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The Rise of the Rule 144A Market for Convertible Debt Offerings

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Abstract

We document and study the migration of convertible debt offerings from the public to the 144A market during 1991-2004. Over 88% of the 144A convertible debt issues are subsequently registered. An analysis of financing costs (gross spreads, yields, and stock price announcements) and issue characteristics indicates that convertible debt issues in these two markets are essentially the same. We find evidence that the 144A market allows firms to better time equity market conditions. Our findings are consistent with the hypothesis that the 144A market is attractive because it allows firms to issue convertible debt more quickly.

JEL Classification: G24

Keywords: Convertible, 144A market, speed of issuance, timing, and market choice.

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Abstract

We document and study the migration of convertible debt offerings from the public to the 144A market during 1991-2004. Over 88% of the 144A convertible debt issues are subsequently registered. An analysis of financing costs (gross spreads, yields, and stock price announcements) and issue characteristics indicates that convertible debt issues in these two markets are essentially the same. We find evidence that the 144A market allows firms to better time equity market conditions. Our findings are consistent with the hypothesis that the 144A market is attractive because it allows firms to issue convertible debt more quickly.

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The Rise of the Rule 144A Market for Convertible Debt Offerings

1. Introduction

This paper documents a significant shift of convertible debt offerings from the public to the 144A market. In 1991, one year after the inception of the 144A market, about 20% of the convertible bonds were issued in the 144A market while in 2004 the percentage increased to 89%.¹ Exploring the reasons for this significant growth is the main focus of this paper.

In his study of straight debt, Fenn (2000) argues that the 144A market has experienced a tremendous rise in popularity because it allows for speedier issuance than does the traditional public market. This speedier issuance gives the firms more flexibility in choosing a time to issue and therefore greater ability to time the market in their favor. Because convertible debt is more sensitive to investor valuation errors than straight debt, we would expect the 144A market to be even more attractive to issuers of convertible debt. In this paper, we investigate the choice of 144A issuance versus public issuance of convertible debt to further test the hypothesis that the 144A market is attractive because its speediness of issuance. In particular, we study subsequent registrations of 144A issues, analyze three dimensions of financing costs for convertible debt in these two markets, and model the choice between the public and 144A market for the issuance of convertible debt.

Except for the speed of issuance, we find few differences between the 144A and the public markets for convertible debt issuance. Over 88% of the convertible debt issues in the 144A market were subsequently registered with the Securities and Exchange

¹ In this paper, we use “convertible debt offering” and “convertible debt issue” interchangeably.

Commission (SEC) and that for over 80% of the registered issues, the registration was filed within three months after the deal's closing date. These results suggest that convertible debt issued in the 144A market is actually meant to be publicly traded shortly after the offering. Using a multivariate regression analysis of determinants of financing costs, we find that gross spreads, offering yields, and announcement effects are statistically similar for 144A and public convertible debt offerings, after controlling for credit risk, asymmetric information, market conditions, and issue characteristics. In addition, results from our market choice model indicate that issue characteristics of convertible debt offerings in the 144A and the public markets are statistically indistinguishable. In short, our findings indicate that convertible debt issued in the 144A market and convertible debt issued in the public market are essentially the same except for the speed of issuance.

Further, we find that the probability of issuing convertible debt in the 144A market is positively associated with a firm's pre-issue three-month stock returns and pre-issue cash-to-assets ratios. Thus, our results suggest that the dramatic rise of the 144A market for convertible debt offerings is because the speediness of issuance in the 144A market allows firms to better time equity market conditions.

Extant research argues that credit quality and information asymmetry are important determinants of the choice of markets for securities issuance, and that the 144A market is an attractive financing venue for low quality firms. Fenn (2000) finds that firms increasingly issue speculative-grade straight bonds in the 144A market rather than in the public market, although he does not directly model the issuer's choice of markets. Using a multinomial logit model, Denis and Mihov (2003) examine the choice among bank,

private non-bank (mostly 144A), and public straight debt. They suggest that riskier firms are more likely to issue in the 144A market than in the public market. Because convertible debt is riskier and more informationally sensitive than straight debt, we should expect the issuer's credit quality to be at least as equally important in the choice of markets for convertible debt issues. We do not find that credit risk and information asymmetry play a significant role in the choice between the 144A and the public markets for convertible debt issues. When convertible debt issued in the 144A market is meant to become public convertible debt, there is no reason to expect credit risk or information asymmetry to be a determinant of the choice of market.

Previous research on shelf registrations suggests they also allow issuers to issue securities quickly. However, we find that shelf registrations are not as desirable for the majority of convertible debt issuers because they are only fast once two other issues have been dealt with: (1) The issuer of a shelf has to pre-register and that process may take so much time that the window of favorable equity market conditions has shut or valuable growth opportunities have disappeared; and (2) Shelf issuers often need a credit rating and credit rating agencies require time to analyze the issuers. For first-time issuers of convertible debt, these hurdles make shelf issuance an inferior choice. Indeed, we find that only 11.6% of the convertible debt issuers use a shelf registration, and 56.2% of these shelf issues have at least one other security issue in the year prior to the current issue. In our market choice model, we find that 144A convertible debt issues are less likely to be preceded by a shelf registered security issue and less likely to have an issue credit rating prior to or on the offer date than shelf registered public convertible debt

issues. This result is consistent with the hypothesis that the 144A market is attractive because of its speediness of issuance.

To the best of our knowledge, our paper is also the first to examine the cross-sectional determinants of gross spreads and offering yields for convertible debt issues in both the public and the 144A markets.² We find that gross spreads for convertible debt issues tend to cluster around 3%. Despite this, we find evidence for economies of scale in the cost of underwriting convertible debt. We also find mixed evidence for the role of credit risk and information asymmetry in determining gross spreads. Consistent with literature on securities' yields, we find that issue characteristics, credit risk, and market conditions are significant determinants of yields on convertible debt.

