	Convertible debt issues				Equity issues		
Year	Domestic public issues	Offshore		Multiple issues	Private	Public	Rights
		Private	Public				
1980	−8.45 (−0.53)	10.80 (0.79)	−17.75 (−1.33)	10.38 (0.18)	−9.57 (−0.71)	4.21 (0.67)	n.a. (n.a.)
1981	−31.91 (−2.31)	−13.97 (−1.62)	−18.10 (−1.46)	−21.66 (−1.06)	−14.11 (−0.74)	−16.49 (−2.43)	24.31 (0.53)
1982	−41.06 (−3.36)	−34.39 (−2.87)	−27.23 (−1.88)	23.62 (0.51)	−10.17 (−0.22)	−17.88 (−2.09)	−8.14 (−0.39)
1983	−21.01 (−1.27)	−60.33 (−6.03)	19.36 (1.68)	−27.32 (−0.95)	−7.93 (−0.30)	−40.36 (−2.66)	−73.36 (−1.45)
1984	−43.11 (−3.54)	−53.79 (−5.50)	−26.90 (−1.04)	−47.48 (−3.23)	−77.67 (−1.30)	−75.49 (−7.36)	n.a. (n.a.)
1985	−29.83 (−2.59)	−35.56 (−2.17)	−47.32 (−1.74)	−59.03 (−3.44)	−32.75 (−1.04)	−57.94 (−3.28)	0.66 (0.03)
1986	−47.57 (−4.67)	−60.25 (−2.90)	n.a. (n.a)	n.a (n.a.)	−28.46 (−0.67)	−47.98 (−3.21)	69.86 (2.01)
1987	−26.90 (−4.78)	−39.52 (−3.13)	−18.69 (−0.47)	−94.40 (−1.07)	−40.60 (−1.54)	−37.78 (−2.73)	−120.6 (−1.93)
1988	2.16 (0.57)	−12.61 (−2.15)	−158.5 (−2.92)	−35.77 (−0.73)	5.85 (0.32)	−0.44 (−0.06)	−35.27 (−2.96)

The sample includes the issues of convertible debt and seasoned equity obtained from the Tokyo Stock Exchange Annual Securities Statistics for firms with data available from the PACAP files that are not financial firms and utilities. Excess returns are buy-and-hold returns of issuing firms minus buy-and-hold returns of size-matched firms. Outliers with excess returns below 5th percentile and above the 95th percentile are excluded. *t*-statistics are in parentheses.

remains in evaluating the economic significance of the results is whether this underperformance is concentrated among specific types of firms. To investigate this we first split the sample into size quartiles. We do not report these results, but we find no evidence that underperformance is concentrated among the smallest firms. For firms issuing equity or convertible debt publicly, there is no evidence that size matters. In particular, neither the averages of excess returns nor the medians change monotonically with size or differ significantly across size quartiles. On balance, therefore, no case can be made that underperformance is concentrated among the smaller firms in Japan. We perform the same experiment using market-to-book quartiles and find no systematic relation between long-term performance of issuing firms and market-to-book ratios.

There is now much evidence for the United States and Japan that stock returns decrease as the market-to-book ratio increases.[5] This relation between market-to-book and returns has generated substantial debate among

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[5] See Chan, Hamao, and Lakonishok (1991), Kubota and Takehara (1995), and Jagannathan, Kubota, and Takehara (1998) for the evidence on Japan.

