Tax options, clienteles and adverse selection: The case of convertible exchangeable preferred stock

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Firms that issue convertible exchangeable preferred stock can later exchange it for debt with identical conversion and cash flow rights, thus capturing interest tax deductions when they can benefit from them. Despite tax and transaction-cost advantages, many issuers forego this innovative security in favor of otherwise identical, traditional convertible preferred stock. Tests of two potential explanations are presented, that issuers of the traditional security: specialize in serving an investor clientele that wants to avoid owning convertible bonds, or signal that they expect to force conversion into common equity earlier, implying a higher firm value. The evidence favors the clientele explanation.

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Numerous innovations in the design of financial instruments that corporations use to raise capital have appeared in recent decades. 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 analyzes an innovation that has survived for over 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 affords the issuer the additional right to exchange the preferred shares for convertible debt securities having identical pre-tax annual cash flows and common stock conversion terms. Except for one design element, the exchange option, convertible exchangeable preferred is identical to convertible preferred stock. Corporations continue to raise capital in the public markets using both securities.

The exchange option provides the issuer with a potential tax benefit, but at the cost of a tax disadvantage to taxable institutional holders when the issuer later exercises the option. The tradeoff between issuer and investor tax effects leads to two different, though not mutually exclusive, potential explanations for the survival of both security types and how firms choose between them. The first explanation, designated the clientele hypothesis, is that some issuers give up the exchange option to serve the needs of institutional investors that prefer to avoid the tax or transaction

[1] Finnerty (1992) and Allen (1993) summarize several innovations in corporate financing. Several studies of innovative securities appear in Smith and Smithson (1990) and *Financial Management* (1993.)

costs of an exchange. The second explanation, designated the adverse selection hypothesis, states that some firms avoid issuing convertible exchangeable preferred stock to signal that they expect their common stock prices to rise rapidly, permitting them to force conversion early.

Under the clientele hypothesis, issuers forego the exchange option when the cost of doing so is relatively low. Consistent with this argument, the results show that issuers are more likely to issue exchangeable securities, the higher their marginal tax rates. Issuers' debt ratios, and intentions to use the offer proceeds to repay long-term debt or bank debt, also contribute positively to the use of the exchange option. However, changes in marginal tax rates for three years after the offering are not positive for firms issuing either type of security. The adverse selection hypothesis implies that conventional convertible preferred stocks should be called earlier than convertible exchangeable preferred stocks. Empirically, the opposite is true, though the difference is small. Further, issuers of convertible exchangeable preferred stock tend to exercise the exchange option no more often than they call preferred stocks that they could have exchanged.

Also under the adverse selection hypothesis, the common stock-price reaction to a convertible exchangeable preferred stock offering should be more negative than the reaction to a convertible preferred stock offering. The average common stock-price reaction to exchangeable security announcements is indeed significantly more negative than the response to conventional security announcements. However, after controlling for the use of funds raised and issuer characteristics — most notably leverage ratio and q — little evidence remains that security type influences announcement effects. Thus, the choice of security does not appear to reveal incremental information about the quality of the issuer.

Overall, the results support the clientele hypothesis but do not support the adverse selection hypothesis. The following sections develop the hypotheses, discuss other potential determinants of stock-price reactions, describe the sample, present the empirical results, and conclude.

I. Potential Explanations for Convertible Exchangeable Preferred Stock Issuance

In this section, I discuss what is unique about convertible preferred stock as a capital-raising vehicle, then develop the hypotheses, and their empirical implications, about the motivation for issuing convertible exchangeable preferred stock versus conventional convertible preferred securities.

A. Convertible Preferred Stock versus Other Securities

The focus of this paper is the choice between conventional and exchangeable forms of convertible preferred stock. First, however, it is useful to consider why a firm would issue convertible preferred stock in any form.

The literature contains little discussion of convertible preferred stock as a distinct instrument, instead treating it essentially as a form of convertible debt. (For example, see Linn and Pinegar, 1988.) Therefore, the current discussion begins with convertible debt, then proceeds to preferred stock.

A unique characteristic of convertible bonds is that, in contrast to straight debt or equity, their value is relatively insensitive to changes in the risk of firm assets. A convertible bond resembles a package of straight debt and warrants, which are equivalent to a written call option and a purchased compound call option on firm assets. The two components' values respond to risk changes in opposite directions. With an appropriate choice of contract terms, they approximately offset each other

over some range of asset risk.[2] Thus, convertibles can diminish valuation difficulties when asset risk is opaque (Brennan and Kraus, 1987 and Brennan and Schwartz, 1988) or help to control agency problems that arise from the firm's ability to substitute riskier assets after issuing debt (Green, 1984). Alternatively, Stein (1992) suggests that convertibles can mitigate the adverse selection problems associated with direct equity issues for firms with high financial distress costs of straight debt.[3]

In the absence of taxes, convertible preferred stock would be roughly equivalent to convertible debt. The equivalence would be rough because preferred stock has somewhat weaker contractual provisions than debt, but it shares with debt the features of a fixed cash flow stream and seniority to common stock. The tax treatment of preferred stock, however, is significantly different from that of debt. Firms take a tax deduction for coupon payments, but not for dividends. On the other hand, shareholders that are corporations benefit from a 70% exclusion of dividend income from taxation, 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.)

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[2] Packages of simpler corporate securities conceivably could replicate the characteristics of convertibles, provided that the components were made inseparable to preserve offsetting sensitivities. Even the most obvious such packages are not observed in practice, however, possibly due to transaction costs or institutional constraints. For example, Finnerty (1990) argues that units of straight debt with warrants offer better tax shields than convertible bonds, but he also points out that the unit terms would have to differ from current practice to create a perfect substitute for convertibles. For instance, the warrants would have to be exercisable for bonds instead of cash.

