Convertible Exchangeable Preferred Stock

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Convertible exchangeable preferred stock includes an option for the issuer to exchange the preferred for convertible bonds with identical pre-tax cash flows and conversion terms. In other respects this innovative corporate security is identical to traditional convertible preferred stock. The exchange feature provides the issuer with a potentially valuable option to swap a non-tax-deductible expense for a tax-deductible one. The exercise of the option imposes a cost on institutional investors, but even with the option fully priced, the innovative security should dominate the tradtional one as a capital raising vehicle. Thus, it is something of a puzzle that offerings of both security types persist for 15 years. I argue that firms expecting to force conversion quickly place a lower value on the tax shield obtainable by the exchange provision, and hence issue conventional convertible preferred to avoid pooling with lower-quality issuers. Thus, an offering of convertible exchangeable preferred stock should be a more negative signal than the traditional variety. Empirical evidence supports the hypothesis. The common stock price reactions to announcements of convertible exchangeable preferred stock average around –2% and are highly statistically significant. Reactions to convertible preferred stock announcements also are negative, but about half as large and less significant. Negative abnormal returns around the issuance date also are larger in the convertible exchangeable preferred sample. Cross-sectional regressions show that announcement and issuance abnormal returns depend on the use of the exchange option, whether the proceeds are used to refund existing convertibles, pre-offer financial leverage, growth opportunities and growth-related information asymmetry. Even firms with the most profitable growth opportunities experience negative abnormal returns around announcement and issuance, contradicting theories that predict positive information from equity-linked security offerings. Operating performance following both types of security offerings is indistinguishable from that of matched control firms.

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Abstract

Convertible exchangeable preferred stock includes an option for the issuer to exchange the preferred for convertible bonds with identical pre-tax cash flows and conversion terms. In other respects this innovative corporate security is identical to traditional convertible preferred stock. The exchange feature provides the issuer with a potentially valuable option to swap a non-tax-deductible expense for a tax-deductible one. The exercise of the option imposes a cost on institutional investors, but even with the option fully priced, the innovative security should dominate the tradtional one as a capital raising vehicle. Thus, it is something of a puzzle that offerings of both security types persist for 15 years. I argue that firms expecting to force conversion quickly place a lower value on the tax shield obtainable by the exchange provision, and hence issue conventional convertible preferred to avoid pooling with lower-quality issuers. Thus, an offering of convertible exchangeable preferred stock should be a more negative signal than the traditional variety. Empirical evidence supports the hypothesis. The common stock price reactions to announcements of convertible exchangeable preferred stock average around –2% and are highly statistically significant. Reactions to convertible preferred stock announcements also are negative, but about half as large and less significant. Negative abnormal returns around the issuance date also are larger in the convertible exchangeable preferred sample. Cross-sectional regressions show that announcement and issuance abnormal returns depend on the use of the exchange option, whether the proceeds are used to refund existing convertibles, pre-offer financial leverage, growth opportunities and growth-related information asymmetry. Even

firms with the most profitable growth opportunities experience negative abnormal returns around announcement and issuance, contradicting theories that predict positive information from equity-linked security offerings. Operating performance following both types of security offerings is indistinguishable from that of matched control firms.

1. Introduction

Numerous innovations in the design of financial instruments that corporations use to raise capital have appeared in recent decades. Empirical investigation of the characteristics of firms that use particular innovations and the shareholder wealth effects of issuing innovative securities has not kept pace with the development of new instruments. The issue of why corporate securities have the features they do and why specific innovations succeed or fail continues to appear on Brealey and Myers' (1996) celebrated list of 10 unsolved problems in finance. This paper contributes to the body of empirical evidence on security design by analyzing an innovation that has survived for nearly 15 years, convertible exchangeable preferred stock.[1]

Convertible exchangeable preferred stock is a variant of convertible preferred stock that first appeared in 1982. Like conventional convertible preferred stock, it gives the holder the option to convert into a fixed number of common shares and is callable at the issuer's option. Convertible exchangeable preferred provides the issuer an additional right to exchange the preferred shares for convertible debt securities with identical pre-tax annual cash flows and common stock conversion terms. Convertible exchangeable preferred provides a possibly unique opportunity to study a finan-

[1] Finnerty (1992) and Allen (1993) summarize several innovations in corporate financing. Smith and Smithson (1990b) analyze the process of designing new financial instruments. Several studies of innovative securities appear in Smith and Smithson (1990a) and *Financial Management* (1993.)

cial innovation. The opportunity arises because the innovative security differs from a traditional corporate security, convertible preferred, only in one design element, the exchange option, and corporations continue to raise capital in the public markets using both securities. This paper reports the first empirical examination of convertible exchangeable preferred stock offerings, as well as a comparison sample of convertible preferred stock offerings.

I focus on the motive for and information effects of the choice between issuing convertible exchangeable preferred stock and conventional convertible preferred stock. The exchange option provides the issuer with a potential tax benefit, but at the cost of a potential tax disadvantage to the institutional holder. As an alternative to a pure tax motive, I suggest a signalling equilibrium in which lower-quality firms issue convertible exchangeable preferred stock, but better firms forego the exchange option and issue conventional convertible preferred stock to signal their higher value.

Empirically, the common stock-price reactions to announcements of convertible exchangeable preferred stock offerings average around –2.0% and are highly statistically significant. Reactions to convertible preferred stock offer announcements also are negative, but less than half the magnitude and only marginally significant. Similarly, both types of convertible security offerings evoke negative price reactions around the issuance date, but again those for convertible exchangeable preferred are larger in absolute value.

Cross-sectional regressions reveal that the announcement period and issuance period common stock price reactions depend upon the type of security issued, measures of the degree to which information asymmetry pertains to the issuer's growth opportunities, whether the proceeds are used to refund an existing convertible preferred issue, and firm pre-offer financial leverage. The stock price reactions to announcement and issuance are not positive regardless of whether the issuer has low, medium or high growth opportunities as measured by Tobin's *q*, however. The average operating performance of both groups of issuers is close to the median of matched control firms both before and after the convertible security offering and follows no apparent pattern.

The evidence provides qualified support for the hypothesis that the choice of convertible exchangeable preferred stock signals that the firm is of a lower quality than conventional convertible preferred issuers. The results do not support theories of positive information from public offerings of equity-linked securities.

2. Potential explanations for convertible exchangeable preferred stock issuance

2.1 Convertible preferred stock versus convertible debt

Little work has been done to explain the issuance of convertible preferred stock. Theories of convertible debt are more plentiful, and Linn and Pinegar (1988) treat them as broader theories of convertible securities. Whether this is appropriate depends

on whether convertible preferred financing is a close substitute for convertible debt financing.

The salient differences between convertible preferred stock and convertible debt are maturity, the strength of contractual provisions, and tax treatment. Convertible preferred is perpetual while convertible debt requires a par value payment at maturity. This seems minor considering that convertible debt typically is issued with a 10 year term to maturity (and longer terms before the 1990s.) The present value of preferred cash flows beyond the maturity date of similar debt is unlikely to differ much, at the issuance date, from the par value of the debt. More important, issuers are likely to force conversion, or induce voluntary conversion, early enough that the actual life of either type of security is likely to be less than 10 years. Therefore, the maturity difference between convertible debt and convertible preferred is not of much importance.

Regarding the strength of contractual provisions, default on debt coupon payments can trigger financial distress. The omission of preferred dividends legally is not a default. However, omissions preclude the payment of common dividends and repeated omissions typically result in preferred shareholders gaining board representation. Preferred dividend omissions probably stimulate considerable costly recontracting, though less than missed coupon payments. Moreover, convertible debt issues normally have minimal covenants. Thus, unless there is a significant probability that the firm will miss scheduled coupon or dividend payments on the

convertible security, the strength of contractual provisions is likely to have at most a minor impact on the choice between preferred and debt financing.[2]

The remaining distinction between debt and preferred, tax treatment, is more consequential. Firms take a tax deduction for coupon payments, but not for dividends. However, shareholders that are corporations benefit from a 70% exclusion from taxation of dividend income, while interest received is fully taxable. This implies that firms with low marginal tax rates raising capital with convertible securities have an incentive to issue convertible preferred stock. In effect, the issuance of preferred stock leases part of the unused debt tax shields to other firms. [See Fooladi and Roberts (1986) and Houston and Houston (1990).] Between 80% and 90% of convertible debt investors are tax-exempt [Finnerty (1990)], making it likely that convertible debt and convertible preferred securities are held by largely disjoint clienteles.

2.2 Tax and information tradeoff effects of the exchange option

The foregoing analysis suggests that convertible preferred stock and convertible debt are close substitutes for firms raising

[2] In the Myers and Majluf (1984) model, the common stock price decline on the announcement of a security offering depends on the extent to which the security value is sensitive to changes in the expected cash flow stream of the issuer. One possible view of convertible exchangeable preferred stock is that it has a debt component and therefore is less sensitive to cash flow expectations than convertible preferred stock. However, my argument is that in the case of convertibles, there is little difference between debt and preferred stock in the sensitivity to cash flow prospects.

capital in all respects except tax effects.[3] Since convertible exchangeable preferred stock differs from convertible preferred stock only by the inclusion of an option to switch to convertible debt, it should be a perfect substitute for convertible preferred except for tax considerations. Convertible exchangeable preferred stock gives the issuer an additional tax advantage in that it allows the firm to take back the tax shields if and when its marginal tax rate rises by exchanging the preferred for debt with no underwriting costs.[4] [See Finnerty (1992).]