The rest of our paper is organized as follows. Section 2 presents a review of the related literature. Section 3 describes the data and sample selection. Section 4 presents descriptive statistics for the regression sample and the results of the regression analyses. Section 5 concludes the paper.

2. Related Literature

2.1. Why Study Convertible Debt?

Convertible debt, a hybrid security incorporating features of both debt and equity, promises interest payments to its holder until the holder exchanges the security for the issuer's common shares. Convertible debt represents an important source of external capital for U.S. firms. According to Thomson Financial, non-financial U.S. firms raised approximately \$232 billion through convertible debt offerings in both the public and the 144A markets from 2001 to 2004. Extant research addresses the questions of why and by

² Though there are few studies that examine the pricing of convertible bonds (e.g., Chan and Chen (2005)).

whom convertible debt is issued (see Eckbo, Masulis, and Norli (2007) for a recent survey). However, we know very little about the markets in which firms issue or should issue convertible debt.

Extant research that compares securities issuance between the public and the 144A markets is limited to straight debt issues (see Fenn (2000), Livingston and Zhou (2002), and Chaplinsky and Ramchand (2004)). Expanding this line of research into convertible debt is important for three reasons: First, convertible debt is riskier and more information sensitive than straight debt. This warrants a study of how determinants of issuance decisions such as information asymmetry, credit risk, and market conditions play a role in the market choice for convertible debt offerings (for a comprehensive theoretical and empirical coverage of these determinants see Green (1984), Myers and Maluf (1984), Brennan and Kraus (1987), and Brennan and Scwartz (1988), Stein (1992), Boot and Thakor (1993), Lewis, Rogalski, and Seward (1999), Denis and Mihov (2003), Korkeamaki and Moore (2004), Gomes and Phillips (2005), and Chakraborty and Yilmaz (2006), among others). Second, straight debt and convertible debt are likely to have substantially different investor bases. In particular, hedge funds are important investors of convertible debt because convertible debt can be used to form arbitrage strategies (see Agarwal, Fung, Loon, and Naik (2006)). Third, to our best knowledge, little research exists on the determinants of gross spreads and yields for convertible debt offerings in the public and the 144A markets.

2.2. Which Market to Issue Convertible Debt?

Firms choose not only which security to issue, but also where to issue the security. Traditionally, firms issue securities in the public and the private markets. Issuing a security in the public market requires the security to be registered with, and approved by, the SEC. This requirement is intended to protect unsophisticated investors, but it inevitably slows down the issuing process. No registration with the SEC is required when a security is privately placed since usually investors are large institutions or wealthy individuals who are presumably able to conduct their own due diligence investigations.

In April 1990, the SEC approved Rule 144A, which allows qualified institutional investors (also known as QIBs) to trade privately placed securities among themselves without having to hold them for two years.³ Since this rule went into effect, the 144A market has experienced a dramatic growth particularly in the issuance of convertible debt as shown in later sections. Thus, it is of interests to investigate why firms increasingly use the 144A market to issue convertible debt. The existing literature suggests that the choice of market to issue securities is a function of financing costs, asymmetric information, credit risk, issuing speed, and market conditions (e.g., Fenn (2000), Denis and Mihov (2003), and Gomes and Phillips (2005)). In this paper, we build on the literature and shed new light on the relative advantages of the 144A and the public market for convertible debt offerings.

2.2.1. Financing Costs and Market Choice

To the extent that there are differences in the security issuance across markets, external financing costs (gross spreads, yields, and stock price reactions) for convertible

³ Carey, Prowse, and Rea (1993) present an extensive exposition of the 144A and the private markets.

debt are likely to differ between the public and the 144A markets. The existing empirical studies comparing the public and the 144A markets focus exclusively on straight debt and do not provide conclusive results. Fenn (2000) presents evidence that the yield on speculative-grade straight debt is similar between the public and the 144A markets. However, Livingston and Zhou (2002) find that straight debt issued in the 144A market carry a higher yield than straight debt issued in the public market, suggesting that the 144A market has less liquidity. Similarly, Chaplinsky and Ramchand (2004) examine yield on straight debt by international issuers in the public and the 144A markets. The only published study that examines gross spreads for 144A issues is Livingston and Zhou. They find no difference in gross spreads between public and 144A straight debt issues. Stock price reactions to announcements of securities offerings are often viewed as indirect financing costs. Gomes and Phillips (2005) examine stock price reactions to convertible debt offerings in different markets. We complement the existing literature by comprehensively investigating these three financing costs of convertible debt issued in the public and the 144A markets.

2.2.2. Information Asymmetry and Market Choice

The theoretical work of Chemmanur and Fulghieri (1999) and Maksimovic and Pichler (1999) models how information asymmetry affects the choice between public and private markets and the empirical research of Wu (2004) and Hertz and Smith (1993) shows that informationally opaque firms are more likely to issue securities in the private market than less opaque firms.

Gomes and Phillips (2005) show that there are fundamental differences between firms issuing securities in the public market and those issuing securities in the private

market, and that the sensitivity of security issuance to information asymmetries depends on the type of market in which the securities are issued. We further study to what extent the choice between the 144A and the public markets is influenced by asymmetric information, conditional on firms' decision to issue convertible debt.

2.2.3. Credit Risk and Market Choice

Fenn (2000) finds that issuers of junk bonds increasingly use the 144A market. Denis and Mihov (2003) investigate the choice between public straight debt, and bank and non-bank (mostly Rule 144A) private straight debt. Their findings suggest that firms with highest (medium) credit quality use public markets (bank debt), both results consistent with predictions of asymmetric information and borrower's reputation models. Further, they find that firms with the lowest credit quality tend to borrow from the 144A market as the main source of private non-bank debt. Accordingly, we study whether firm's credit risk affects the choice between the 144A and the public markets for convertible debt offerings.