[3] Also see Billingsley and Smith (1996) for a survey and analysis of managers' motives for issuing convertible debt in relation to the Stein (1992) theory.

In summary, the unique properties of convertible preferred stock allow issuers that face low tax rates to reduce the costs of agency problems or estimation risk while benefiting from the tax treatment of intercorporate dividends.

B. Exchangeable versus Non-Exchangeable Convertible Preferred Stock

A firm that issues convertible preferred stock may find itself able to benefit from the tax deductibility of convertible debt interest in the future. Convertible exchangeable preferred stock gives the issuer the option to obtain a tax shield when it can use it, by exchanging the preferred for debt with no underwriting costs. This tax-timing option is valuable to an issuing firm that currently is in a low tax bracket but could face higher tax rates in the future. (See Finnerty, 1992.) However, an exchange could be detrimental to investors. Convertible exchangeable preferred stock terms invariably provide that the debt securities will pay pre-tax coupons equal to the exchanged preferred stock's dividends. Receiving debt in place of preferred stock would force a taxable corporate investor either to endure a reduction in after-tax income or to incur transaction costs to sell the securities.

However, the exchange of debt for preferred is not a zero-sum game. 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 equivalent interest payment. More important, the transaction cost for an institutional investor to sell portfolio securities is less than the cost of refunding convertible preferred stock using a new underwritten public debt offering. Therefore, the value to the issuer of the tax-timing option exceeds the potential cost that it imposes on the investor. Moreover, the option to exchange has no apparent tax consequences to investors other than taxable corporations. The tax and transaction cost advantages should cause convertible exchangeable preferred stock to dominate convertible pre-

ferred stock as a means of raising capital. Yet, firms continue to issue both types of convertible securities.

Why would a firm offer convertible preferred stock instead of convertible exchangeable preferred stock? One potential explanation is that the firm has or can attract an investor clientele that seeks stable convertible preferred stock.[4] The firm can gain from serving the clientele if the investors are willing to pay a premium for convertible preferred stock that omits the exchange feature, or if being able to return to the clientele for future offerings reduces financing costs. However, the issuing firm still gives up a valuable tax option. Firms with the lowest opportunity cost of giving up the option should be most likely to do so. Lower marginal tax rates make the option less costly to forego. Therefore, the clientele hypothesis predicts that the probability of issuing convertible exchangeable preferred stock increases with the firm's expected tax rate.

Another explanation relates to Stein's (1992) model, in which firms that have the poorest prospects for future cash flows issue common stock because the expected financial distress costs of debt are too high. The best firms have low expected financial distress costs, so they issue debt and avoid the underpricing that pooling with low-quality equity issuers would bring. Medium quality firms find the expected financial distress costs of straight debt too high, but still want to avoid the adverse selection cost of common equity. Medium quality firms can issue convertibles and force conversion into common (by calling) early enough to avoid financial distress. Early conversion is unlikely for poor quality firms, so they do not mimic the medium quality firms. In Stein's equilibrium, only the best firms issue straight debt, only the

[4] Howe, Lin and Singh (1998), in a study of conversion-forcing calls, report evidence of the existence of convertible preferred stock clienteles.

worst issue common equity, and only medium quality firms issue convertibles. Thus, the choice of security type signals the quality of the firm.[5]

Stein does not consider convertible exchangeable preferred stock. Assume, however, that some medium-quality firms are better than others. The better medium firms expect to force conversion earlier, so they foresee a shorter time during which they would use tax shields on convertible debt. The option to exchange is of lower value to these firms than to the poorer medium firms. If investors cannot distinguish among issuers of convertible exchangeable preferred, the better medium firms view the exchange option as overpriced. By foregoing the option and issuing traditional convertible preferred stock, some medium quality firms avoid the underpricing that would result from pooling with other medium quality firms. In this scenario, issuers of conventional convertible preferred stock signal a higher value than issuers of convertible exchangeable preferred. The adverse selection story predicts that the common stock-price reaction to a convertible exchangeable preferred stock issue is more negative than the reaction to a convertible preferred stock issue.

Unlike the clientele hypothesis, adverse selection does not imply that issuers of convertible preferred stock necessarily have lower marginal tax rates. The tax shield simply is not worth much to them because they do not expect to use it very long.

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[5] Kim (1990) makes a similar prediction. In both models, firms trade off the lower adverse selection costs of debt against its disadvantages. In Stein (1992) debt increases the expected bankruptcy costs borne by managers; in the Kim model it increases the total risk borne by undiversified managers. Kim characterizes all securities as equity plus a put option to receive a fixed claim by not converting. The lower the conversion ratio, the more important is the put as a fraction of the security value. Thus, managers with more favorable private information about the mean and variance of future cash flows set a lower conversion ratio, the extreme case of which is to issue straight debt.

II. Other Explanations for Convertible Security Announcement Effects

Other factors besides the exchange option can influence the stock-price reaction to convertible security offering announcements. This section discusses potential determinants of the stock-price reaction and the empirical measures of the determinants.

A. Asymmetric Information, Growth Opportunities and Leverage

In the Myers and Majluf (1984) model, adverse selection problems under asymmetric information lead to negative stock-price reactions to external financing. The model also predicts a negative correlation between the reaction to an offering announcement and the sensitivity of the security to changes in firm value. Thus, equity-linked security offerings should evoke particularly negative market reactions. However, Ambarish, John and Williams (1987) and Cooney and Kalay (1993) predict that the issuance of equity, and by implication convertible preferred, can signal that the firm has projects with unexpectedly large positive net present values. In these models, equity-linked securities issues only signal good news when information asymmetry stems primarily from uncertainty about growth opportunities rather than assets in place.