While the exchange feature offers the issuer a valuable tax option, an exchange could be detrimental to corporate investors that own convertible exchangeable preferred. A taxable corporate investor receiving debt in place of preferred stock would be forced either to endure a reduction in after-tax income or to incur transaction costs to sell the securities (presumably to a tax-exempt investor.)[5]

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[3] Cowan, Nayar and Singh (1992) report that the common stock price reaction to conversion-forcing call announcements does not depend on whether the convertible security is preferred stock or debt, affording further weight to the argument that asymmetric information theories of convertible debt also apply to convertible preferred stock.

[4] Jalan and Barone-Adesi (1995) model the choice between convertible debt and common equity in a symmetric information setting with market friction and incompleteness. They demonstrate that the tax deductibility of interest is sufficient to induce firms to issue convertible debt instead of equity. Jalan and Barone-Adesi do not consider preferred securities.

[5] The pre-tax annual coupon rate on the exchanged debt securities always is equal to the pre-tax annual dividend rate on the convertible exchangeable preferred stock.

As long as a cost to the investor accompanies the gain to the issuer, and the same tax benefits could be obtained by a future refinancing, tax arbitrage cannot explain convertible exchangeable preferred stock. [An example of a corporate securities innovation explained by tax arbitrage is the original issue deep-discount debt studied by Varma and Chambers (1990).] Even so, the tax advantage that a corporate investor gives up in a year is equal to the tax rate times 70% of the preferred dividend, while the issuer gains the tax rate times 100% of the dividend. Further, the transaction cost for an investor to sell portfolio securities surely is a fraction of the cost of a new underwritten public issue. Therefore, the value to the issuer of the option to exchange exceeds the negative of its value to the investor. Moreover, the option to exchange is of no tax consequence to investors other than taxable corporations. (It is likely, however, that taxable corporations are the marginal investors in convertible preferred securities.) Thus, even if the exchange option is priced to fully compensate the marginal investor for writing it, convertible exchangeable preferred stock would appear to dominate convertible preferred stock as a means of raising capital. Yet, firms continue to issue both types of convertibles.

Stein (1991) proposes a model of convertible security financing that offers potential insights into the continued existence of both forms of convertible preferred stock. Stein argues that firms raising capital under asymmetric information issue convertibles to avoid the adverse selection costs of common stock. Firms that have

the poorest prospects for future cash flows issue common stock because the expected financial distress costs of issuing overpriced debt are too high. Firms that have the best prospects find that a sale of common stock would result in their being pooled with the poor quality firms, resulting in the stock being underpriced. At the same time, the expected financial distress costs of debt are low, so the best firms avoid equity and issue debt.

Medium quality firms in Stein's model find the expected financial distress costs of straight debt too high, but also want to avoid being pooled with the poor quality firms and issuing underpriced common equity. The medium quality firms know that if they issue convertibles, they will be able to force conversion into common (by calling the convertibles) early enough to avoid financial distress. Poor quality firms do not expect to be able to force early conversion, so they do not mimic the medium quality firms. In equilibrium, only the best firms issue straight debt, only the worst issue common equity, and only medium quality firms issue convertibles. Accordingly, the choice of security type signals the quality of the firm.[6]

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[6] Kim (1991) reaches a similar conclusion. In Kim's model, as in Stein's, firms trade off the lower adverse selection costs of issuing debt against the disadvantages of debt relative to equity. Whereas in Stein (1991) debt issuance increases the present value of expected bankruptcy costs borne by managers, in the Kim model the disadvantage is that debt increases the total risk of the stock holdings of risk-averse, undiversified managers. All security types are characterized as equity plus a put option to receive a fixed claim by refraining from conversion. Kim derives an equilibrium where managers with more favorable private information about the mean and variance of future firm cash flows set a lower conversion ratio. The lower the conversion ratio, the more important is the

Stein does not consider convertible exchangeable preferred stock. However, a simple extension of his conceptual framework can accommodate this type of security. Suppose that among medium quality firms currently in a low tax bracket, there are two groups. The first, high-medium quality, group has relatively favorable prospects and expects to be able to force conversion quickly. The other, low-medium quality group has less favorable prospects and does not expect to be able to force conversion as soon as the first group, but expects to be in a higher tax bracket than currently before forcing conversion. The option to exchange is valuable to the low-medium firms, so they issue convertible exchangeable preferred stock. Because the high-medium firms expect to force conversion fairly early, they anticipate that there will be at most a short time during which they will take advantage of debt tax shields. Thus, the option to exchange is of low value to the high-medium firms. If investors cannot distinguish between low-medium and high-medium quality issuers of convertible exchangeable preferred, the embedded exchange option is overpriced from the perspective of high-medium issuers. Since the issuer is long in the overpriced exchange option, the total package is underpriced, holding all else constant. By foregoing the option and issuing tra-

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put component as a fraction of the security value. At one extreme, managers with the most favorable information set the conversion ratio to zero and issue straight debt. At the other, managers with unfavorable information set the conversion ratio high enough to drive the value of the security holders' put to zero, effectively issuing equity.

ditional convertible preferred stock, the high-medium quality firms avoid the underpricing that would result from pooling with low-medium quality firms.

The extension of Stein's analysis leads to the hypothesis that issuers of conventional convertible preferred stock signal themselves to be of a higher quality than issuers of convertible exchangeable preferred stock. I test the hypothesis by measuring the common-stock price reaction to announcements of offerings of the two types of securities, investigating whether the type of convertible security issued is a significant determinant of the stock-price reaction in the presence of other explanatory variables, and measuring the post-offering operating performance of the issuers.

3. Data and methods

3.1 The samples

The sample comes from the IDD *Corporate Financing Directory* and the SEC *Registered Offering Statistics* tape (1982-1988); a list compiled by Securities Data Company (1989-1990); and the *Compact D/New Issues* (formerly *Compact D/33*) database (1991-1994.) The sample period begins in December 1982 because that is the month of the first offering announcement of convertible exchangeable preferred stock. The last month of the sample is March 1994, the ending date of the last *Compact D/New Issues* available when the sample was established. During the period, there are 289 announcements of underwritten primary cash offerings of fixed-dividend preferred stocks convertible into the issuer's common

stock. The total excludes unit offerings, shelf registered offerings, and mandatory conversion preferred stocks including PERCS, DECS and ACES. Apart from the stated exclusions, to my knowledge the sample comprises all such SEC-registered public offerings by firms with common stock traded on the NYSE, AMEX, or Nasdaq.

The announcement date (day 0) is the earlier of the first *Wall Street Journal* article about the issuance announcement, if any, and the day after the SEC filing date of the registration statement. Table 1 reports the time distribution of the sample. Convertible exchangeable preferred stocks make up the majority of the sample offerings in 1985-1989, while conventional convertible preferred stocks predominate in other years. Offerings of both security types peak at a total of 51 in 1986, the last year in which corporations could exclude 85% of their dividend income from taxation at a maximum rate of 46%. After a relatively depressed period, offerings become more frequent in the mid-1990s.[7]

Descriptive statistics and cross-sectional data come from Moody's *Manuals*, Moody's *Bond Survey*, Standard and Poor's *Stock Guide*, Compustat, CRSP, *Compact D/New Issues* and *Compact D/SEC*.

[7] Mandatory conversion preferred securities did not appear as capital-raising vehicles until late 1991, so their exclusion from the sample cannot explain the paucity of offerings from 1988-1991. It also is worth noting that although table 1 reports no convertible exchangeable preferred offerings in the portion of 1994 included in the sample, there have been more public offerings since then. Thus, the security is not extinct.

Table 2 reports the industry distribution of the sample. Both subsamples contain firms from all 1-digit primary SIC code groups 1 through 8. A difference between the samples is that a higher proportion of conventional convertible preferred issuers are financial firms (1-digit SIC code 6). The likely reason for the difference is that financial firms need preferred or common equity financing to meet regulatory capital requirements, so they do not want convertible debt in their capital structure in the future. Financial firms, as well as utilities (2-digit SIC code 49), may suffer less from information asymmetry problems than industrials. Linn and Pinegar (1988) report that stock price reactions to announcements of convertible preferred stock issues are less negative and statistically insignificant for financials and utilities, supporting the idea of reduced information asymmetry. Therefore, I exclude issues by financials and utilities from further analysis. The final sample includes 107 convertible exchangeable preferred stock issues and 100 convertible preferred stock issues.

3.2 Sample characteristics

Table 3, panel A reports the primary use of the offering proceeds. Convertible exchangeable preferred issuers most commonly cite repayment of bank debt or non-bank short-term debt as the main use of funds. Convertible preferred stock issuers report capital expenditures and repayment of bank debt as the most frequent uses. The fraction of the sample reporting bank debt repayment as the principal use is significantly greater for convertible ex-

changeable preferred stock issuers (26% versus 13%) while the fraction intending to use the funds for capital expenditure is significantly greater in the convertible preferred stock sample (17% versus 6½%.) The differences are consistent with the idea that convertible exchangeable preferred stock issuers have less favorable prospects, given that bank loans and capital expenditures both tend to be associated with good news. [See McConnell and Muscarella (1985) and James (1987).]