2.2.4. Speed of Issuance, Market Conditions, and Market Choice

Firms also value the speediness of security issuance. For example, Fenn (2000) finds that speculative-grade straight debt issues are almost always subsequently registered and suggests that the speediness of issuance makes the 144A market attractive. The existing literature suggests that qualified firms could also issue securities quickly in the

public market through a shelf registration under the SEC's Rule 415 (see Autore, Kumar, and Shome (2006) and Bethel and Krigman (2006), among others).⁴

If both the 144A market and a shelf registration allow for speedy issuance, why would firms prefer the 144A market to a shelf registration? Some firms are not qualified for a shelf registration and others may not be able to precisely predict their future financing needs. Even if a firm can qualify for shelf registration, the initial registration process takes time, and obtaining an issue credit rating further increases the time requirements if the firm does not already have a credit rating. Firms are not required to register with the SEC prior to 144A issues, and a credit rating at the offering is less crucial for 144A issues. Although almost all 144A issues will be publicly traded after the SEC approves their subsequent registrations, they are not publicly traded immediately after the offering. Firms of 144A issues could obtain a credit rating for their issues between the offering and the subsequent registration dates. Therefore, the 144A market allows for a speedier issuing process than a shelf registration for firms with no shelf registration in place and firms with no credit rating prior to the offer date.

The existing literature suggests that firms time market conditions when issuing securities (see Lucas and McDonald (1990), Loughran and Ritter (1995), Bayless and Chaplinsky (1996), Stein (1996), Lee and Loughran (1998), Baker, Greenwood, and Wurgler (2003), and Henderson, Jegadeesh, and Weisbach (2006), among others).

Convertible debt may allow firms to time debt market conditions because of its debt-like feature and time equity market conditions because of its equity-like feature.

⁴ Rule 415 allows qualified firms to shelf-register securities and then issue all or part of the registered securities with little additional paperwork during the following two years. In the public equity market, shelf registration has recently experienced a revival (see Autore, Kumar, and Shome (2006)). Bortolotti, Megginson, and Smart (2007) report that firms increasingly implement several accelerated techniques preceded by a shelf registration for seasoned equity offerings (SEOs).

Because market conditions and growth opportunities are time sensitive, the 144A market could allow firms to issue convertible debt quickly before valuable growth options or favorable market conditions disappear. In this paper, we investigate the role of both market conditions and issuing speed in a firm's choice of markets conditional on the firm's decision to issue convertible debt.

3. Data and Sample Selection

We first download all convertible debt offerings of domestic firms during 1991-2004 in Thomson Financial's *Securities Data Company (SDC) Global New Issues database*. We start our sample period from 1991 because the Rule 144A placement of securities to qualified investors was first allowed by the SEC in April 1990.

Before imposing any screening restrictions, we have 509 public, 939 Rule 144A, and 376 private convertible debt offerings by U.S. firms. We are able to link 460 public issues and 849 Rule 144A issues to CRSP and Compustat. After excluding mandatory conversions, exchangeable offers, perpetuities, units, and offers by financial companies, we have 336 public and 771 Rule 144A issues. Removing issuers with missing values on key issue characteristics (maturity, gross proceeds, yield to maturity, and conversion premium), and firm characteristics, further reduces our sample to 831 convertible debt issues (285 public issues and 546 Rule 144A issues).⁵ Among them, the gross spread is

⁵ When conversion premium is missing in SDC, we supplement it with information from the PlacementTracker database of Sagient Research. For some issues, yield-to-maturity and coupon rate are not equal even though the convertible debt is issued at par. After double checking these issues using information from Fixed Income Securities Database (FISD), we reset yield-to-maturity to coupon rate. For an issue on October 5, 2000 by Dominion Resources Inc., SDC reports an offer price of \$50 and a yield-to-maturity of 26.457%, while FISD reports an offer price of \$100 and a missing yield-to-maturity. We drop this issue because of the discrepancy. Information on gross spreads is available in SDC for 283 public offers but only 194 Rule 144A offers. Missing gross spreads for 144A offers are concentrated in recent years. The PlacementTracker database of Sagient Research provides a much more comprehensive coverage

available for 735 issues, and stock prices are missing around the announcement date for one issue.

4. Empirical Analysis

4.1. Descriptive Analysis

4.1.1. Dynamics of Convertible Debt Offerings in U.S. Markets

Using the unrestricted sample, Figure 1A shows the number of convertible debt offerings in the public, the private, and the 144A markets in the U.S. from 1991 to 2004, and Figure 1B reports the total amount of proceeds raised through these offerings during the same period.

[Figure 1 about here]

The striking feature is the tremendous growth of convertible debt offerings in the 144A market. In 1991, there were 12 issues of convertible debt totaling \$1.4 billion in the 144A market. By 2004, the number of convertible debt offerings has risen to 139 totaling \$25.3 billion. In sharp contrast, the number (amount) of convertible debt issues offered in the public market dropped from 47 (\$10.5 billion) in 1991 to 17 (\$5.9 billion) in 2004. The 144A market overtook the public market in 1996 and since 2002 it has completely dominated the public market in the issuance of convertible debt. The number of private convertible debt issues was flat during 1991-1998 and trended upwards after 1998. This is consistent with Livingston and Zhou (2002) who document that for straight debt the private market declined significantly during 1990-1998. Such a pattern does not exist for convertible debt.

of placement fees for Rule 144A convertible debt issues in recent years than the SDC database. Therefore, we obtain additional information on fees from PlacementTrakcer, resulting in 452 Rule 144A issues with non-missing fees.

We concentrate our study on the public and the 144A markets for convertible debt for two reasons. First, the private market is negligible relative to the other two markets when measured in terms of proceeds. Second, Thomson Financial's SDC database reports very limited information on convertible debt issued in the private market. For example, data on gross spreads is mostly missing during our sample period, and data on conversion premium is practically non-reported before 2002.

4.1.2. Subsequent Registration of 144A Convertible Debt Offerings

In this paper, we investigate possible explanations for the rise of the 144A market for convertible debt offerings. One key issue of 144A securities is subsequent registration (e.g. Livingston and Zhou (2002)). Subsequently registered 144A issues can be publicly traded once the registration is declared effective by the SEC and for all practical purposes registered 144 issues are essentially public issues. We thus conduct an analysis of subsequent registrations of 144A convertible issues.