Barclay and Smith (1996) and Jung, Kim and Stulz (1996) suggest that agency costs can induce firms with large profitable growth opportunities to issue equity. Such firms are likely to have high agency costs of debt (see Myers, 1977) and low agency costs of surplus cash (see Smith and Watts, 1982 and Jensen, 1986). Conversely, firms with few growth opportunities and substantial free cash flow from assets in place minimize agency costs by issuing straight debt. Thus, the stock-price reaction to an equity-linked security offering is predicted to be increasing in the issuer's growth opportunities. Jung, Kim and Stulz report highly negative stock-price

reactions to common equity offerings by firms with few growth opportunities. The current paper includes Tobin's *q* to measure growth opportunities.

This paper also follows Eckbo (1986), Mikkelson and Partch (1986) and Linn and Pinegar (1988) in using the presence of an investment grade debt or preferred stock rating to represent lower sensitivity to changes in firm value.

A model by Raymar (1993) predicts that levered firms signal low default risk and high value by issuing equity, and that the strength of the signal increases with the pre-offer leverage ratio. The cross-sectional regressions below include the leverage ratio to control for this possibility.

B. Voluntary Conversion and Anticipated Call Policy

Nyborg (1995) argues that since conversion-forcing calls evoke reductions in common stock prices as in Harris and Raviv (1985), convertible issuers try to encourage voluntary conversion to reduce adverse selection costs.[6] 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. If convertible exchangeable preferred stock and convertible preferred stock are unequally close to voluntary conversion at issuance, investors' inferences about call policy can lead to different stock-price reactions across security types. Measures of the closeness to voluntary conversion include the extent to which the conversion option is in the money, and the convertible security dividend yield relative to the yield on common.

C. Use of Proceeds and Pre-Offer Information

Additional factors that can influence the stock-price reaction are whether refunding existing convertible preferred is the primary use of proceeds and whether the

[6] Also see Nayar, Cowan and Singh (1999) for an extension of the Harris and Raviv (1985) model to underwritten calls, and Cowan, Nayar and Singh (1992) and Ederington, Caton and Campbell (1997) for empirical investigations of call policy.

offering follows a period of strong positive stock price performance. Refundings 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.

III. The Sample

A sample of both conventional and exchangeable convertible preferred security issues is used to test the hypotheses. This section presents the sample selection criteria, followed by a comparison of the characteristics of the issues and issuers.

A. Sample Selection

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). 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*. 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 stock convertible into the issuer's common stock. The total excludes unit offerings, shelf-registered offerings, mandatory conversion preferred stocks like PERCS, DECS and ACES, and trust-preferred stocks. Apart from the stated exclusions, to the author's 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]

Both subsamples contain firms from all 1-digit primary SIC code groups 1 through 8, but 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 structures in the future. Financial firms, as well as utilities (2-digit SIC code 49), probably 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, issues by financials and utilities are excluded from further analysis. The final sample includes 107 convertible exchangeable preferred stock issues and 100 convertible preferred stock issues.

[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. Also, although Table 1 reports no convertible exchangeable preferred offerings in the part of 1994 that is in the sample period, there have been some since then. Thus, the security is not extinct.

B. Descriptive Statistics

The primary use of the offering proceeds tends to differ between the exchangeable and non-exchangeable samples. 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 greater for convertible exchangeable preferred stock issuers (26% versus 13%) while the fraction intending to use the funds for capital expenditure is 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).

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 12% of the convertible preferred stock sample includes. Few securities in either sample have voting rights (about 6%) unless the firm omits preferred dividends for a specified number of consecutive quarters. 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. Few firms issue other securities simultaneously with convertible preferred securities.

Table 2, panel A shows that on average, convertible preferred stock issuers are larger, measured by book value of assets, 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 security issues also are of similar size for both types. The mean convertible preferred issue size of $111 million is not statistically different from the mean convertible exchangeable preferred issue size of $75 million. 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. However, the medians are not significantly different. 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. Overall, it appears that except for a few large offers that influence the means, issues and issuers are on average the same size across both security types.

Table 2, 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 and the difference of medians is marginally significant at the 6% level. 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, non-convertible industrial preferred stocks. The means and medians are not significantly different. The dividend yield of the issuing firms' common stocks also varies little between the samples.

Panel B also reports that the 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. 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 deeper out of the money, a median of 18.7% at the offer date versus 17.5% for the convertible preferred issues. Considering the yield and price conditions together, neither type of convertible security appears to be systematically close to voluntary conversion at its offering.

Panel C of Table 2 displays 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 supports the idea that the substitution of convertible bonds for convertible preferred imposes a cost on holders. The required minimum call notice period typically is 30 days and it differs little between the security types.

Panel D of Table 2 reports simulated marginal tax rates in the offering year, computed using an updated version of the Graham (1996) method. (See Graham, 1997.) Graham's method produces marginal tax rate estimates before and after deducting interest. The before-interest version illustrates the firm's taxes on the last dollar of income as if it had no debt. The after-interest version shows the firm's tax bracket using its actual financial structure. Convertible exchangeable preferred stock issuers have greater mean before-interest marginal tax rates than convertible preferred stock issuers, 42.4% versus 39.6% before the Tax Reform Act of 1986 (TRA) took effect and 29.4% versus 24.9% after. The difference is statistically significant only in the later period. Issuers of both security types have median rates equal to the top statutory rate of 46% before the TRA and 34% afterward. The mean after-interest tax rate for both groups is about 17% in the pre-TRA period and 14%–15% post-TRA. The medians for both groups are zero and 1% in the pre- and post-TRA periods respectively. The results indicate that on average, firms issuing either type of security would pay taxes at or near the maximum corporate rate except for their interest deductions, which eliminate much of their tax liability.