Panel B reports that the tax status of the two groups of issuers is similar. For example, 72% of convertible exchangeable preferred issuers and 76.7% of convertible preferred issuers that adopted SFAS 95 paid income taxes, according to their cash statements. Forty percent of convertible exchangeable preferred issuers and 34% of convertible preferred have tax loss carryforwards. The similar tax status of the two groups is consistent with the idea that the choice of an exchange provision is something more than an obvious response to current taxes. Panel C reports that few firms issue other securities simultaneously with convertible preferred securities.

Panel D of table 3 lists several properties of the issued securities. The two types are about equally likely to have an investment grade rating from Moody's or Standard and Poor's (23.8% and 19.2%.) A feature absent from the convertible exchangeable preferred stock sample is the option for the issuer to pay the call price in common shares instead of cash, which applies to 12% of the

convertible preferred stock sample. Few securities in either sample have voting rights (about 6%) unless the firm omits preferred dividends for a specified number of consecutive quarters, usually six. Most of the securities gain special voting rights in that situation. Many securities have a so-called soft call provision, allowing the issuer to call before the end of the normal protection period if the common stock price reaches a specified ratio to the conversion price. The soft call feature appears in 51.4% of the convertible exchangeable preferred stocks and 39% of the convertible preferred stocks. The difference is significant at the 10% level. If convertible exchangeable preferred stock issuers are unlikely to be able to force conversion as soon as convertible preferred stock issuers, the option is not as costly to them, which may explain their more frequent usage of it.

Table 4, panel A shows that on average, convertible preferred stock issuers have more assets, measured at book value, than convertible exchangeable preferred stock issuers. However, the median assets for each subsample is close to a half billion dollars and the difference of means is not statistically significant. The mean convertible preferred issue size of $111 million exceeds the mean convertible exchangeable preferred issue size of $75 million, but the median ranking is reversed and the difference of means is statistically insignificant. Convertible exchangeable preferred issues amount to a mean 19% of assets versus 41.7% for convertible preferred offerings; the difference is statistically significant at the 5%

level. Again, however, the median ranking is reversed and the medians are much closer. If holders convert the whole issue into common stock, the new shares would amount to a mean 28% of shares outstanding (median 20%) for convertible exchangeable preferred and 39% (median 20%) for convertible preferred issues. The difference is not statistically significant. I conclude that except for a few large offers, issues and issuers are about the same size across both security types. Thus, it does not appear that one type of security dominates the other for a particular range of firm size or a particular amount of capital raised.

Table 4, panel B reports that the mean dividend yield on convertible exchangeable preferred stocks is 8.4% (median 8.0%) and the mean and median yield on convertible preferred stocks is 9.0%. The difference of means is statistically significant. However, the yield difference could reflect differences in market conditions across issuance dates. To control for market conditions, the table also reports the spread between the sample security yield and the yield on medium-grade industrial non-convertible preferred stocks. The difference of means is statistically insignificant and the medians are the same, –3.9%. The dividend yield of the issuing firms' common stocks also varies little between the samples.

Nyborg (1995) argues that since conversion-forcing calls of convertible securities evoke reductions in common stock prices as in Harris and Raviv (1985,) convertible issuers will try to encourage voluntary conversion to reduce adverse selection costs. If the two

types of securities are unequally close to voluntary conversion at issuance, investors' inferences about call policy could lead to different stock price reactions across types. Firms can stimulate voluntary conversion by increasing common stock dividends until holders receive a higher yield from the converted shares than from the convertible security. Table 4 reports that the convertible investors' mean yield gain from immediate conversion is –7.3% (median –7.0%) of the offering price of convertible exchangeable preferred issues and –7.9% (median –8.0%) for convertible preferred stocks. While the difference is not statistically significant at the 5% level, it appears that convertible exchangeable preferred issues have a slightly less negative yield gain to voluntary conversion. However, holders will not exercise their option to convert into common stock as long as the option is out of the money. The common stock price falls below the conversion price by a smaller margin in the convertible preferred sample than in the convertible exchangeable preferred sample. Thus, the convertible exchangeable preferred issues are somewhat deeper out of the money, a median of 18.7% at the offer date versus 17.5% for the convertible preferred issues. Considering both the yield and price conditions, neither type of convertible security appears to be systematically closer to voluntary conversion at its offering.[8]

[8] Another factor that can provide information about call policy is the ability to call the issue for common shares instead of cash. The issuance of convertibles callable for shares gives the firm the flexibility to make a conversion forcing call when the investors' call option is not deep in the money without

Panel C of table 4 displays some call features of the sample securities. The convertible exchangeable preferred stocks have a mean call protection of 1070 days (median 1095 days). Because of a few immediately callable issues, the mean for convertible preferred stocks is 121 days, but the median is 1088 days. Given how close the medians are, and considering that more convertible exchangeable issues have a soft call feature, it is difficult to conclude that either type of security carries more stringent call protection than the other. The convertible exchangeable issues are protected against immediate exchange; the typical exchange protection is one to three years, the mean is 850 days, and the median is 751 days. In all cases, the exchange protection is less than or equal to the call protection. The existence of exchange protection is evidence that the substitution of convertible bonds for convertible preferred imposes a cost on holders. The required call notice period typically is a minimum of 30 days and a maximum of 60 days and differs little between the security types.

Panel D of table 4 shows that issuers have substantial net operating loss carryforwards, averaging 18.8% of assets (median 3.3%) among convertible exchangeable issuers and 31.3% of assets (median 2.8%) in the convertible preferred stock sample. The difference is statistically insignificant. The similarity of the carryfor-

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running the risk of having to make a large cash payout and thereby possibly incurring financial distress costs. Thus, issues with a share call feature may be more likely to be called early. None of the convertible exchangeable issues, versus 12% of the convertible preferred issues, is callable for common shares.

wards reinforces the impression from table 3 that the two types of issuers have similar current tax situations at the time of the security offering.

Raymar (1993) argues that the issuance of equity, and by implication equity-linked securities, signals low default risk and high value in firms with high leverage. Different leverage ratios between the subsamples could induce different stock price reactions that actually are unrelated to the type of convertible security. Table 4 reports that the average ratio of total debt and preferred stock to assets (all at book value) is virtually identical in the two samples: 37.8% (median 35.2%) for convertible exchangeable preferred issuers and 39.7% (median 37.3%) for convertible preferred issuers. There are no statistically significant differences between the samples in the change in cash balance from year –2 to year –1 scaled by assets, or operating income scaled by assets. Thus, the issuers of one security type do not suffer from liquidity constraints to a greater degree than the other.

The theories of Ambarish, John and Williams (1987) and Cooney and Kalay (1993) predict that the issuance of equity, and by implication convertible preferred securities, can signal that the firm has projects with unexpectedly large positive net present values. However, equity-linked securities issues only signal good news when information asymmetry stems primarily from uncertainty about growth opportunities rather than assets in place. Titman and Wessels (1988) argue that firms where growth opportunities

are important have greater flexibility in making capital investments, and therefore a greater agency cost associated with the asset substitution problem. Given that convertible securities are especially useful in controlling the asset substitution problem [Green (1984)], Titman and Wessels suggest that the convertible debt ratio should be increasing in growth opportunities.

Panel E of table 4 reports two variations on the convertible debt ratio, total convertible debt and preferred securities to assets and total convertible securities to total debt and preferred stock. The latter is intended to capture growth-related information asymmetries. The greater the agency costs of straight debt and straight preferred stock resulting from investors' uncertainty about the value of growth opportunities, the more a firm will issue convertibles instead of straight senior securities. Both convertible ratios are similar between the subsamples, with the medians close to zero. A more common measure of growth opportunities, Tobin's *q*, also appears in the table. Tobin's *q* is the ratio of a firm's market value of assets to the replacement cost of its assets. The mean *q*, estimated the way Badrinath and Lewellen (1996) recommend, is 1.015 for the convertible exchangeable preferred sample and 2.130 for the convertible preferred issuers (medians 0.882 and 0.919). The difference of means is statistically insignificant. However, the data requirements of the Badrinath and Lewellen method reduce the sample sizes by more than half. To obtain a broader perspective on growth opportunities, I also estimate *q* by a simpler

method. The simple method assumes that the replacement cost of assets and the market values of debt and preferred stock are equal to their respective book values. The mean and median simple *q*s again are smaller in the convertible exchangeable preferred sample. The difference of means is significant at the 10% level. Thus, the market values of convertible exchangeable preferred issuers tend to reflect lower growth opportunities.

4. Common stock price effects of offer announcements

4.1 Average results

Table 5 reports the announcement period mean and median cumulative abnormal returns.[9] Table 6 reports the issuance date mean and median cumulative raw and abnormal returns. Consistent with the theoretical prediction, the common-stock price reaction to both the announcement and issuance of convertible exchangeable preferred stock is more negative than for convertible preferred stock. The mean abnormal return around convertible exchangeable preferred stock announcements ranges from –1.56%

[9]I measure abnormal common stock returns using conventional event study methods. The parameter estimates of the linear market model, assumed to represent the return generating process, are computed over a 240-day estimation period starting 91 trading days after the offer announcement. See Cowan, Nayar and Singh (1990) for a discussion of the importance of a post-event estimation period in event studies of corporate financial decisions. The market proxy is the CRSP value-weighted index of all NYSE, AMEX, and Nasdaq stocks. Test statistics are presented for the standardized cross-sectional test developed by Boehmer, Musumeci, and Poulsen (1990), the nonparametric generalized sign test analyzed by Cowan (1992), and the rank test of Corrado (1989.) We report results for three event periods, days –1 through +1, –-2 through +2, and–1 and 0. These choices capture most of the event windows that have previously been examined in studies using daily data.