[Table 1 about here]

Table 1 shows the registration rate for 144A convertible debt issues during the period of 1996 to 2004. Data on registration of 144A issues are not available on the SDC database so we use the PlacementTracker database of Sagient Research. We only use data from 1996 rather than 1991 because PlacementTracker does not have comprehensive data prior to 1996. Among the 542 issues in SDC for the period 1996 to 2004, 493 are also found in PlacementTracker of which 434 are reported as subsequently registered. The registration rate for these 144A convertible debt issues is then 88.03 percent suggesting that the vast majority of the 144 debt convertible offerings were meant to be public issues.

[Figure 2 about here]

For the 434 registered issues, Figure 2 shows the histogram of the number of days to register a 144A convertible debt issue (the number of days between the closing date and the registration date). About 80% of these issues were registered within 30-90 days of issuance.⁶ The high registration rate of 144A convertible debt issues within a short period of time after the deal's closing date, suggesting that convertible debt issued in the 144A market is similar to convertible debt issued in the public market. We further examine the similarities between 144A and public convertible debt issues in section 4.2.

4.1.4. Speediness of Issuance of the 144A Market

The 144A market allows firms to issue securities rapidly because no pre-issue registration is required. We hypothesize that the speediness of issuance makes the 144A market attractive and thus resulting in the rapid and significant rise of the 144A market documented in this paper. Since speediness of issuance is also possible in the public market through a shelf registration, we should also expect a rise of shelf-registered public issues similar to that of the 144A market.⁷ Figure 3 plots the number of non-shelf registered and the number of shelf-registered convertible debt issues in the public market during 1991-2004, respectively.

[Figure 3 about here]

⁶ This registration period is shorter than that found by Fenn (2000) for high yield bonds in part because we use the registration date as reported in PlacementTracker instead of the time of completion of the exchange offer used to consummate the registration. Doing the latter would add on average three months to the registration period. Typically, it takes about two months for the SEC to review and declare the registration as effective. In addition, the exchange offer is usually completed about 30 days after the registration statement is declared effective. Furthermore, deal closing typically occurs one week after the deal announcement date.

⁷ By definition, none of the 144A issues are shelf registered.

The number of non-shelf registered convertible debt issues significantly trended downwards while the number of shelf registered issues trended upwards. In dollar terms, shelf-registered issues overtook non-shelf registered issues and since 2002, convertible offerings in the public market were mostly shelf registered issues. These results point to the importance of speediness in the issuance of convertible debt.

It is noteworthy to point out that the rise of shelf-registered convertible debt issues is less significant than the rise of the 144A market. We provide four explanations for this: (1) Not all firms are qualified for a shelf registration; (2) The 144A market is more attractive than a shelf registration for firms that cannot precisely predict their future financing needs; (3) Since it takes time for the initial shelf registration to be approved, firms without an existing shelf registration would prefer the 144A market with a subsequent registration to the public market with a pre-issue registration; and (4) Since 144A issues are not publicly traded immediately after the offer, it is perhaps less crucial for them to acquire a credit rating prior to the offer, resulting in a speedier issuing process. The first two explanations have been suggested in the extant literature. The last two explanations are related to our hypothesis that the speediness of issuance makes the 144A market attractive. We investigate these two explanations and provide results of preliminary analysis in Table 2.

[Table 2 about here]

Panel A shows that only 5.5% of the 144A convertible debt issues in our sample were preceded by at least one shelf-registered security issue in the one year prior to the current issue. This percentage is similar to the 7.4% for non-shelf registered public convertible debt issues but sharply contrasts to the 36.5% for the shelf registered

convertible debt issues. This result is consistent with the third explanation. Panel A also shows that a shelf registered convertible debt issue was on average preceded by both more securities issues and more shelf registered securities issues in the year prior to the offer date than either a non-shelf registered issue or a 144A issue. In short, firms issuing convertible debt in the 144A market are not likely to have a shelf-registration in place.

Panel B shows that only 32% of the 144A convertible debt issues in our sample have a S&P rating prior to or at the convertible debt offering. In contrast, 76% of the shelf registered and 72% of non-shelf registered public issues have a S&P rating prior to or at the offer. This suggests that issuing convertible debt in the public market, either with or without a shelf-registration, is more likely to require an issue credit rating than issuing convertible debt in the 144A market. Panel B also shows that 144A issues are less likely to have a pre-existing company S&P rating than shelf registered issues and more likely to have a pre-existing company S&P rating than non-shelf registered issues.

In summary, this analysis provides support for the fourth explanation from above. It seems that if a company has a shelf-registration in place, it can issue securities quickly. Firms with no credit ratings at all or with a firm credit rating but without an issue credit rating are more likely to use the 144A market for speedy issuance of convertible debt. We provide further support for the last two explanations by estimating a probit regression for the choice between the public and the 144A markets in later analysis.

Panel B also shows the distribution of credit rating. Conditional on having a company rating, 23% of the non-shelf public issues, 41% of the shelf public issues, and 33% of the 144A issues are by firms with an investment-grade rating (BBB- or higher). Conditional on having an issue rating, 43% of the non-shelf public issues, 37% of the

shelf public issues, and 37% of the 144A issues are investment grade. These results suggest that credit ratings are related to the choice of market for the issuance of convertible debt. We further investigate this in a subsequent section using a multivariate analysis.

4.1.5. Descriptive Statistics of the Regression Sample

Before proceeding to the regression analysis, we report in Table 3 descriptive statistics of the variables to be used in the regressions. The table reports means and medians of issue and firm characteristics, market conditions, and stock price reactions to the announcement of convertible debt offerings. The detailed definitions of the explanatory variables are provided in the Appendix.