Net operating loss (NOL) carryforwards, which Graham's method takes into account, average 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. Overall, issuers of both security types have similar tax situations in the offering year. The before-interest simulated marginal tax rate indicates a firm's tax status apart from financing. Therefore, the before-interest rate should be more closely related to ability to use interest tax shields in the future. On this basis, issuers of convertible exchangeable preferred stock are in a slightly stronger position to use additional tax shields.

Panel D also reports that the two groups use financial leverage to similar degrees. 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.

Panel E of Table 2 reports Tobin's *q*, the ratio of a firm's market value of assets to the replacement cost of its assets. The mean *q*, estimated the way that Lewellen and Badrinath (1997) 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 is statistically insignificant. Since the data requirements of the Lewellen-Badrinath method restrict the computation to less than half the sample, the table also reports a simpler estimate of *q*. The simple method sets the replacement cost of assets and the market values of debt and preferred stock equal to their respective book values. The mean and median simple *q*s again are smaller in the convertible exchangeable preferred sample, but the difference still lacks statistical significance.

IV. Determinants of Convertible Preferred Security Type

This section reports logistic regression tests of the choice between conventional and exchangeable convertible preferred stock. The tests do not incorporate the possibility of raising capital through other types of public or private security issues. As MacKie-Mason (1990) points out, the estimates obtained from a discrete choice model like the one in this section are unconditional and consistent only if the firm follows a nested decision process. An example of a nested decision model is one where the firm first decides to raise capital, then to access public capital markets, then to issue convertible preferred securities (having considered and rejected alternatives at each node), and finally considers whether to make the convertible preferred exchangeable. Such a model implicitly assumes that alternatives on different branches

are less substitutable than those on the same branch; for example, conventional and exchangeable convertible preferred are closer substitutes than straight debt and exchangeable convertible preferred. If the asserted nested decision model is incorrect, the discrete choice model still yields consistent results, but conditional on the observed options. (See MacKie-Mason and references cited therein for further discussion.)

The clientele hypothesis predicts that firms with lower marginal tax rates are less likely to offer convertible exchangeable preferred stock. Besides the marginal tax rate, the logistic model includes the pre-offer debt ratio (long-term debt plus debt in current liabilities, divided by book value of assets). Firms with high debt ratios already have substantial interest tax shields, and also may prefer to avoid additional debt for balance sheet management reasons. The remaining variables in the logistic regression are indicator variables for the use of offering proceeds to reduce outstanding long-term debt, short-term non-bank debt, and bank debt respectively. To the extent that paying off debt reflects a permanent shift away from debt, firms are less likely to issue convertible exchangeable preferred stock. But if the shift is temporary, for example due to a low marginal tax rate that is expected to rise later, the tax-option value of convertible exchangeable preferred stock can make firms more likely to issue it.

The results are in Table 3. In the first specification (second and third columns), the probability of offering convertible exchangeable preferred stock is an increasing function of the before-interest marginal tax rate. The result supports the clientele hypothesis. The debt ratio is negatively related to offering exchangeable securities, which is consistent with either the clientele hypothesis or balance sheet management. The uses of proceeds to repay long-term debt, short-term non-bank debt, or bank debt, respectively, are positively related to the selection of convertible exchangeable

preferred stock. The pseudo-R^2 is 15.5%. The parameter estimates for all the variables are statistically significant except for short-term non-bank debt, which is marginally significant.

The results also are economically significant. For example, the odds ratio of the marginal tax rate is 29.02. Thus, an increase in the marginal tax rate of 13.6 percentage points (the standard deviation in the pooled sample) raises the odds of issuing exchangeable preferred by a factor of $29.02^{0.136}$, or 1.58. Reducing the existing debt ratio by one standard deviation, 0.208, raises the odds of issuing exchangeable preferred by a factor of 1.74. Issuers repaying long-term debt have more than three times the odds of issuing exchangeable preferred compared to other firms, holding other determinants constant. A similar statement can be made about bank debt.

The second specification (fourth and fifth columns of Table 3) introduces the difference between the before- and after-interest marginal tax rates. The difference represents the reduction in the marginal tax rate achieved by deducting interest. The parameter estimate of the before-after difference is statistically insignificant. The parameter estimates and significance levels of the other variables are similar to the first logistic specification. A reason for the lack of significance of the before-after difference is that interest expense is likely to be a function of the before-interest marginal tax rate. To the extent that firms with low pre-tax operating income have avoided debt financing in the past, the before-after difference provides little information beyond the before-interest marginal tax rate.

V. Post-Offer Tax Status and Call Policy

In the clientele hypothesis, the distinction between firms with low and high exchange option values is the future marginal tax rate. Table 4 reports changes in firms' marginal tax rates over the three post-offer years. There is no evidence to conclude

that either the before-interest or after-interest marginal tax rate increases for issuers of either type of convertible preferred security. In no year does more than 52% of either sample experience an increase in either tax rate relative to the offering year. In most years, changes in both samples are statistically insignificant, and the median change in both tax rates for both groups is zero. The lone exception is that issuers of convertible exchangeable preferred stock sustain a mean decrease in the before-interest marginal tax rate of 2.40 percentage points (median decrease of 1.21 percentage points) from year 0 to year 3. The decrease is marginally significant at the 6% level using the *t*-test and signed-rank test. Also, the change is significantly less than the convertible preferred stock sample's change at the 5% level using the rank-sum test but not the two-group *t*-test. The result is in the "wrong" direction for the clientele hypothesis, where we would expect convertible exchangeable issuers to have increasing marginal tax rates.