(median –1.41%) for the two-day period to –2.50% (median –1.77%) for the five-day period. The results resemble those of Linn and Pinegar (1988), who report a mean two-day abnormal return of –2.015% around the announcements of conventional convertible preferred stock issues by industrial firms in 1963-1984. The two-day mean abnormal return also is similar to the –1.4% that Davidson, Glascock and Schwarz (1995) report for convertible debt offerings in 1980–1985, though somewhat smaller than the –2.31% that Dann and Mikkelson (1984) find for convertible debt in the 1970s.

The mean for convertible preferred stock announcements is –0. 54% (median –0.89%) for the two-day period, diminishing to –0.47% (median –1.20%) for the five-day window. The average price reaction to convertible exchangeable preferred stock offering announcements is statistically significant at conventional levels using the standardized cross-sectional test and two nonparametric tests. The reaction to convertible preferred stock announcements is not consistently significant across the different announcement windows except with the rank test. Cowan and Sergeant (1996) report that the rank test is misspecified for lower-tail tests if the return variance increases on the event date. I do not know if the unobservable true return variance increases around convertible security offering announcements. However, the lack of uniform significance across the tests suggests that the stock price reaction to non-

exchangeable convertible preferred announcements is best classified as marginally significant.

Table 6 reports the stock-price reactions to the actual issuance of the securities. The convertible exchangeable preferred stock sample sustains a mean abnormal common-stock price change of –2.47% (median –2.10%) over issuance days –1 through +1. The mean for convertible preferred stock offerings is –1.01% (the median is –1.09%.) Similarly to the announcement period results, stock-price reactions to convertible exchangeable preferred stock issuances more closely resemble previous findings for conventional convertible preferred stock than does the current conventional convertible preferred sample. On the issuance day alone, the abnormal return in the convertible exchangeable sample is –1.24%, about the same as the –1.25% that Linn and Pinegar (1988) report for industrial convertible preferred issuance days. The issuance day abnormal return for convertible preferred offerings is –0.72%. The means and medians for two-day windows including the issuance date also are negative for both security types, and all windows are statistically different from zero at the 5% significance level or better.

4.2 Cross-sectional analysis

4.2.1 Announcement date

To investigate the determinants of the stock-price reactions to offering announcements, I estimate regression models of the three-day (–1 through +1) abnormal returns on several explanatory

variables. Table 7 reports ordinary least squares simple linear regression results.[10]

The first explanatory variable is an indicator variable that takes the value of one for convertible exchangeable preferred stock and zero otherwise. The estimated coefficient of the variable indicates that the common stock price reaction to convertible exchangeable preferred stock announcements is 1.53 percentage points more negative than the reaction to convertible preferred stock announcements, on average. The coefficient is statistically different from zero at the 5% significance level. The estimated intercept of –.0056 is statistically insignificant at the 10% level. The result reinforces the conclusion from Table 5 that the market reaction to convertible preferred stock announcements is less reliably negative than the reaction to convertible exchangeable preferred stock announcements.[11]

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[10]In recent years many studies in financial economics have computed test statistics using a heteroscedasticity-consistent variance estimator proposed by White (1980.) However, Chesher and Jewitt (1987) report that the White estimator can be biased upward or downward, and that the bias can be large even in large samples and even in the absence of heteroscedasticity. Focusing on the cross-sectional analysis of stock returns, Karafiath (1994) conducts simulations and reports that test statistics using OLS variance estimates are at least as well-specified and powerful as the White method. Given the potentially severe problems with the White estimator and the documented performance of the OLS approach, I elect to compute only the OLS statistics.

[11] To check whether influential outliers drive the results, I examine the Cook's *D* for all cross-sectional regressions. Neter, Wasserman and Kutner (1985, p. 409) recommend comparing *D* to the *F* distribution with *p* and *n–p* degrees of freedom, where *p* is one plus the number of independent variables. For most of the regressions there is no observation with a *D* exceeding or even close to the 50th percentile of the *F* distribution. Exceptions are listed in the footnotes to the tables and any effects on the conclusions are discussed in the text.

The second regression uses a scaled measure of the conversion ratio, the extent that the conversion option is in the money. This is computed as the excess of the common stock price on day –2 above the conversion price, divided by the conversion price. The conversion option extent in the money is not significant at the 10% level. The result differs from the finding of Davidson, Glascock and Schwarz (1995) for convertible debt offerings. It also is inconsistent with the Kim (1990) model, although the negative sign of the coefficient is consistent with Kim's prediction. In a third regression, the investor's yield advantage of immediate conversion also is statistically insignificant in explaining the common stock price reaction. No model makes a direct prediction about the relation between the market reaction and the investor's yield advantage. However, the model of Nyborg (1995) implies that investors infer managers' intended call policy, and thus expectations of future cash flows, from the yield advantage.

Myers and Majluf (1984) argue that adverse selection problems under information asymmetry lead to more negative stock price reactions, the more sensitive a security's value is to changes in firm value. Eckbo (1986), Mikkelson and Partch (1986) and Linn and Pinegar (1988) use the presence of an investment grade debt or preferred stock rating to represent lower sensitivity to changes in firm value. The coefficient of the investment grade rating indicator is positive, consistent with the Myers and Majluf argument, but it is not statistically significant.

In the fifth regression, the coefficient of the fraction of increase in common shares on conversion is negative but statistically insignificant. The sixth regression tests the effect of the book leverage ratio. Contrary to the theoretical prediction of Raymar (1993), the sign of the leverage ratio coefficient is negative and statistically significant at 5%. The result thus is inconsistent with the idea that risky low-valued firms avoid issuing equity-linked securities in the presence of debt to such an extent as to permit their issuance to be a positive signal.

The seventh explanatory variable is the length of the call protection period. Stein (1992) and Nyborg (1995) offer competing conjectures about the call protection period. Stein views a conversion-forcing call as the logical result of the anticipated growth of firm value. Hence, a short call protection period should signal that managers expect rapid growth. In Nyborg (1995), as in Harris and Raviv (1985), managers abstain from making conversion-forcing calls to signal their optimism about future firm cash flows. Managers who select long call protection bind themselves to call abstention, indicating a positive view of future cash flow growth at the time of issuance. The result does not support either conjecture as the estimated coefficient of call protection is essentially zero.

An eighth regression result is that a significantly more positive average stock price reaction accompanies announcements of offerings that list refunding existing convertible preferred as the primary use of proceeds. The result is consistent with the Myers

and Majluf (1984) model in that refunding offerings are more likely to reflect a decrease in the required dividend yield, due to market conditions or an improved security rating, than an attempt to sell overpriced equity.

Regression 9 in table 7 contains the abnormal common stock price runup over days –100 through –11 to control for a possible tendency of managers to issue convertible preferred securities after a period of favorable information releases. There is no statistically significant relation to the stock price reaction.

In regression 10 of table 7, the ratio of convertibles to total senior securities represents the degree of information asymmetry associated with growth opportunities. The estimated coefficient has the expected positive sign but is statistically insignificant. Regressions 11 and 12 use Tobin's *q* estimated by the Badrinath and Lewellen (1996) and simple methods, respectively. The estimated coefficient is positive in both regressions and is statistically significant at the 5% level using the simple *q* estimate.

Although I do not report them in the table, I conduct additional regressions of the stock price reaction on indicator variables for repayment of bank debt, repayment of short-term non-bank debt, and acquisitions as the primary uses of proceeds. None of them produces a statistically significant or marginally significant result.

Table 8 presents multiple regressions of the three-day announcement period abnormal common stock return on several

combinations of variables from table 7. The variables that emerge most consistently as determinants of the stock price reaction are refunding as the use of proceeds (in regressions 2, 7 and 8) and Tobin's *q* (in regressions 5 and 7 through 9.) The indicator variable for convertible exchangeable preferred stock consistently is negatively related to the stock price reaction, but its coefficient is smaller and statistically insignificant whenever *q* is in the same regression. The leverage ratio is significant at the 10% level in regressions 3 and 8, but insignificant in regression 10.

The results suggest that the larger negative common stock price reaction to convertible exchangeable announcements at least partly reflects differences in growth opportunities. The results also are consistent with the difference in growth opportunity measures from Table 4, where convertible exchangeable issuers have slightly lower convertible security ratios and significantly lower *q* ratios.

4.2.2 Issuance date

Although market participants learn of a firm's plan to issue securities on the announcement date, many details of an offering are subject to change until the issuance date. Therefore, an analysis of the stock price reactions to the issuance can provide additional insight into the information effects of the offering.

Table 9 displays simple linear regression results where the dependent variable is the common stock cumulative abnormal return over the three-day issuance period –1 through +1. The coefficient of the convertible exchangeable preferred stock indicator is

negative and statistically significant at the 5% level. On average, the common stock abnormal return around convertible exchangeable preferred stock issuance dates is 1.46 percentage points less than around convertible preferred stock issuance dates. As on the announcement date, the stock price reaction receives no statistically significant effect from the extent that the conversion option is in the money, the investor's yield advantage of immediate conversion, the investment grade rating indicator variable, the fraction of increase in common shares from conversion, the call protection period, or the common stock price runup. The leverage ratio and the indicator variable for refunding also do not explain the stock price reaction.