financial economists. On the one hand, some argue that the market-to-book ratio proxies for a priced state variable in an intertemporal asset-pricing model [see Fama and French (1993)]. On the other hand, others make the case that high market-to-book stocks are mispriced and that these stocks have lower returns than others as the mispricing is being corrected over time [see, e.g., Lakonishok, Shleifer, and Vishny (1994)]. If the relation between market-to-book and returns is due to the existence of a risk factor correlated with the return of high market-to-book firms, then we should compare the returns of issuing firms to the returns of firms that have a similar market-to-book ratio to properly take into account the risk of these firms. Some recent evidence by Daniel and Titman (1997) shows that to forecast returns it is more important to know a firm's market-to-book ratio than to know its correlation with a market-to-book factor. This evidence is inconsistent with the view that market-to-book represents a risk factor. If the lower returns of high market-to-book firms are due to mispricing, then the interpretation of such a comparison depends on the hypothesis tested. If firms that issue take advantage of windows of opportunity because they are mispriced, as suggested by Loughran and Ritter (1995), they will have a high market-to-book ratio. The windows of opportunity hypothesis does not tell us that issuing firms should have higher or lower returns than other firms with a similar high market-to-book ratio. High market-to-book ratio firms that do not issue may be firms that are as mispriced as those that issue. If, however, the fact that a firm issues implies that its management believes its equity to be more overpriced than the equity of firms with similar market-to-book ratios, then one should observe poorer performance of issuing firms controlling for the market-to-book ratio.

With these caveats in mind, we investigate whether our conclusions are affected by matching issuing firms to firms of similar size and similar market-to-book ratios. To find a matching firm for an issuing firm, we identify all firms with market value of equity from 50% to 150% of the issuing firm and all firms with market-to-book from 50% to 150% of the issuing firm. We then consider the intersection of these two sets and rank its members according to how close they are (in absolute value) in size and market-to-book to the issuing firm. We add the ranks for size and market-to-book and choose the firm that has the highest rank as the matching firm. The results are shown in Table 4. These results show that choosing matching firms according to size and market-to-book does not make the underperformance disappear and does not even reduce it systematically across issuing firms.

Although we do not report these results, there is no evidence of common patterns across types of issues for the three-year or the five-year returns, whether we divide the sample into size quartiles or market-to-book quartiles. For equity-issuing firms, underperformance increases as market-to-book increases. When we look at convertible debt-issuing firms, however, there is no monotonic relation between market-to-book and performance.

Table 4
Average and median size and market-to-book adjusted excess returns for three-year and five-year periods

	Convertible issues				Equity issues		
	Domestic public issues	Offshore issues		Multiple issues	Private	Public	Rights
		Private	Public				
Panel A. Three-year period							
Average	−38.44	−29.32	−28.90	−32.49	−20.19	−14.69	−2.47
t-statistic	−13.18	−7.88	−4.25	−3.43	−2.35	−4.90	−0.20
Median	−27.62	−19.76	−14.26	−26.45	−19.75	−11.98	−2.50
p-value for median	<.01	<.01	<.01	<.01	.05	<.01	.80
Panel B. Five-year period							
Average	−44.55	−71.75	−94.92	−89.41	−60.86	−69.41	−18.16
t-statistic	−11.53	−11.44	−7.37	−6.20	−4.37	−13.36	−0.91
Median	−24.93	−39.37	−66.75	−64.19	−36.92	−44.44	−7.44
p-value for median	<.01	<.01	<.01	<.01	<.01	<.01	.79

The sample includes all the issues of convertible debt and seasoned equity obtained from the Tokyo Stock Exchange Annual Securities Statistics for firms with data available from the PACAP files that are not financial firms and utilities. Excess returns are buy-and-hold returns of issuing firms minus buy-and-hold returns of matching firms of similar size and similar market-to-book. Outliers with excess returns below 5th percentile and above the 95th percentile are excluded.