The adverse selection hypothesis predicts that convertible preferred stocks are called sooner than convertible exchangeable preferred stocks on average, and that issuers of the latter exercise the exchange option frequently. The sample issues have been tracked from the offering date until December 31, 1996 or until retired, whichever is earlier. Table 5 reports that the exchange option is exercised in 13% of exchangeable issues; 48% of convertible exchangeable issues and 40% of conventional issues are called. Among exchangeable issues, 11% are called when the exchange option already is exercisable, which is nearly as many as are actually exchanged.

The call frequencies would be misleading if conventional issues were systematically called earlier than exchangeable issues, which would imply that their common stock prices had risen more rapidly. If anything, the opposite is true. The "soft call"

feature, which allows a call before the normal protection period ends when the common stock price crosses a specified threshold, is invoked in 12% of exchangeable issues and 5% of convertible issues. Also, the mean time from issuance to call is 3.69 years (median 3.19 years) for exchangeable issues and 4.08 years (median 3.24 years) for conventional issues. Finally, 3% of exchangeable issues disappear through bankruptcy or delisting, while 12% of conventional issues do so.

The fates of the issues are inconsistent with convertible exchangeable preferred stocks being less likely than conventional issues to be converted into common stock at an early date. The conclusion runs contrary to the adverse selection hypothesis.

VI. Common Stock-Price Effects of Offering Announcements

The adverse selection hypothesis predicts that convertible exchangeable preferred offerings are associated with more strongly negative (or weaker positive) announcement effects than non-exchangeable offerings. To test the prediction, I first examine the average announcement-period stock-price reactions for the two samples, then investigate whether the reactions differ by security type after controlling for more general determinants.

A. Average Results

Table 6 reports cumulative abnormal returns around the announcement and issuance dates.[8] The mean abnormal return around convertible exchangeable preferred stock announcements ranges from –1.56% (median –1.69%) for days –1 and 0, to –2.50% (median –1.77%) for days –2 through +2. The results resemble those of Linn and Pinegar (1988), who report a mean two-day abnormal return of –2.015%

[8]To parameters of the linear market model are estimated over a 240-day period starting 91 trading days after the offer announcement. 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 (1991), the nonparametric generalized sign test (Cowan, 1992), and the rank test (Corrado, 1989).

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 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 mean abnormal return around convertible preferred stock announcements is –0. 54% (median –0.89%) for days –1 and 0, diminishing to –0.47% (median –1.20%) for days –2 through +2. 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. The true variance of returns around offering announcements is unobservable. However, the lack of consistency across tests suggests that the reaction to non-exchangeable convertible preferred announcements is best classified as marginally significant.

Table 6 also reports that 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 in the literature for conventional convertible preferred stock than does the current conventional convertible preferred sample. On the

issuance day alone (not reported in the table), the mean 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.

B. Cross-Sectional Analysis

Table 7 reports the correlation matrix of the three-day (–1 through +1) cumulative abnormal returns (CAR) and the explanatory variables. As the adverse selection hypothesis predicts, the CAR is negatively correlated with the indicator for exchangeable preferred. The CAR also is negatively correlated with the increase in common shares on conversion, but only the Spearman correlation coefficient is statistically significant. There are significant positive correlations between CAR and an indicator for refunding existing convertible preferred, the presence of an investment grade preferred stock rating, and Tobin's *q*. These correlations are consistent with adverse selection and agency-theoretic models of equity-linked financing announcements, but do not speak to the difference between exchangeable and non-exchangeable preferred.

Table 7 also reveals several significant correlations between explanatory variables. In particular, the investor's yield advantage and the increase in common shares on conversion are significantly correlated with multiple variables. The correlations indicate that multiple regression models using the variables will be prone to collinearity problems. However, the key variable, the exchangeable preferred indicator, is not significantly correlated with other explanatory variables. Thus, it still should be

possible to gauge the support for the adverse selection hypothesis using multiple regression.

Table 8 reports multiple regressions using the CAR as the dependent variable. Regressions 2, 3 and 4 are reduced specifications of regression 1. The coefficient of the exchangeable preferred indicator has the predicted negative sign, but is not statistically significant at conventional levels.[9] The variables that emerge most consistently as significant determinants of the stock-price reaction are refunding as the use of proceeds and Tobin's *q*, both of which have positive coefficient estimates. The positive relation with the refunding dummy supports 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. The economic significance of the result is supported by the magnitude of the coefficient. For example, using the estimate in regression 4, refunding offerings experience a stock-price reaction that is 6.05 percentage points higher, on average, than non-refunding offerings.

The estimated coefficients of *q* are statistically significant in regressions 2, 3 and 4 when tested using OLS standard errors, but not when heteroscedasticity-consistent standard errors (White, 1980) are used. White's C^2 test for heteroscedasticity rejects the null hypothesis of constant variance for regression 2 but not for regressions 3 and 4. Thus, the statistical significance of *q* is open to interpretation.[10] Again using the

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[9] To check for influential observations, Neter, Wasserman and Kutner (1985, p. 409) recommend comparing Cook's *D* to the *F* distribution with *p* and *n–p* degrees of freedom, where *p* is one plus the number of independent variables. Regressions with a *D* exceeding the 50th percentile of the *F* distribution were re-run omitting the suspect observations. As no change in the sign or significance of the coefficients is observed, the details are not reported.

[10] Chesher and Jewitt (1987) report that the White estimator can exhibit large biases even in large samples and in the absence of heteroscedasticity. Focusing on the cross-sectional analysis of stock re-

regression 4 coefficient estimate to look at economic significance, an increase in *q* of one standard deviation (1.56) produces a 0.84 percentage point increase in the stock-price reaction. While modest, the increase amounts to more than half the difference between the mean stock-price reactions to exchangeable and non-exchangeable offering announcements reported in Table 8.