The ratio of convertibles to total senior securities (regression 10) has an estimated coefficient of –0.0307 that is statistically different from zero at the 10% significance level, in contrast to its positive and insignificant coefficient on the announcement date. Thus, the issuers with a higher degree of information asymmetry due to growth opportunities tend to experience more negative stock price reactions at issuance.

Table 9 (regression 11) also reports that Tobin's *q*, estimated by the Badrinath and Lewellen (1996) method, receives a negative coefficient that is significant at the 10% level. The coefficient is significant at the 5% level after deleting one influential outlier. When *q* is estimated by the simple method to expand the data available for the regression, the coefficient is positive and signifi-

cant at the 5% level. However, the result is sensitive to three influential outliers. Without the three outliers, the coefficient of the simple *q* estimate is negative and statistically insignificant. Thus, there is little evidence of a positive relation between growth opportunities and the issuance-date common stock abnormal return, and some evidence of a negative relation.

Table 10 reports multiple regressions where the dependent variable is the three-day issuance period stock price reaction. The coefficient of the convertible exchangeable preferred stock indicator is negative and significant at the 5% level in regressions with the investment grade rating indicator (regression 1) and the refunding indicator (regression 2.) It is negative and significant at the 10% level with the leverage ratio (regression 3) and with the fraction of increase in common shares on conversion (regression 6.) When the ratio of convertibles to total senior securities is included in regression 4, its coefficient is negative and significant at the 10% level while the coefficient of the convertible exchangeable preferred stock indicator is negative but statistically insignificant.

As in the simple regressions, the effect of *q* on the issuance date stock price reaction is somewhat ambiguous. In regression 5 of table 10, the convertible exchangeable preferred stock indicator coefficient is negative and insignificant at the 10% level, and the *q* coefficient is positive and significant at the 10% level. However, the regression has two influential outliers, and deleting them produces negative coefficients that are significant at the 10% level for both

explanatory variables. Regression 7 retains the exchangeable indicator and *q*, and also includes the ratio of convertibles to total senior securities. Again the *q* coefficient is positive (but now insignificant) until the one influential outlier in the regression is removed. Without the outlier in the sample, all three explanatory variables have negative and statistically insignificant coefficients, as does the intercept term.

Generally, there is tenuous evidence of more negative stock price reactions to convertible exchangeable preferred stock issuances, of stock price reactions to issuances decreasing in a measure of growth-related information asymmetry (the ratio of convertibles to total senior securities), and apart from the effect of one or two outliers, stock price reactions decreasing in a measure of profitable growth opportunities (Tobin's *q*.) The inverse relation between the stock price reaction and the growth-oriented variables is opposite the pattern on the announcement date and differs from known theoretical predictions.

5. Operating performance

If convertible exchangeable preferred stock offerings signal that managers have lower expectations of future firm cash flows, ideally it should be possible to observe the realization of these expectations in the years following the offering. To examine the post-offering performance of issuing firms, I use methods that Barber and Lyon (1996) find produce well-specified tests. I compute three operating performance measures, all of which are functions of op-

erating income (Compustat data item number 13.) The first measure approximates cash flow return as operating income divided by beginning-of-year book assets. The second measure is operating income scaled by the average book value of assets across the beginning and end of the year. The third is a growth measure, defined as the year-over-year change in operating income scaled by ending assets.

I adjust each operating performance measure by subtracting the median operating performance of an issuer-specific control group. The control group contains all firms on the annual Compustat files other than the sample firm that have the same two-digit SIC code and year –1 scaled operating income within 10% of that of the sample firm. If a control portfolio contains fewer than five firms, I expand it to include all firms that have scaled operating income within 10% regardless of industry. I use the signed rank test to gauge whether the control-portfolio-adjusted operating performance is different from zero. Barber and Lyon (1996) report that the signed-rank test is uniquely well specified for this purpose.

Table 11 contains the mean and median operating performance for fiscal years 0 through +3. Panel A shows that the mean and median control-adjusted cash flow return and scaled operating income of firms issuing convertible exchangeable preferred stock are close to zero every year, and are not statistically significant. The control-adjusted operating income growth is positive in some

years and negative in others; it too is insignificantly different from zero at the 10% level. In year +1, for example, the mean control-adjusted operating income growth is –0.011, but the median is positive 0.015. Forty-seven convertible exchangeable preferred stock issuers experience positive control-adjusted growth in year +1 and 29 experience negative growth.

Panel B reveals that the convertible preferred stock issuers exhibit negative mean control-adjusted cash flow returns and scaled operating income in every year, but the medians are positive in years 0 through +2. As in the convertible exchangeable sample, the operating income growth measure is of mixed sign. None of the operating income or growth measures is significantly different from zero in any year.

In general, there is no evidence of firm-specific post-offering deterioration or improvement in operating performance for issuers of either convertible exchangeable preferred stock or convertible preferred stock. A possible explanation is that the stock price reactions reflect something other than expectations of future firm-specific cash flows. For example, the reactions could reflect expected increases in the riskiness of future cash flows with no change in the mean. Alternatively, the reactions could in part reflect information common to firms with similar recent operating performance. Another potential source of the discrepancy is that the price reactions could reflect expected cumulative changes in operating performance over many years, not just the issuance year

and the three following. A final possibility is that the operating performance measures are too noisy to allow detection of the cash flow changes implied by the relatively modest abnormal stock returns around the announcement and issuance of convertible preferred securities.

6. Further analysis of growth opportunities, security type and stock price reactions

The regression evidence in tables 7 through 10 indicates that while the average stock price reaction to announcements and issuances is more negative for convertible exchangeable preferred stock offerings, other influences on the price reaction may be more important. In particular, an indicator variable for convertible exchangeable preferred stock receives a statistically insignificant coefficient estimate in multiple regressions with Tobin's *q* and, on the issuance date, the ratio of convertible securities to total senior securities. This section contains further analysis of the contributions of growth opportunities and security type to explaining the stock price reactions.

Table 12 reports statistics for the sample of offerings divided by *q* instead of security type. To focus on relatively extreme values of *q* versus more normal ones, the table displays the lowest quartile, where $q<0.63$, the combined second and third quartiles, and the highest quartile, where $q>1.13$. Several interesting features come out using this breakdown. The highest quartile consists of firms with strong growth opportunities, with an average *q* of 2.46,

in contrast to *q*s of less than one on average in the rest of the sample. The mean ratio of convertibles to total senior securities increases substantially with *q*, rising from 4.7% in the lowest quartile to 15.7% in the highest. Thus, growth-related information asymmetry increases with the growth opportunities reflected in market valuations. Next, the fraction of the sample that consists of convertible exchangeable preferred stock first increases and then decreases with *q*. The greatest change is from 42.4% in the lowest quartile to 60.9% in the middle group. All levels of *q* have substantial fractions of convertible exchangeable preferred stock. The lack of a monotonic relation between growth opportunities and the use of either security type makes it less likely that the different stock price reactions for the two types are an artifact of *q* differences.

Table 12 also shows that the average three-day announcement stock-price reaction decreases in absolute value across the growth opportunity groups, averaging
–1.86% in the lowest quartile, –1.51% in the middle group, and –0.38% in the highest quartile. The average stock price reaction for the lowest and middle groups is significantly different from zero at the 1% level using all three statistical tests from tables 5 and 6. The average reaction is not statistically different from zero at the 10% significance level in the highest quartile of *q*. The results resemble the pattern in Denis (1994), where the abnormal returns around seasoned equity offering announcements are substantially

less negative, but still not positive, for firms with high growth opportunities.

The next to last column of table 12 reports the three-day issuance period stock price reactions. The announcement period pattern is reversed in the issuance period. The mean abnormal return rises in absolute value, from –1.48% in the lowest quartile of *q* to –2.08% in the highest quartile. The average is statistically different from zero at least at the 5% level for all groups using the parametric and rank tests, but the lowest quartile is insignificant at 10% according to the generalized sign test. Despite the reversal of the announcement-period relation between *q* and the stock price reaction, the sum of announcement and issuance period mean abnormal returns decreases in absolute value across the groups. The analysis confirms the result from tables 9 and 10 that, apart from the influence of outliers, the coefficient of *q* in the issuance period abnormal return regressions is negative. It also is consistent with a negative relation between issuance period abnormal returns and growth-related information asymmetry as measured by the ratio of convertibles to total senior securities.

The reason for the unexpected inverse relation between the issuance-period stock-price reaction and growth opportunities is unknown. Apparently market participants learn something at the issuance date that has more negative implications for higher-growth firms. However, the result does strengthen the argument that the type of security issued conveys information distinct from

the growth-opportunity and growth-related information asymmetry measures. The average stock-price reaction for convertible exchangeable preferred stock is the more negative of the two security types on *both* the announcement and issuance dates.

The final column of table 12 reports the median cumulative operating performance over years 0 through +3. All three groups exhibit negative cumulative operating performance, but in no case is the median significantly different from zero at the 10% level of the signed rank test. The operating performance results agree with those in table 11, where neither security type exhibits significantly negative post-offering performance.