[Table 3 about here]

There are several similarities between the issuers of convertible debt in the public and the 144A markets. Issuers in the two markets have similar issue size, similar firm size (measured by the pre-issue market capitalization), and similar firm age at the time of issuance. A first-time issuer does not appear to strongly prefer one market over the other. The term premium, as measured by the daily yield difference on ten-year and one-year Treasury bills on the day prior to the issue, is not significantly different for public and 144A issues.

Univariate tests presented in the table also show that public issues have lower gross spreads, higher offering yield, lower conversion premium, higher total pre-offering debt ratio, lower stock return volatility, and lower Tobin'Q prior to the offering than 144A issues. Issues of 144A convertible debt are associated with top-tier banks as

underwriters more often than are public convertible debt issues. Issuers of convertible debt in the 144A market have both larger pre-issue return and cash to assets ratio. The interest rate and the default premium at the time of issuance are much lower for 144A issues.

We also compute the cumulative abnormal returns around the announcement of convertible debt issues in the public and the 144A markets for a three-day window, $CAR(-1,+1)$, and a five-day window, $CAR(-2,+2)$.⁸ For public issues, we search Lexis-Nexis for announcement dates. We are able to find the announcement dates for most public issues. For issues for which we cannot identify an announcement date using Lexis-Nexis, we use the file date from the SDC database as the announcement date. For 144A issues, we search Lexis-Nexis for some randomly picked issues and find that the announcement of a 144A issue happens almost always on the offer date, and only occasionally on the day immediately prior to or after the offer date. We thus use the offer date as the announcement date for 144A issues.

The average CARs for our sample are negative and similar to those found by Dann and Mickelson (1984), Kim and Stulz (1992), Stein (1992), Krishnaswami and Yaman (2005), and Diaz and Martell (2006). On average, an announcement of an issue of convertible debt in the 144A market is associated with a more negative market reaction than an announcement of an issue of convertible debt in the public market. The different announcement effects could be due to differences in firm and issue characteristics and market conditions between public and 144A issues, and thus, we control for these differences in our later multivariate analysis.

⁸ Using the market-adjusted returns yields similar results (not reported here).

4.2. Regressions for Gross Spreads, Offering Yields, and Stock Price Reactions

In this section, we provide a multivariate regression analysis of financing costs in order to investigate whether 144A and public convertible debt issues are similar securities. If they are similar securities, then the financing costs should be similar. The cost model takes the form:

$$y_i = \beta' X_i + u_i. \quad (1)$$

We examine three dimensions of costs and thus estimate equation (1) three times where y_i is either the gross spread, the offering yield, or the abnormal stock price reaction at the date of the announcement of the convertible debt issue, and X_i is a vector of issue characteristics, proxies for credit risk and information asymmetry, proxies for market timing, a Rule 144A dummy that takes the value of one if the convertible debt is issued in the 144A market and zero if issued in the public market, a subsequent registration dummy that equals one for subsequently registered 144A issues, a shelf registration dummy that equals one for shelf registered public issues, and industry and year dummies. We use the Rule 144A dummy to investigate whether any difference exists between the costs of convertible debt in the public and the 144A markets.

Issue characteristics include issue size as measured by the natural log of the gross proceeds, relative issue size as measured by the gross proceeds of the issue divided by the pre-issue market capitalization of the issuer, the natural log of the number of years to maturity, and percentage conversion premium defined as $100 \times (\text{initial conversion price} - \text{the last common stock price}) / \text{the last common stock price}$.⁹

⁹ As pointed out by Lewis, Rogalski, and Seward (1998), issuers can make a convertible bond more debt-like or more equity-like by using several contract terms like call protection, maturity, conversion price, and call price. Our use of conversion premium is intended to capture this dynamic.

We use pre-existing S&P ratings of the issuing firm, pre-issue return volatility of the firm's stock, and the book leverage ratio of the firm as proxies for credit risk. We use a first-issue dummy that takes the value of one if the firm has not issued a debt security in either the public or the 144A markets since 1970, the natural logarithm of the firm's age, Tobin's Q, and a dummy variable for the bookrunner's reputation to capture the effect of information asymmetry.¹⁰ The issuing firm's stock return during the three months prior to the offer and the issuer's pre-issue cash level are used as proxies for equity market timing. The daily yield on one year treasuries, the daily yield difference between one and ten year treasuries, and the daily yield difference between Moody's Baa and Aaa rated corporate bonds are included to control for debt market conditions.¹¹

In the estimation of equation (1), we correct for heteroscedasticity using White's (1980) method and for correlation across observations of a given firm using Roger's (1993) method.

4.2.1. Gross Spreads for Public and 144A Convertible Debt Offerings

Underwriters play several important functions in the capital-raising process of U.S. firms, including certification, monitoring, marketing, and research coverage (Beatty and Ritter (1986), Booth and Smith (1986), Chemmanur and Fulghieri (1994), Chen and Ritter (2000), Pichler and Wilhelm (2001), Bradley, Jordan, and Ritter (2003), Corwin and Schultz (2005), and Fang (2005), among others). Direct compensation for these functions takes the form of gross spreads. Lee, Lochhead, Ritter, and Zhao (1996) present

¹⁰ Ritter (1991) and Kang and Lee (1996) use firm age as a proxy for ex-ante uncertainty or risk.

¹¹ Livingston and Zhou (2002) use the default risk premium, defined as the difference between the Merrill Lynch BBB Corporate Bond Index and the 10-year US Treasury Index, as a proxy for debt market conditions in their analysis of straight debt in the public and the 144A markets.

evidence that underwriters charge higher gross spreads for riskier and more information sensitive securities for which more services and effort by underwriters are required. If underwriters view public and 144A securities as comparable and correspondingly provide the same type of services and exert the same amount of effort, then we expect to see no difference in the gross spreads of 144A and public convertible debt issues. Estimation results of two regression specifications are presented in Table 4.

[Table 4 about here]

The statistically insignificant coefficient for the Rule 144A dummy suggests that convertible debt issued in the 144A market is essentially the same type of security as the convertible debt issued in the public market.