The leverage ratio coefficient is statistically insignificant except in regression 4, where it is negative and marginally significant. The result is inconsistent with Raymar's (1993) model, which predicts that the issuance of equity-linked securities in the presence of debt conveys favorable information about firm value. The coefficient of conversion-option moneyness is close to zero and statistically insignificant. The result differs from the finding of Davidson, Glascock and Schwarz (1995) for convertible debt offerings. It also differs from the prediction of the Kim (1990) model. The coefficients of the investor's yield advantage of immediate conversion, the fraction of increase in common shares on conversion and the pre-offer runup in the common stock price also are statistically insignificant.

Unreported 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 reveal no statistically significant or marginally significant relations.

The results are consistent with adverse selection and agency cost models of the common stock-price reactions to security offerings. They do not support the adverse selection hypothesis as an explanation for the *difference* between exchangeable and non-exchangeable convertible preferred offerings, however. The security type does

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turns, Karafiath (1994) reports that test statistics using OLS variance estimates are at least as well specified and powerful as the White variances in simulation.

not convey information about the quality of the firm beyond that already observable in the *q* ratio, the leverage ratio, and whether the firm is refunding an existing issue.

Tests were conducted to see if the stock-price reactions to the actual issuance of the securities offer further insights into the information effects of the offering. Unreported multiple regressions detect a negative relation of the issuance-date stock-price reaction to the exchangeability indicator and a positive relation to *q*. However, both relations are only marginally significant to insignificant in various regressions. Thus, the issuance date regressions provide no new evidence to support or refute the hypotheses of interest.

VII. Summary

Convertible preferred stock uniquely combines the potential of convertible debt to reduce the costs of risk-shifting opportunities, estimation risk or adverse selection with the capability that preferred stock gives issuers to "lease" the tax break that corporate investors receive on dividends. Convertible exchangeable preferred stock expands on traditional convertible preferred by adding a tax-timing option: an issuer can swap the convertible preferred for otherwise identical convertible debt in the future. In the event that the issuer becomes able to use debt tax shields, exercising the exchange option allows the capture of the tax benefit without incurring issuance costs again.

Despite the apparent advantages of the newer security, firms continue to issue traditional convertible preferred stock. This paper proposes a clientele-based explanation — firms avoiding exchangeable convertible preferred specialize in catering to an institutional clientele that prefers a stable dividend stream — and an adverse selection-based explanation, that firms issue convertible exchangeable preferred when they do not expect to be able to force conversion quickly. The results are consistent

with the clientele hypothesis. Logistic regressions show that firms tend to issue convertible exchangeable preferred stock instead of the traditional security when they are in higher marginal tax brackets and have lower debt ratios, and when they refund long-term or bank debt. However, firms do not move into higher marginal tax brackets, on average, after issuing either type of security. Announcements of convertible exchangeable preferred stock offerings are associated with stronger negative stock-price reactions than conventional convertible preferred offerings. Cross-sectional regressions indicate that the difference in price reactions is due to differences in leverage ratios, whether the issue refunds an existing convertible preferred issue, and the firm's growth opportunities. Thus, the results do not support the adverse selection-based explanation for the survival of both security types.

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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. Mean, Median and Standard Deviation of Characteristics and Difference Tests for 107 Convertible Exchangeable Preferred Stock Offerings and 100 Convertible Preferred Stock Offerings in 1982-1994

Variable	Convertible exchangeable preferred stock				Convertible preferred stock				*p*-value for difference	
	N	Mean	Median	Std dev	N	Mean	Median	Std dev	*t* test	Median test
Panel A: Size measures										
Book assets ($ millions)	102	1,124	460	1,872	84	3,585	622	18,926	0.193	0.378
Issue size ($ thousands)	107	74,759	57,500	67,568	96	111,386	47,500	269,688	0.198	0.379
Issue size ÷ book assets	102	0.192	0.123	0.240	80	0.417	0.101	0.867	0.027	0.234
Shares issuable on conversion ÷ post-conversion common shares	92	0.280	0.195	0.280	86	0.390	0.196	0.576	0.110	1.000
Panel B: Dividends and conversion ratios										
Convertible dividend yield	102	0.084	0.080	0.018	93	0.090	0.090	0.022	0.026	0.060
Convertible dividend yield – medium grade industrial preferred yield	93	–0.037	–0.039	0.017	71	–0.033	–0.039	0.022	0.246	0.513
Common dividend yield	107	0.013	0.000	0.016	97	0.011	0.000	0.022	0.540	0.075
Investor's yield gain from immediate conversion	91	–0.073	–0.070	0.021	84	–0.079	–0.080	0.029	0.130	0.005
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	0.077	0.370
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	0.047	0.020

Table 2 continued

Variable	Convertible exchangeable preferred stock				Convertible preferred stock				*p*-value for difference	
	N	Mean	Median	Std dev	N	Mean	Median	Std dev	*t* test	Median test
Panel C: Call features										
Call protection (days)	99	1070	1095	390	85	121	1088	5334	0.105	0.374
Exchange protection (days)	95	850	751	215						
Minimum call notice period	82	26	30	6.341	78	28	30	5.797	0.088	0.066
Panel D: Taxes and financial leverage										
Marginal tax rate before interest — pre-1987 issues	59	0.424	0.460	0.073	44	0.396	0.460	0.116	0.153	0.359
— post-1986 issues	60	0.294	0.340	0.119	70	0.249	0.340	0.137	0.048	0.338
Marginal tax rate after interest — pre-1987 issues	59	0.173	0.000	0.213	44	0.169	0.000	0.218	0.928	0.835
— post-1986 issues	61	0.137	0.010	0.162	71	0.148	0.011	0.165	0.715	0.385
Net operating loss carryforwards ÷ assets	75	0.188	0.033	0.362	58	0.313	0.028	0.626	0.178	0.785
Book total debt and preferred stock ÷ assets	102	0.378	0.352	0.214	84	0.397	0.373	0.202	0.534	0.378
Operating income ÷ assets	101	0.059	0.081	0.125	84	0.041	0.057	0.147	0.373	0.089
Panel E: Growth opportunities										
Tobin's *q* estimate (Lewellen-Badrinath method)	45	1.015	0.882	0.559	28	2.130	0.919	5.880	0.326	0.563
Tobin's *q* estimate (simple method)	102	0.924	0.768	0.342	84	1.370	0.808	2.207	0.076	0.557