7. Summary

I argue that under asymmetric information, firms issue convertible exchangeable preferred stock when they have less favorable information about future firm prospects than firms that issue traditional convertible preferred stock. The basis of the argument is an extension of Stein's (1991) conceptual approach to understanding convertible securities as back-door equity financing. Consistent with the hypothesis, issuers of convertible exchangeable preferred stock experience more negative common stock price reactions around both the announcement date and the issuance date.

In cross-sectional tests on the pooled sample of convertible issuers, the announcement date stock price reaction is negatively related to the choice of convertible exchangeable preferred stock,

and positively related to refunding as the main use of proceeds and a measure of profitable growth opportunities. The issuance date stock price reaction also is negatively related to the choice of convertible exchangeable preferred stock. In contrast to the announcement date result, however, the issuance date stock price reaction depends negatively on growth opportunities and growth-related information asymmetry.

Further analysis reveals that the stock price reactions to announcement and issuance still are negative, though statistically insignificant at announcement, for firms with the most profitable growth opportunities. The results do not support theories that predict the issuance of equity-linked securities to convey positive information for firms with strong growth prospects. The announcement date stock price reaction also depends negatively on firm leverage, contradicting the hypothesis that equity issuance in the presence of debt is a positive signal.

The overall results provide moderate support for the hypothesis that the issuance of convertible exchangeable preferred stock provides a more negative signal than convertible preferred stock. The results also support the idea that the presence of highly profitable growth opportunities ameliorates but does not eliminate the negative connotation of issuing equity-linked securities. Both conclusions are limited somewhat by the lack of a discernible change in operating performance in the years after issuance.

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Table 1

Time distribution of convertible exchangeable preferred stock and convertible preferred stock offerings

Year	Convertible exchangeable preferred stock	Convertible preferred stock (non-exchangeable)	Fraction exchangeable
1982	1	4	20%
1983	9	25	26
1984	4	10	29
1985	21	15	58
1986	35	16	69
1987	21	10	68
1988	5	1	83
1989	9	3	75
1990	4	5	44
1991	5	11	31
1992	5	26	16
1993	14	26	35
1994	0	4	0
Total	133	156	46

Table 2

Industry distribution of issuers of convertible exchangeable preferred stock and convertible preferred stock in the period 1982–1994

One-Digit Primary SIC Code	Convertible Exchangeable Preferred Stock Issuers		Convertible Preferred Stock Issuers	
	N	Fraction of sample	N	Fraction of sample
1 (Natural resource extraction, construction)	20	15%	20	14%
2 (Food, fiber, furniture, printing, chemicals, oil refining)	27	21	7	5
3 (Manufacturing)	32	24	31	22
4 (Transportation, communication and utilities)	17	13	15	10
Utilities	5		3	
5 (Retail)	7	5	5	3
6 (Finance)	21	16	53	37
7 (Services)	6	5	10	7
8 (Professional)	1	1	2	1

Table 3

Frequency of use of proceeds, tax status of issuer, simultaneous security offerings and properties of securities for 107 convertible exchangeable preferred stock offerings and 100 convertible preferred stock offerings in the period 1982-1994

The symbols †,* denote statistical significance of the difference between samples at the .10 and .05 levels, respectively, using a two-tailed test based on the normal approximation to the binomial distribution.

	Convertible exchangeable preferred stock	Convertible preferred stock	*z* for difference
Panel A: Primary use of proceeeds			
Repay bank debt	26.2%	13.0%	2.38*
Capital expenditure	6.5	17.0	–2.35*
Research and development	3.7	1.0	1.28
Repay long-term debt	11.2	7.0	1.05
Repay short-term non-bank debt	17.8	11.0	1.38
Specific aquisitions	2.8	3.0	–0.08
Possible acquisitions	3.7	4.0	–0.10
Refund existing convertible preferred	3.7	2.0	0.74
Panel B: Tax status of issuer			
Paid taxes (cash flow data)	72.0	76.7	–0.47
Paid taxes (estimate	65.2	57.6	0.98
Has tax loss carryforwards	40.2	34.0	0.73
Panel C: Simultaneous security offerings			
Common stock	0.0	2.0	–1.47
Convertible debt	0.9	0.0	0.97
Nonconvertible debt or preferred stock	0.9	0.0	0.97
Panel D: Properties of issued securities			
Investment grade rating	23.8	19.2	0.79
Callable for common shares in lieu of cash	0.0	12.0	–3.69*
Noncontingent voting rights	6.5	6.0	0.16
Contingent voting rights if dividend not paid	92.2	93.8	–0.45
Issuer may call early if common price is high	51.4	39.0	1.79†

Table 4

Mean, median and standard deviation of characteristics and difference of means tests for 107 convertible exchangeable preferred stock offerings and 100 convertible preferred stock offerings in the period 1982-1994.

Variable	Convertible exchangeable preferred stock				Convertible preferred stock				*t* for difference of means
	N	Mean	Median	Std Dev	N	Mean	Median	Std Dev	
Panel A: Size measures									
Book assets ($ millions)	102	1,124	460	1,872	84	3,585	622	18,926	–1.19
Issue size ($ thousands)	107	74,759	57,500	67,568	96	111,386	47,500	269,688	–1.29
Issue size ÷ book assets	102	0.192	0.123	0.240	80	0.417	0.101	0.867	–2.25*
Shares issuable on conversion ÷ post-conversion common shares	92	0.280	0.195	0.280	86	0.390	0.196	0.576	–1.61
Panel B: Dividends and conversion ratios									
Convertible dividend yield	102	0.084	0.080	0.018	93	0.090	0.090	0.022	–2.25*
Convertible dividend yield – medium grade industrial preferred yield	93	–0.037	–0.039	0.017	71	–0.033	–0.039	0.022	–1.17
Common dividend yield	107	0.013	0.000	0.016	97	0.011	0.000	0.022	0.61
Investor's yield gain from immediate conversion	91	–0.073	–0.070	0.021	84	–0.079	–0.080	0.029	1.52
Excess of common stock price over conversion price ÷ conversion price (announcement day –2)	92	–0.146	–0.168	0.138	86	–0.052	–0.157	0.454	–1.85†
Excess of common stock price over conversion price ÷ conversion price (offer date)	92	–0.182	–0.187	0.100	86	–0.083	–0.175	0.446	–2.01*

Table 4 continued

Variable	Convertible exchangeable preferred stock				Convertible preferred stock				*t* for difference of means
	N	Mean	Median	Std Dev	N	Mean	Median	Std Dev	
Panel C: Call features									
Call protection (days)	99	1070	1095	390	85	121	1088	5334	1.64
Exchange protection (days)	95	850	751	215					
Minimum call notice period	82	26	30	6.341	78	28	30	5.797	–1.71†
Maximum call notice period	75	60	60	5.312	59	62	60	7.607	–1.46
Panel D: Tax, leverage and cash-constraint measures									
Net operating loss carryforwards ÷ assets	75	0.188	0.033	0.362	58	0.313	0.028	0.626	–1.36
Book total debt and preferred stock ÷ assets	102	0.378	0.352	0.214	84	0.397	0.373	0.202	–0.62
Cash and short term investments ÷ assets	102	0.001	0.000	0.005	84	0.012	0.000	0.050	–1.96
Change in cash balance from year –2 to –1 ÷ assets	92	–0.009	0.002	0.104	71	0.016	0.007	0.129	–1.35
Operating income ÷ assets	101	0.059	0.081	0.125	84	0.041	0.057	0.147	0.89
Panel E: Growth-related information measures									
Book convertible securities ÷ assets	101	0.042	0.001	0.111	81	0.039	0.000	0.078	0.17
Ratio of convertible debt and preferred stock to total debt and preferred stock	100	0.087	0.003	0.178	80	0.094	0.002	0.203	–0.21
Tobin's *q* estimate (Badrinath-Lewellen method)	45	1.015	0.882	0.559	28	2.130	0.919	5.880	–1.00
Tobin's *q* estimate (simple method)	102	0.924	0.768	0.342	84	1.370	0.808	2.207	–1.80†

Table 5

Common stock price reactions to 107 convertible exchangeable preferred stock and 100 convertible preferred stock issuance announcements in the period 1982-1994

Day 0 is the earlier of the first Wall Street Journal report date of the announcement and the day after the SEC filing date. Daily abnormal returns (AR) are forecast errors from the single-index market model using the CRSP value-weighted index of all NYSE, AMEX, and Nasdaq stocks. The estimation period for the market model parameters is the 240 day period beginning on day +91. The standardized cross-sectional test assumes cross-sectional independence of abnormal returns but adjusts for heteroscedasticity and variance increases on the event date. [See Boehmer, Musumeci and Poulsen (1991).] The generalized sign test estimates the binomial parameter using the number of positive returns in the estimation period and tests the number of firms with positive returns on the event date(s). [See Cowan (1992).] The rank test ranks estimation period and event period abnormal returns in a single series and tests the average rank on the event date(s). [See Corrado (1989).] The precision weighted mean uses the portfolio weights implicit in the standardized cross-sectional test. The symbols †, *, **, *** denote statistical significance at the .10, .05, .01 and .001 levels, respectively, using a two-tailed test.