Significant research exists on underwriter compensation for unseasoned and seasoned equity, preferred stock, and straight debt offerings (see Lee et. al. (1996), Altinkiliç and Hansen (2000), Chen and Ritter (2000), and Bajaj, Mazumdar, and Sarin (2002), among others). Yet little research has been done on the determinants of gross spreads for convertible debt offerings. To the best of our knowledge, the most recent existing paper that examines gross spreads for convertible debt offerings is by Lee et. al. (1996). Using a sample of convertible debt issues in the public market from 1990 to 1994, they document that the average gross spread, expressed as a percentage of gross proceeds, is 2.9%. Their study is largely descriptive and does not provide a systematic examination of the cross-sectional determinants of gross spreads. Also, their study is limited to only convertible debt offerings in the public market. In this paper, we investigate the determinants of gross spreads for a longer sample period and include in our analysis convertible debt offered in the 144A market.

The significant and negative coefficient for gross proceeds suggests economies of scale in underwriting services. The significant coefficient for relative issue size is consistent with the presence of U-shaped gross spreads as documented in Altinkiliç and Hansen (2000). The regression coefficients for conversion premium and the natural logarithm of maturity are not statistically significant at the conventional levels.

The effect of a firm's credit risk on spreads is captured by the credit rating dummies, return volatility, and total debt ratio. For the rating dummies, unrated firms are the base category. We expect riskier firms to pay higher gross spreads. However, the coefficients for the credit risk variables are not significant.

Firms that are accessing the public or the 144A market for the first time have more information opacity than firms with previous access to capital markets. Thus, we expect a positive relation between gross spreads and the first-issue dummy. As expected, the coefficient for the first-issue dummy is positive, although it is not statistically significant. Similarly, we expect a negative relation between gross spreads and the natural log of firm age, reflecting the fact that older firms have a longer history of SEC reporting and analyst following and thus require less monitoring and marketing efforts by underwriters. We also expect a negative relation between gross spreads and Tobin's Q to reflect the less need of firms with more growth opportunities for certification by investment banks. Neither Tobin's Q nor the natural log of firm age has a statistically significant coefficient. The top-tier bank dummy has a significant negative coefficient. This finding is consistent with the view that issues underwritten by a more prestigious bank are of better quality.

The coefficient on pre-issue return is negative, perhaps because firms with stock price run-ups have less need for investment bank certification. The coefficient on cash-to-assets ratio is not statistically significant. None of the three variables for debt market conditions has a statistically significant coefficient.

The coefficients on the common variables in regression specifications (1) and (2) are similar. In specification (2), we also include two additional dummy variables: the subsequent registration dummy and the shelf registration dummy. Rule 144A issues that are subsequently registered can be publicly traded and are perhaps easier to market. Thus investment banks might charge lower gross spreads for underwriting these issues. The negative coefficient on the subsequent registration dummy is consistent with this conjecture, though it is not statistically significant. If economies of scale exist, investment banks might be willing to charge lower gross spreads on shelf registered issues that are perhaps accompanied by other securities issues during the year before and the year after the offer. As expected, the coefficient on the shelf registration dummy is negative, though it is not statistically significant.

4.2.2. Offering Yields for Public and 144A Convertible Debt Offerings

To further investigate whether convertible debt issued in the 144A market is essentially the same type of security as the convertible debt issues in the public market, we conduct an analysis of offering yields on convertible debt in both markets. The existing literature suggests that debt contract features, credit risk, information asymmetry, and economies of scale affect bond yields (see Strahan (1999), among others). Thus, we

use the same set of variables used in the estimation of the gross spread regression. We report results for two regression specifications in Table 5.

[Table 5 about here]

Since the coefficients on the common variables in the two specifications are similar, we focus our discussions on specification (1) results. If investors view the public and the 144A markets as comparable, then offering yields on convertible debt issues in these two markets should be the same. The regression coefficient for the Rule 144A dummy is not statistically significant at the conventional levels, suggesting that investors indeed view public and 144A convertible debt issues as comparable.

Extant research has shown that issue characteristics determine debt contract yields. One important contract feature of convertible debt is the option of conversion. Studying yields on convertible debt issues thus requires capturing the value of the conversion option.¹² Empirically, the probability of conversion is often used to capture the effect of the option on yields. Researchers typically use the conversion premium as a proxy for the probability of conversion. The probability of conversion is lower if the conversion premium is higher. The results in Table 5 show that offering yields are positively related to the conversion premium indicating that more debt-like convertible debt issues have higher yields. Also, offering yields are negatively related to issue size, as measured by the natural log of gross proceeds. This is perhaps because a larger issue is more liquid in the secondary market, resulting in a lower yield. Similar to gross spreads, the significant and positive coefficient for relative issue size indicates the presence of U-shaped yields.

¹² The main objective in this section is not to provide an exhaustive empirical estimation of convertible bond pricing but rather test whether 144A and public convertible bond issues are essentially the same security by looking at their yields at the time of issuance. Pricing of convertible bonds requires complex computations as explained by Chan and Chen (2005).

For convertible debt issues, maturity is not related to offering yields as indicated by the insignificant coefficient of the maturity variable. This is perhaps because maturity is not a binding contractual feature since the bond can be converted prior to maturity.

Clearly, the yield on a convertible loan is closely tied to the riskiness of the borrowing firm as revealed by the significant coefficients for most of the firm's credit rating dummies. The coefficients on the six rating dummies increase monotonically, suggesting that higher yields are demanded to compensate for higher risk. The coefficients for return volatility and total debt ratio are positive and statistically significant, again suggesting that riskier issues are associated with higher yields. The coefficients for information asymmetry proxies are not significant with the exception of the first-issue dummy. The positive and statistically significant coefficient for the first-issue dummy indicates that convertible debt issuers that access the market for the first time command higher offering yields to compensate investors for the greater opacity of the firm. Fenn (2000) and Livingston and Zhou (2002) find a similar relation for straight debt issues. The insignificance of the other proxies for information asymmetry may be due to credit risk subsuming the effects of information asymmetry, consistent with Carey, Post, and Sharpe (1998).