Fama (1998) strongly argues in favor of constructing portfolio returns to evaluate long-term performance of issuing firms on the grounds that the returns of portfolios have better statistical properties and naturally take into account the dependencies in the excess returns of the issuing firms [see also, Mitchell and Stafford (1997)]. Therefore, we also estimate the abnormal returns using the portfolio procedure recommended by Fama (1998) and report these results in Table 5. To do this for each issue type we construct a time series of portfolio returns as follows. Each month we compute the portfolio return using the excess return relative to the size and market-to-book matching firm of all firms that issued in the previous 36 months for one portfolio and in the previous 60 months for the other portfolio. We then average these monthly returns across time. This approach does not use buy-and-hold returns. With a portfolio strategy that weights all excess returns equally in a month, we find that all issue types have negative average returns. The average returns using 36 months are significant for all issue types at the 1% probability level except for the firms with multiple issues, private issues, and rights issues, where the results are not significant. The average returns using 60 months are significant at the 1% probability level for all issues except for private equity issues, rights issues, and offshore public and multiple convertible bonds. With a portfolio strategy that weights issuing firms according to their value when they issue, we find that for portfolios that include firms issuing in the previous 36 months, only the portfolio of firms issuing public convertible debt in Japan have significant negative average returns. The same is true when we look at the portfolios that include firms issuing in the previous 60 months.

Table 5
Monthly portfolio returns

	Convertible issues				Equity issues		
	Domestic public issues	Offshore issues		Multiple issues	Private	Public	Rights
		Private	Public				
Panel A. Three-year portfolios.							
Equally	−1.02*	−0.46^	−0.59	−0.12	−0.37	−0.76*	−0.39
weighted	(−0.68*)	(−0.46^)	(−0.52)	(−0.31)	(−0.11)	(−0.44*)	(−0.29)
Value	−1.14*	−0.42	−0.45	0.11	−0.21	−0.51	0.05
weighted	(−0.76*)	(−0.29)	(−0.11)	(0.04)	(0.13)	(−0.03)	(−0.00)
Panel B. Five-year portfolios.							
Equally	−0.75*	−0.40*	−0.50	−0.17	−0.43″	−0.71*	0.01
weighted	(−0.41*)	(−0.28^)	(−0.59)	(−0.36)	(−0.13″)	(−0.28*)	(−0.21)
Value	−0.84*	−0.38	−0.30	0.01	−0.10	−0.38	−0.17
weighted	(−0.37*)	(−0.18)	(−0.34)	(0.32)	(0.05)	(−0.02)	(−0.28)

The sample includes all the issues of convertible debt and seasoned equity obtained from the Tokyo Stock Exchange Annual Securities Statistics for firms with data available from the PACAP files that are not financial firms and utilities. The n-year portfolios include every month the excess returns of all firms that issued during the last n years. The excess return used in a month for an issuing firm is its return minus the return on a size and market-to-book matching firm. The equally weighted portfolios average across all firms included in a monthly portfolio equally. The value-weighted portfolios weigh each firm in a monthly portfolio by its market value at the time of issue. The number in parentheses is the median. *, ^, and ″ denote the t-statistic for the mean and the signed-rank statistic for the median significance at the 0.01, 0.05, and 0.10 levels, respectively.

The portfolio returns show that the firms that issue convertible debt publicly in Japan underperform significantly irrespective of the approach used to evaluate performance. The underperformance of these firms is economically large, since they underperform by more than 1% a month their matching firms. For firms issuing convertible debt offshore and issuing public equity, the underperformance holds across a number of approaches but does not hold when we use a value-weighted portfolio approach. For firms that issue private equity, the portfolio approach provides no significant evidence of negative excess returns. Note, however, that for private equity issues, the underreaction hypothesis predicts significant positive excess returns, which we do not observe.

Although we do not report the results here, we estimate abnormal returns including only the first issue from a firm in the sample. The conclusions of this article are unchanged. Consequently our conclusions hold for a sample that includes all issues, a sample that excludes outliers, which is the one presented here, and a sample that includes only the first issue of a firm in the sample.

4. A Direct Test of the Underreaction Hypothesis

The evidence presented so far for Japan is inconsistent with the underreaction hypothesis. In this section we test a specific version of this hypothesis directly for the United States and for Japan. The specific hypothesis we test is that the announcement return is a fraction of the long-term return.