Type of ret-urn	Days (AD=0)	Cumulative average abnormal return Equally weighted	Precision weighted	Median cumulative abnormal return	Standard-ized cross-sectional Z	General-ized sign Z	Rank Z	Number of firms with +:-
Panel A: Convertible exchangeable preferred stock announcements								
Raw	(–1,0)	–1.36%	–1.24%	–1.21%	–3.34***	0.64	–3.48***	43:62
	(–1,+1)	–1.89	–1.79	–1.73	–4.07***	–1.17	–3.98***	34:71
	(–2,+2)	–2.19	–2.13	–2.27	–3.89***	0.44	–3.55***	42:63
AR	(–1,0)	–1.56	–1.41	–1.69	–4.09***	–2.09*	–3.88***	39:66
	(–1,+1)	–2.08	–1.86	–1.81	–4.51***	–3.85***	–3.85***	30:75
	(–2,+2)	–2.50	–2.30	–1.77	–4.30***	–2.68**	–3.54***	36:69
Panel B: Convertible preferred stock announcements								
Raw	(–1,0)	–0.45%	–0.83%	–0.84%	–1.81†	–0.27	–2.66**	32:63
	(–1,+1)	–0.35	–0.78	–0.90	–1.42	0.81	–2.41*	37:58
	(–2,+2)	–0.09	–0.33	–1.12	–0.54	1.45	–1.71†	40:55
AR	(–1,0)	–0.54	–0.91	–0.89	–2.09*	–2.13*	–2.93**	35:60
	(–1,+1)	–0.55	–0.96	–1.28	–1.89†	–2.54*	–2.95**	33:62
	(–2,+2)	–0.47	–0.66	–1.20	–1.13	–1.51	–2.34*	38:57

Table 6

Common stock price reactions to 107 convertible exchangeable preferred stock and 100 convertible preferred stock offerings in the period 1982-1994

Day 0 is the issuance date. Daily abnormal returns (AR) are forecast errors from the single-index market model using the CRSP value weighted index of all NYSE, AMEX, and Nasdaq stocks. The estimation period for the market model parameters is the 240 day period beginning on day +21. The standardized cross-sectional test assumes cross-sectional independence of abnormal returns but adjusts for heteroscedasticity and variance increases on the event date. [See Boehmer, Musumeci and Poulsen (1991).] The generalized sign test estimates the binomial parameter using the number of positive returns in the estimation period and tests the number of firms with positive returns on the event date(s). [See Cowan (1992).] The rank test ranks estimation period and event period abnormal returns in a single series and tests the average rank on the event date(s). [See Corrado (1989).] The precision weighted mean uses the portfolio weights implicit in the standardized cross-sectional test. The symbols †, *, **, *** denote statistical significance at the .10, .05, .01 and .001 levels, respectively, using a two-tailed test.

Type of ret-urn	Days (ID=0)	Cumulative average abnormal return Equally weighted	Precision weighted	Median cumulative abnormal return	Standard-ized cross-sectional Z	General-ized sign Z	Rank Z	Number of firms with +:-
Panel A: Convertible exchangeable preferred stock offerings								
Raw	(–1,0)	–1.88%	–1.62%	–1.71%	–4.05***	–1.61	–4.75***	32:71
	(0,+1)	–1.54	–1.52	–1.32	–4.22***	–1.01	–4.13***	35:68
	(–1,+1)	–2.33	–2.09	–2.30	–4.79***	–1.41	–4.82***	33:70
AR	(–1,0)	–1.99	–1.65	–1.57	–4.52***	–3.40**	–4.96***	31:72
	(0,+1)	–1.72	–1.52	–1.71	–4.69***	–3.59***	–4.56***	30:73
	(–1,+1)	–2.47	–2.08	–2.10	–5.33***	–4.38***	–4.94***	26:77
Panel B: Convertible preferred stock offerings								
Raw	(–1,0)	–0.37	–0.81	–0.00	–1.99*	–0.66	–2.90**	37:59
	(0,+1)	–1.33	–1.22	–0.90	–3.15**	–0.40	–3.15**	32:64
	(–1,+1)	–0.96	–1.22	–0.99	–2.39*	0.66	–3.02**	37:59
AR	(–1,0)	–0.46	–0.89	–0.85	–2.36*	–2.30*	–3.14**	35:61
	(0,+1)	–1.27	–1.13	–1.11	–3.09**	–2.71**	–3.10**	33:63
	(–1,+1)	–1.01	–1.23	–1.09	–2.65**	–2.65**	–3.03**	36:60

Table 7

Ordinary least squares regressions of three-day cumulative average abnormal return (expressed as a fraction, not a percentage) around convertible security offer announcements on a convertible exchangeable indicator and other explanatory variables.

The symbols †,* denote statistical significance at the .10 and .05 levels, respectively, using a two-tailed test.

	Variable	Intercept	Slope	Sample Size	R^2
(1)	Convertible exchangeable indicator	–0.0056	–0.0153	200	2.33%
		(–1.10)	(–2.17*)		
(2)	Conversion option extent in the money [a]	–0.0157	–0.0037	175	0.06%
		(–3.92*)	(–0.32)		
(3)	Investor's yield advantage of conversion[b]	–0.0061	0.1160	173	0.34%
		(–0.50)	(0.77)		
(4)	Fraction increase in common shares on conversion	–0.0116	–0.0111	176	0.98%
		(–2.45*)	(–1.32)		
(5)	Book total debt and preferred stock ÷ assets	–0.0014	–0.0336	180	1.97%
		(–0.18)	(–1.89†)		
(6)	Call protection period	–0.0146	–0.0000	182	0.09%
		(–3.89*)	(–0.40)		
(7)	Investment grade rating indicator	–0.0153	0.0119	200	0.68%
		(–4.00*)	(1.16)		
(8)	Refunding existing convertible preferred, as main use of funds, indicator	–0.0152	0.0527	200	3.23%
		(–4.28*)	(2.57*)		
(9)	Common stock runup [abnormal return; announcement days (–100,–11)]	–0.0122	–0.0096	199	0.74%
		(–3.28*)	(–1.21)		
(10)	Ratio of convertibles to total senior securities	–0.0184	0.0245	174	1.03%
		(–4.73*)	(1.34)		
(11)	Tobin's *q* estimate (Badrinath-Lewellen method)	–0.0240	0.0011	72	1.17%
		(–4.84*)	(0.91)		
(12)	Tobin's *q* estimate (simple method)	–0.0214	0.0062	180	3.89%
		(–4.74*)	(2.69*)		

[a] $\frac{CSP - CVP}{CVP}$, where *CSP* is the common stock price on announcement day –2 and *CVP* is the conversion price of the convertible preferred security.

[b] $\frac{CDV - PDV}{PSP}$, where *CDV* is the common dividends on converted shares, *PDV* is the preferred dividend, and *PSP* is the offering price of the preferred. *CDV* is found by annualizing the last quarterly common dividend before the offering date and multiplying by the number of common shares into which one preferred share converts.

Table 8

Ordinary least squares regressions of three-day cumulative average abnormal return (expressed as a fraction, not a percentage) around convertible security offer announcements on a convertible exchangeable preferred indicator variable and other explanatory variables.

The symbols †,* denote statistical significance at the .10 and .05 levels, respectively, using a two-tailed test.

Variable	(1)	(2)	(3)	(4)	(5) [a]	(6) [b]	(7)	(8) [c]	(9) [d]
Intercept	–0.0071 (–1.36)	–0.0067 (–1.34)	0.0048 (0.53)	–0.0133 (–2.38*)	–0.0170 (–2.66*)	–0.0010 (–0.17)	–0.0169 (–2.21*)	–0.0047 (–0.49)	–0.0105 (–1.23)
Exchangeability indicator	–0.0162 (–2.30*)	–0.0162 (–2.34*)	–0.0105 (–1.41)	–0.0088 (–1.25)	–0.0072 (–0.97)	–0.0189 (–2.52*)	–0.0128 (–1.63)	–0.0088 (–1.21)	
Investment grade rating indicator	0.0141 (1.39)						0.0163 (1.54)		
Refunding convertible preferred indicator		0.0550 (2.71*)					0.0607 (3.04*)	0.0605 (3.02)	
Book total debt and preferred stock ÷ assets			–0.0344 (–1.94†)					–0.0333 (–1.90†)	–0.0267 (–1.50)
Ratio of convertibles to total senior securities				0.0238 (1.30)					
Tobin's *q*					0.0059 (2.51*)		0.0057 (2.39*)	0.0054 (2.31*)	0.0057 (2.42*)
Fraction increase in common shares on conversion						–0.0135 (–1.62)	–0.0118 (–1.39)		
Sample size	200	173	180	174	180	176	158	180	180
F for regression	3.337	3.213	2.788	1.677	4.073	4.059	4.375	5.061	4.756
p-value for regression	0.038	0.043	0.064	0.190	0.019	0.019	0.001	0.001	0.010
Adjusted R^2	2.30%	2.51%	3.05%	0.78%	3.32%	3.38%	9.70%	8.32%	4.03%

Table 8 footnotes

[a] Regression 5 has three influential outliers, indicated by Cook's *D* values beyond the 50th percentile of the *F* distribution with 3 and 177 degrees of freedom. Removing the outliers has little effect on the estimated coefficients and does not alter the conclusions.

[b] Regression 7 has three influential outliers, indicated by Cook's *D* values beyond the 50th percentile of the *F* distribution with 6 and 152 degrees of freedom. After removal of the outliers, the coefficient on the investment grade rating indicator is positive and statistically significant at the 10%, but not at the 5%, level.