The coefficient on pre-issue return is negative and significant, perhaps because firms with stock price run-ups are less likely to have adverse private information. The coefficient on cash-to-assets ratio is negative and statistically significant at the 10% level. The coefficient on interest rate is positive and statistically significant, suggesting that the yield on convertible debt is higher when the interest rate is higher. The coefficient on term spread is not statistically significant. The positive and statistically significant

coefficient on default spread suggests that the yield on convertible debt is higher when the market-wide default risk premium is higher.

Specification (2) includes two additional variables. The subsequent registration dummy is included to see whether 144A issues with a subsequent registration are associated with lower yields. The shelf registration dummy is included to see whether shelf registered public issues are associated with lower yields. As expected, the coefficients on both variables are negative, though neither is statistically significant.

4.2.3. Stock Price Reactions to Public and 144A Convertible Debt Offerings

The announcement effect is often considered as an indirect measure of financing costs. Extant research documents that the issuance of more informationally sensitive securities is on average associated with a more negative announcement effect on the issuer's stock. If investors view 144A and public convertible debt issues as similar securities, we would expect the stock price reaction to the issuance announcement to be similar. We compute the cumulative abnormal return for each convertible debt issue in our sample for a three-day window around the announcement day, CAR (-1,+1).¹³ Although Table 3 suggests that convertible debt offerings in the 144A market have more negative announcement returns than convertible debt offerings in the public market, it is important to control for the differences in issue and firm characteristics. Therefore, we re-estimate equation (1) where the dependent variable is CAR (-1,+1) and the independent variables remain the same as what we previously used in our regressions of gross spreads and offering yields. Table 6 presents the results.

¹³ As a robustness check, we have computed abnormal stock returns for different windows, using different benchmarks and estimation procedures, and results are strikingly similar and thus not reported in the paper.

[Table 6 about here]

We first discuss specification (1) results. The coefficient for the Rule 144A dummy is not statistically significant, again suggesting that convertible debt issues in the 144A and the public markets are similar. For brevity, we only discuss significant coefficients on control variables. The coefficient on the natural logarithm of gross spreads has a positive sign and is statistically significant, perhaps because larger issues are by larger firms that have less information asymmetry. The coefficient on relative size is negative and statistically significant. This suggests that raising a large amount of gross proceeds relative to a firm's pre-issue market capitalization is an adverse signal to the stock market. A longer maturity is related to a more positive stock price reaction.

Firms with a high stock return volatility are likely to be riskier or more opaque and are expected to incur a more negative announcement effect. As expected, the stock price reacts more negatively to the announcement of convertible debt issuance by such firms. Somewhat unexpectedly, first-time issuers are related to a more favorable stock price reaction, and issues underwritten by a more prestigious underwriter are related to a less favorable stock price reaction.

The subsequent registration dummy and the shelf registration dummy are included in specification (2). Neither variable has a statistically significant coefficient, suggesting that investors do not react differently to announcements of subsequently registered 144A issue and shelf registered public issues.

4.3. Probit Regression for the Choice Between the Public and the 144A Markets

We now estimate a probit regression for the choice between the 144A and the public markets to issue convertible debt. The probit regression serves three purposes. First, it further addresses whether public and 144A issues are similar by comparing issue characteristics of convertible bonds in both markets. Second, it helps determine the importance of the speed of issuance in the issuer's choice between the public and the 144A markets. Third, estimation results from this regression also contribute to our understanding of the role of information asymmetry, credit risk, and market conditions in the choice of markets.

Specifically, the market choice model takes the form of:

$$\begin{aligned} \text{Rule 144A market : } I_i &= 1 \text{ if } \gamma'Z_i \geq u_i \\ \text{Public market : } I_i &= 0 \text{ otherwise} \end{aligned} \tag{2}$$

where Z_i is a vector of issue characteristics, proxies for credit risk, information asymmetry, market timing, and issuing speed, and industry and time dummies. The dependent variable equals one if the convertible debt is offered in the 144A market, and equals zero if the convertible debt is offered in the public market. Because the dependent variable is a dummy variable, we estimate equation (2) using maximum likelihood.

Issue characteristics and proxies for information asymmetry, credit risk, and market conditions are the same as those in the cost regressions. We also include a dummy variable that equals one if the firm has at least one shelf registered security issue during the year prior to the current issue of convertible debt. Since firms without a prior shelf registered security issue are less likely to have a shelf registration in place, we expect that such firms are more likely to choose the 144A market for speedy issuance. We further include the number of 144A convertible debt issues as a percentage of the total number of public and 144A convertible debt issues in the year prior to the offer date.

This variable captures changes in the macroeconomic environment that favor the 144A market.

Table 7 reports the estimation results. None of the variables for issue characteristics are statistically significant at the conventional levels. These results further suggest that convertible debt issues in the 144A market are similar to convertible debt issues in the public markets.

[Table 7 about here]

As revealed by the negative coefficients for all but one credit rating dummies, firms with a credit rating are more likely than non-rated firms to use the public market.¹⁴ This finding suggests that firms with a pre-existing company rating are more likely to use the public market, perhaps because it is less time-consuming for these firms to acquire a rating for their convertible debt issues. The magnitude of the coefficients on the credit rating dummies suggests a non-monotonic relation between credit risk and the likelihood of issuing convertible debt in the 144A market. We also use stock return volatility and total debt ratio to measure additional credit risk effects not captured by our credit rating dummies. The coefficients for the two variables are not statistically significant.