Table 6
Correlations between announcement abnormal returns and long-term abnormal returns

	Three-year abnormal returns		Five-year abnormal returns	
	Japan	U.S.	Japan	U.S.
One-day abnormal return (*t*-statistic)	1.21% (2.49)	−2.72% (10.05)		
Long-term excess return	−16.50%	−7.89%	−23.34%	−32.69%
Correlation (*p*-value)	−0.09 (.46)	−0.03 (.69)	−0.06 (.63)	−0.04 (.56)
Spearman rank correlation (*p*-value)	−0.08 (.49)	0.02 (.79)	−0.06 (.61)	0.00 (.96)

The Japanese sample includes 68 issues of seasoned public equity obtained from the Tokyo Stock Exchange Annual Securities Statistics for firms with data available from the PACAP files that are not financial firms and utilities for the period from 1985 to 1988. The date of the initial public announcement is obtained from the morning edition of the Nihon Keizai Shimbun. The U.S. sample has 178 issues from 1977 to 1984 for which an announcement is available in the Wall Street Journal. Long-term returns are buy-and-hold returns of issuing firms minus buy-and-hold returns of size-matched firms.

This hypothesis implies that a firm's long-term abnormal return and its announcement abnormal return should be positively correlated. We use a sample of 68 public equity issues for Japan from 1985 to 1988 for which we have announcement dates from the morning edition of the *Nihon Keizai Shimbun*. This sample is a subsample of Kang and Stulz (1996) that is part of this study. For the United States, we use a sample of 168 issues used in Jung, Kim, and Stulz (1996). We compute abnormal returns as excess returns over beta decile portfolios and long-term buy-and-hold returns using the size-matched firm approach. The results are presented in Table 6. The correlations are insignificant. In addition, they are extremely small in absolute value. For Japan, none of the correlation estimates are positive. For the United States, the Spearman rank correlations are positive, but of negligible magnitude. There is no evidence, therefore, to support the specific version of the underreaction hypothesis tested in the table.

5. Discussion and Conclusion

In this article we explore the long-term performance of security-issuing firms in Japan. We find underperformance for Japanese firms issuing convertible debt or equity even though these firms do not experience significant negative abnormal returns when the issue announcement is made. This evidence is strongest for firms that issue public convertible debt in Japan. We view this result as evidence against the simple version of the underreaction hypothesis that specifies that announcement returns fail to incorporate all of the information associated with a corporate announcement. Our evidence

also seems inconsistent with the "window of opportunity" hypothesis. This is because one would expect that the negotiations surrounding private issues would allow the buyers to obtain enough information about the issuing firm that they would be able to determine if the firm is overvalued. This would make it more difficult for management to take advantage of a window of opportunity.

Although our evidence does not support the simple underreaction hypothesis or the window of opportunity hypothesis, it is consistent with the existence of underperformance for issuing firms. The fact that issuing firms in Japan also underperform makes it more difficult to believe that underperformance is just a random event, as argued by Fama (1998).

Since three popular explanations of underperformance are not supported by our evidence, this raises the question of whether there is an explanation that works both for the Japan and U.S. evidence. It seems to be unlikely that long-term performance can be explained without relying on the hypothesis that behavioral biases of investors affect prices, which is a hypothesis that permeates a number of recent articles including Daniel, Hirshleifer, and Subrahmanyam (1998). The evidence is consistent with a world where investors are too optimistic about the investment opportunities of some firms. Firms with such investors are more likely to issue securities. This may be because managers are likely to want to raise funds to invest more because they are too optimistic. Alternatively, managers may be more realistic than investors and just want to take advantage of the high valuation of their firm to issue information-sensitive securities. As the investment opportunities eventually turn out to be less advantageous than expected, these firms experience poor returns. As long as short sales are costly, the high valuations due to excessive optimism are not eliminated immediately. The challenge remains, however, to explain why the announcement returns of security issues are sometimes of the same sign as the long-term returns and sometimes not.

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