[c] Regression 8 has three influential outliers, indicated by Cook's *D* values beyond the 50th percentile of the *F* distribution with 5 and 175 degrees of freedom. Removal of the outliers renders the coefficient of book debt and total assets divided by assets statistically insignificant at the 10% level, although the sign remains negative.

[d] Regression 9 has three influential outliers, indicated by Cook's *D* values beyond the 50th percentile of the *F* distribution with 3 and 177 degrees of freedom. Removal of the outliers renders the intercept statistically significant at the 5% level and incresaes the absolute value of the coefficient of Tobin's *q*.

Table 9

Ordinary least squares regressions of three-day cumulative average abnormal return (expressed as a fraction, not a percentage) around convertible security issuance dates on a convertible exchangeable indicator and other explanatory variables.

The symbols †,* denote statistical significance at the .10 and .05 levels, respectively, using a two-tailed test.

	Variable	Intercept	Slope	Sample Size	R^2
(1)	Convertible exchangeable indicator	–0.0101	–0.0146	199	2.18%
		(–2.02*)	(–2.09*)		
(2)	Conversion option extent in the money [a]	–0.0159	0.0129	178	0.91%
		(–3.94*)	(1.11)		
(3)	Investor's yield advantage of conversion[b]	–0.0072	0.1340	175	0.47%
		(–0.61)	(0.90)		
(4)	Investment grade rating indicator	–0.0181	0.0025	199	0.03%
		(–4.74*)	(0.25)		
(5)	Fraction increase in common shares on conversion	–0.0218	0.0122 [c]	178	1.21%
		(–4.71*)	(1.47)		
(6)	Book total debt and preferred stock ÷ assets	–0.0015	–0.0090	179	0.14%
		(–1.90†)	(–0.51)		
(7)	Call protection period	–0.0179	–0.0000	184	1.04%
		(–4.85*)	(–1.38)		
(8)	Refunding existing convertible preferred, as main use of funds, indicator	–0.0176	–0.0029	199	0.01%
		(–4.92*)	(–0.14)		
(9)	Common stock runup [abnormal return; announcement days (–100,–11)]	–0.0185	0.0049	194	0.19%
		(–4.94*)	(0.61)		
(10)	Ratio of convertibles to total senior securities	–0.0173	–0.0307	173	1.63%
		(–4.43*)	(–1.68†)		
(11)	Tobin's *q* estimate (Badrinath-Lewellen method)	–0.0165	–0.0020 [d]	73	3.72%
		(–4.84*)	(–1.66†)		
(12)	Tobin's *q* estimate (simple method)	–0.0240	0.0049 [e]	179	2.51%
		(–5.37*)	(2.14*)		

[a] $\frac{CSP - CVP}{CVP}$, where *CSP* is the common stock price on the offering date and *CVP* is the conversion price of the convertible preferred security.

[b] $\frac{CDV - PDV}{PSP}$, where *CDV* is the common dividends on converted shares, *PDV* is the preferred dividend, and *PSP* is the preferred offering price.

[c] After deletion of one influential outlier the slope is negative and statistically insignificant.

[d] After deletion of one influential outlier the slope is negative and significant at the 5% level.

[e] After deletion of three influential outliers the slope is negative and insignificant.

Table 10

Ordinary least squares regressions of three-day cumulative average abnormal return (expressed as a fraction, not a percentage) around convertible security issuance dates on a convertible exchangeable preferred indicator variable and other explanatory variables.

The symbols †,* denote statistical significance at the .10 and .05 levels, respectively, using a two-tailed test.

Variable	(1)	(2)	(3)	(4)	(5) [a]	(6) [b]	(7) [c]
Intercept	–0.0107 (–2.08*)	–0.0101 (–2.01*)	–0.0071 (–0.80)	–0.0123 (–2.23*)	–0.0170 (–2.70*)	–0.0148 (–2.38*)	–0.0148 (–2.37*)
Exchangeability indicator	–0.0150 (–2.13*)	–0.0146 (–2.08*)	–0.0138 (–1.88†)	–0.0089 (–1.27)	–0.0116 (–1.57)	–0.0124 (–1.66†)	–0.0080 (–1.12)
Investment grade rating indicator	0.0049 (0.50)						
Refunding convertible preferred indicator		–0.0006 (–0.03)					
Book total debt and preferred stock ÷ assets			–0.0097 (–0.55)				
Ratio of convertibles to total senior securities				–0.0311 (–1.71†)			–0.0341 (–1.83†)
Tobin's *q*					0.0044 (1.87*)		0.0021 (0.86)
Fraction increase in common shares on conversion						0.0105 (1.26)	
Sample size	199	199	179	173	179	178	173
F for regression	2.305	2.181	1.901	2.220	3.534	2.467	1.722
p-value for regression	0.102	0.116	0.152	0.112	0.031	0.088	0.165
Adjusted R^2	1.30%	1.18%	1.00%	1.40%	2.77%	1.63%	1.24%

[a] Regression 5 has two influential outliers, indicated by Cook's *D* values beyond the 50th percentile of the *F* distribution with 3 and 176 degrees of freedom. After deletion of the outliers, the coefficients of the convertible exchangeable indicator and Tobin's q are both negative and statistically significant at the 10% level.

[b] Regression 6 has one influential outlier, indicated by Cook's *D* values beyond the 50th percentile of the *F* distribution with 3 and 175 degrees of freedom. After removing the outlier, the coefficient of the exchangeability indicator is about

10% smaller in absolute value; the coefficient of the fraction increase in common shares is negative but still statistically insignificant at the 10% level.

[c] Regression 7 has one influential outlier, indicated by Cook's *D* values beyond the 50th percentile of the *F* distribution with 4 and 169 degrees of freedom. After removing the outlier, all four regression coefficients are negative and statistically insignificant at the 10% level.

Table 11

Mean, median, signs and a test for difference from zero of alternative control-portfolio adjusted operating performance measures around convertible security offerings.

Year 0 is the year of issuance. Each operating performance measure is net of the control portfolio median performance measure for the same year. The control portfolio contains all firms, other than the sample firm, on the annual Compustat primary-secondary-tertiary, full coverage and research files with the same 2-digit SIC code that have year –1 scaled operating income within 0.9 times to 1.1 times that of the sample firm. If there are fewer than 5 matches in the 2-digit industry, the control portfolio contains all firms that meet the operating income screen without regard to industry.

	0	+1	+2	+3
Panel A: Convertible exchangeable preferred stock				
Cash flow return (Operating income ÷ beginning assets)				
Mean	0.0060	0.0054	0.0163	0.0099
Median	–0.0012	0.0074	0.0072	0.0170
Positive:Negative	38:42	39:37	36:30	34:22
p-value of signed rank test	0.64	0.48	0.36	0.22
Scaled operating income (Operating income ÷ average assets)				
Mean	0.0007	–0.0023	0.0147	0.0084
Median	–0.0068	0.0003	0.0040	0.0188
Positive:Negative	36:45	38:38	36:30	34:22
p-value of signed rank test	0.74	0.79	0.34	0.23
Operating income growth ((Δ operating income) ÷ ending assets)				
Mean	0.0018	–0.0110	0.0150	–0.0127
Median	–0.0049	0.0150	0.0029	–0.0012
Positive:Negative	38:43	47:29	35:31	26:30
p-value of signed rank test	0.96	0.32	0.69	0.93

Table 11 continued

	0	+1	+2	+3
Panel B: Convertible preferred stock				
Cash flow return (Operating income ÷ beginning assets)				
Mean	–0.0148	–0.0269	–0.0038	–0.0150
Median	0.0052	0.0010	0.0048	–0.0145
Positive:Negative	40:24	31:27	25:18	15:20
p-value of signed rank test	0.42	0.98	0.76	0.37
Scaled operating income (Operating income ÷ average assets)				
Mean	–0.0165	–0.0283	–0.0140	–0.0265
Median	0.0010	0.0021	0.0015	–0.0137
Positive:Negative	33:31	30:28	23:20	13:22
p-value of signed rank test	0.74	0.83	0.89	0.19
Operating income growth ((Δ operating income) ÷ ending assets)				
Mean	–0.0131	–0.0153	0.0084	–0.0076
Median	0.0042	0.0030	0.0079	–0.0168
Positive:Negative	38:26	34:24	26:16	13:22
p-value of signed rank test	0.69	0.85	0.14	0.30

Table 12

Ratio of convertibles to total senior securities, fraction of convertible exchangeable preferred stock, stock price reaction to announcement and issuance, and operating performance for the combined sample of 207 convertible preferred security offerings by Tobin's *q* estimate

The symbols * and ** denote statistical significance of abnormal return at least at the 05 and .01 levels, respectively, of the standardized cross-sectional, rank and generalized sign tests using two-tailed tests. The symbol ‡‡ denotes statistical significance at the .01 level of the standardized cross-sectional and rank tests, but not the generalized sign test.

Tobin's q estimate (simple method)	Mean q	Mean ratio of convertibles to total senior securities	Percent exchange-able	Precision-weighted cumulative average abnormal return; announcement days (–1,+1)	Precision-weighted cumulative average abnormal return; issuance days (–1,+1)	Median control-adjusted scaled operating income; years (0,+3)
< 0.63	0.478	0.047	42.4%	–1.86%**	–1.48%‡‡	–0.0312
0.63 to 1.13	0.810	0.080	60.9	–1.51 **	–1.71 **	–0.0017
> 1.13	2.460	0.157	48.8	–0.38	–2.08 *	–0.0156