Table 3. Logistic Regressions of Choice of Convertible Exchangeable versus Convertible Preferred Stock in 207 Offerings During 1982-1994

Variable	Parameter estimate (*p* value)	Odds ratio	Parameter estimate (*p* value)	Odds ratio
Intercept	–0.413 (0.385)		–0.395 (0.408)	
Before-interest marginal tax rate	3.368 (0.009)	29.02	2.912 (0.033)	18.40
Before- minus after-interest marginal tax rate			1.039 (0.303)	2.83
Debt ratio (book value)	–2.640 (0.007)	0.07	–2.868 (0.004)	0.06
Long-term debt payoff indicator	1.238 (0.040)	3.45	1.270 (0.036)	3.56
Short-term non-bank debt payoff	0.865 (0.070)	2.38	0.880 (0.066)	2.41
Bank debt payoff indicator	1.109 (0.011)	3.03	1.110 (0.011)	3.04
Max-rescaled ("pseudo") R^2	15.5%		16.3%	
C^2 for covariates	20.95 (0.001)		22.02 (0.001)	

Table 4. Changes in Simulated Marginal Tax Rate after 107 Convertible Exchangeable Preferred Stock and 100 Convertible Preferred Stock Issuance Announcements in 1982-1994

Offerings in 1986 are excluded from year 1, 2 and 3 changes; 1985 offerings are excluded from year 2 and 3 changes; 1984 offerings are excluded from year 3 changes. The MWW Z is the standard normal approximation to the Mann-Whitney-Wilcoxon two-group difference of location test.

	Tax rate before interest		Tax rate after interest	
	Convertible exchangeable preferred stock	Convertible preferred stock	Convertible exchangeable preferred stock	Convertible preferred stock
Year 0 to year 1				
N	88	98	89	99
Mean	–0.0134	0.0062	0.0231	–0.0038
(*t* test *p*-value)	(0.148)	(0.526)	(0.230)	(0.749)
Median	0.0000	0.0000	0.0000	0.0000
(signed-rank *p*-value)	(0.098)	(0.346)	(0.215)	(0.700)
Standard deviation	0.0859	0.0964	0.180	0.1181
Positive	35%	41%	39%	27%
t for difference	–1.46		1.20	
MWW *Z*	–1.45		0.98	
Year 0 to year 2				
N	60	71	61	72
Mean	0.0013	–0.0015	0.0371	0.0232
(*t* test *p*-value)	(0.862)	(0.913)	(0.176)	(0.253)
Median	0.0000	0.0028	0.0000	0.0000
(signed-rank *p*-value)	(0.971)	(0.324)	(0.144)	(0.066)
Standard deviation	0.0569	0.1151	0.2115	0.1711
Positive	40%	52%	51%	43%
t for difference	0.18		0.42	
MWW *Z*	–0.96		0.18	
Year 0 to year 3				
N	44	54	45	54
Mean	–0.0240	0.0114	0.0171	–0.0029
(*t* test *p*-value)	(.061)	(0.466)	(0.580)	(0.909)
Median	–0.0121	0.0000	0.0000	0.0000
(signed-rank *p*-value)	(.057)	(0.494)	(0.487)	(0.634)
Standard deviation	0.0827	0.1137	0.2060	0.1813
Positive	27%	48%	47%	39%
t for difference	–1.78		0.51	
MWW *Z*	–2.15		0.42	

Table 5. Fate of Convertible Preferred Security Issues Offered During 1982–1994

Subcategory percentages refer to total sample, not parent category.

Outcome as of 31 December 1996	Percent of convertible exchangeable preferred stock issues	Percent of convertible preferred stock issues
Exchanged for convertible debt	13%	NA
Called	48	40%
exchangeable when called	11	NA
soft called	12	5
mean years outstanding	3.69 years	4.08 years
median years outstanding	3.19	3.24
Retired in repurchase, merger, or recapitalization	12%	11%
Disappeared through bankruptcy or delisting	3	12
Still outstanding 31 December 1996	21	35
Still call protected	1	5
Unknown	3	2

Table 6. Common Stock-Price Reactions to 107 Convertible Exchangeable Preferred Stock and 100 Convertible Preferred Stock Offering Announcements and Issuance Dates in 1982-1994

In panels A & B, day 0 is the earlier of the first Wall Street Journal report date of the announcement and the day after the SEC filing date. In panels C & D, 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 parameter-estimation period is 240 trading days, beginning 91 days after the announcement day or 21 days after the issuance day. 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 05, .01 and .001 levels, respectively, using a two-tailed test.

Trading days	Cumulative average abnormal return: Equally weighted	Cumulative average abnormal return: Precision weighted	Median Cumulative abnormal return	Standardized cross-sectional Z	Generalized sign Z	Rank Z	Number of firms with +:-
Panel A: Convertible exchangeable preferred stock announcements							
(–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							
(–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
Panel C: Convertible exchangeable preferred stock issuance dates							
(–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 D: Convertible preferred stock issuance dates							
(–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. Correlation Matrix

Shaded cells contain Spearman rank correlations; unshaded cells contain Pearson correlations. *p*-values are in parentheses. The *investor's yield advantage* is $\frac{CDV - PDV}{PSP}$, where *CDV* represents dividends on the common shares received on conversion, *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. The *conversion option moneyness* is $\frac{CSP - CVP}{CVP}$, where *CSP* is the common stock price two market days before the announcement and *CVP* is the conversion price of the convertible preferred security. The *pre-offer runup in common stock price* is the cumulative abnormal return over a 90-trading day period ending 11 trading days before the announcement. The *fraction increase in common shares* is found by dividing the number of common shares resulting from conversion of the entire preferred issue by the number of common shares outstanding at the time of the announcement.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Days (–1,+1) cumulative abnormal return		–0.120 (0.089)	0.144 (0.058)	–0.107 (0.160)	0.167 (0.018)	–0.077 (0.304)	0.262 (0.003)	–0.033 (0.639)	–0.214 (0.004)	0.156 (0.036)
2. Exchangeability indicator	–0.153 (0.031)		0.145 (0.055)	–0.079 (0.295)	0.052 (0.459)	–0.056 (0.451)	0.053 (0.544)	0.059 (0.407)	–0.043 (0.570)	–0.031 (0.679)
3. Investor's yield advantage	0.059 (0.444)	0.116 (0.125)		–0.100 (0.188)	0.162 (0.033)	–0.224 (0.005)	0.454 (0.000)	0.041 (0.597)	–0.423 (0.000)	–0.088 (0.274)
4. Conversion option moneyness	–0.025 (0.748)	–0.142 (0.058)	–0.169 (0.025)		0.081 (0.285)	0.063 (0.426)	–0.047 (0.613)	–0.144 (0.058)	0.348 (0.000)	0.063 (0.425)
5. Refunding convertible preferred dummy	0.180 (0.011)	0.052 (0.459)	0.144 (0.058)	0.031 (0.686)		0.099 (0.181)	0.042 (0.634)	–0.126 (0.075)	0.024 (0.748)	–0.007 (0.927)
6. Leverage ratio	–0.140 (0.060)	–0.046 (0.534)	–0.260 (0.001)	0.036 (0.655)	0.105 (0.155)		–0.209 (0.020)	0.089 (0.234)	0.227 (0.004)	0.094 (0.200)
7. Investment grade rating dummy	0.208 (0.018)	0.053 (0.544)	0.379 (0.000)	–0.075 (0.419)	0.042 (0.634)	–0.191 (0.034)		–0.195 (0.028)	–0.440 (0.000)	–0.014 (0.881)
8. Pre-offer runup in common stock price	–0.086 (0.228)	0.054 (0.451)	0.025 (0.748)	0.000 (0.997)	–0.183 (0.010)	0.076 (0.310)	–0.169 (0.057)		0.018 (0.810)	–0.042 (0.578)
9. Fraction increase in common shares	–0.099 (0.190)	–0.123 (0.102)	–0.177 (0.019)	0.147 (0.051)	0.044 (0.557)	0.362 (0.000)	–0.220 (0.016)	–0.119 (0.118)		0.192 (0.015)
10. Tobin's *q* estimate (simple method)	0.197 (0.008)	–0.142 (0.053)	–0.124 (0.123)	0.099 (0.211)	–0.036 (0.630)	–0.158 (0.031)	–0.009 (0.922)	–0.036 (0.633)	0.020 (0.804)	

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

t statistics in parentheses are OLS; those in angle brackets use heteroscedasticity-consistent variances.

Variable	(1)	(2)	(3)	(4)
Intercept	0.0098	0.0019	0.0031	–0.0047
	(0.45)	(0.12)	(0.20)	(–0.49)
	<0.14>	<0.13>	<0.21>	<–0.44>
Exchangeability	–0.0113	–0.0120	–0.0115	–0.0088
Indicator	(–1.22)	(–1.46)	(–1.43)	(–1.21)
	<–1.25>	<–1.57>	<–1.54>	<–1.26>
Refunding convertible	0.0599	0.0569	0.0568	0.0605
preferred indicator	(2.21)	(2.61)	(2.72)	(3.02)
	<2.08>	<2.80>	<2.85>	<3.28>
Leverage ratio (book total	0.0091	–0.0154	–0.0154	–0.0333
debt and preferred stock ÷ assets)	(0.33)	(–0.73)	(–0.74)	(–1.90)
	<0.46>	<–0.71>	<–0.71>	<–1.97>
Tobin's *q* (simple method)	0.0050	0.0056	0.0056	0.0054
	(1.04)	(2.26)	(2.27)	(2.31)
	<1.82>	<0.96>	<0.94>	<0.98>
Investor's yield advantage	0.4344	0.1913	0.2046	
of immediate conversion	(1.77)	(1.03)	(1.14)	
	<1.70>	<1.01>	<1.10>	
Conversion-option moneyness	0.0005	–0.0058		
	(0.05)	(–0.48)		
	<0.08>	<–0.73>		
Pre-offer runup in	0.0102	–0.0012		
common stock price	(0.70)	(–0.11)		
	<0.61>	<–0.10>		
Investment grade rating	0.0100			
indicator	(0.86)			
	<0.92>			
Fraction increase in com-	–0.0160			
mon shares on conversion	(–1.21)			
	<–1.41>			
Sample size	105	154	155	180
p-value of regression *F* test	0.026	0.014	0.004	0.001
p-value of heteroscedasticity C^2	0.129	0.043	0.168	0.682
Adjusted R^2	9.69%	6.86%	8.00%	8.32%