Our proxies for information asymmetry do not appear to provide supporting evidence that the market choice is affected by the information opacity of the firm. The coefficient on the first-issue dummy is positive but not statistically significant. Extant literature argues that young firms are less known and are likely to face more severe information asymmetry problems, we thus expect younger firms to be more likely to use the 144A market. Unexpectedly, the coefficient for the natural log of firm age suggests

¹⁴ Results remain qualitatively the same if we include a rating dummy for each convertible debt issue in the probit regression. As we discussed earlier, the decision to obtain a rating for a security issue from a credit agency is endogenous and thus we do not report our results.

that older firms are more likely to use the 144A market. Also, it is argued in the literature that firms facing high growth opportunities are more likely to face information asymmetry and agency problems. Tobin's Q is often used to capture growth opportunities. However, we find that Tobin's Q is statistically insignificant in the choice between the public and the 144A markets. The coefficient for the top-tier bank dummy is also statistically insignificant.

The coefficients on credit rating dummies, stock return volatility, and Ln(Firm Age) are inconsistent with the view that the 144A market is for riskier and more informationally opaque firms. Using a multinomial logit model, Denis and Mihov (2003) find that low quality firms are more likely to use non-bank private straight debt than public straight debt. The different results are perhaps due to two reasons: (1) They examine straight debt while this paper examines convertible debt. Given the importance of equity market conditions for convertible debt, convertible debt issuers are likely to put more emphasis on the speed of issuance and equity market conditions and less focus on credit risk than straight debt issuers; (2) Their definition of non-bank private debt includes private debt issued in both the 144A market and the private market. However, it is likely that the 144A market is substantially different from the private market, especially since the vast majority of 144A debt issues are subsequently registered to become publicly tradable.

We find some evidence that firms may be using the 144A market to take advantage of favorable equity market conditions. First, the coefficient for the pre-issue return is positive and statistically significant at the 10% level, suggesting that firms having stock price run-ups prior to the issue are more likely to use the 144A market to

issue convertible debt. This result is consistent with the findings of Lee and Loughran (1998). Second, the likelihood that a firm uses the 144A market increases with the firm's cash-to-assets ratio. The existence of excess cash balances suggests that firms issue convertible debt in the 144A market to time market conditions rather than to cover immediate financing needs. However, we find no evidence that the 144A market allows issuers to better time debt market conditions. The coefficients on interest rate, term spread, and default spread are not statistically significant.

The coefficient on the prior shelf issue dummy is negative and statistically significant, suggesting that firms with a shelf registered security issue in the year prior to the current issue are less likely to choose the 144A market. This is consistent with our hypothesis that the 144A market provides speediness of issuance for firms without a shelf registration in place prior to the current convertible debt issue. The coefficient on the share of the 144A market in the year prior to the offer date is positive and statistically significant, suggesting that a firm is more likely to issue in the 144A market if a large percentage of firms have issued in the 144A market than the public market during the year prior to the current issue.

For brevity, the coefficients on the year dummies are not reported. Consistent with our results in Figure 1, the coefficients on the year dummies suggest that firms are more likely to issue convertible debt in the 144A market in later years. This is perhaps because the increasing participation of institutional investors in the 144A market has allowed more firms to place convertible debt rapidly. The unreported coefficients on most industry dummies are not statistically significant.

4.4. Robustness checks

4.4.1. Endogeneity of the Choice of Markets

In the ordinary least squares (OLS) estimations of equation (1), the coefficient on the 144A dummy is not statistically significant. However, if unobserved characteristics influence the issuer's choice between the public and the 144A markets, then a selectivity bias exists. To control for the selectivity bias, we follow Heckman (1976) to estimate the determination of the costs using two-stage least squares (2SLS). Specifically, we use the estimated coefficients of equation (2) in Table 7 to calculate the inverse Mills ratio,

which equals $\frac{\phi(\hat{\gamma}' Z_i)}{\Phi(\hat{\gamma}' Z_i)}$ for the 144A market and $-\frac{\phi(\hat{\gamma}' Z_i)}{1-\Phi(\hat{\gamma}' Z_i)}$ for the public market,

where $\Phi(\cdot)$ and $\phi(\cdot)$ are the cumulative distribution function and the density function of the standard normal distribution, respectively. We then include the inverse Mills ratio as an additional explanatory variable to estimate equation (1). Table 8 presents the second stage results.

[Table 8 about here]

The coefficients on the inverse Mills ratio are insignificant in all the three regressions. The coefficients on the other explanatory variables in Table 8 are similar to the coefficients on these variables in Tables 4, 5, and 6. Therefore, our results are robust to convertible debt issuers' self selection of markets.

4.4.2. Further Control for Risk Differences

Denis and Mihov (2003) find that credit risk is an important determinant of the market used to issue securities and interpret their results as supportive of their argument that the 144A market is used by low quality firms to issue straight debt. We proceed to

conduct a series of robustness checks to investigate whether our results for the Rule 144A dummy in the costs regressions are robust to fully controlling for risk differences between public and 144A issues. We re-estimate the models in Tables 4, 5, and 6 by limiting the sample to only B-rated issues. This allows us to focus on a homogeneous risk class in the estimation of equation (1) and the rating class that has the most frequency for convertible debt offerings. Table 9 presents the results.

[Table 9 about here]

The coefficient for the Rule 144A dummy is not statistically significant in any of the three regressions, indicating that underwriters and investors view public and 144A convertible debt issues as essentially the same type of security. We also conducted the estimation of these three regressions using only the sample of unrated issues. Results for the Rule 144A dummy are essentially the same and thus not reported here. In short, we find no difference between the public and the 144A markets in the costs of convertible debt financing even after further controlling for risk differences.

4.4.3. Structural Changes Across Time

Although we have used time dummies to capture time trends in our previous analysis, we further check our results for structural changes across time. We drop the observations from years 2002 to 2004 where the majority of convertible debt offerings were issued in the 144A market and re-estimate all three equations. Our major results remain essentially the same. For brevity, these results are not reported but are available upon request.

5. Conclusions

While financial researchers have extensively studied convertible debt as an important alternative of corporate financing, very little is known about the markets in which convertible bonds are or should be issued. In this paper, we study a sample of convertible debt offerings in both the public and the 144A markets during the period of 1991 to 2004.

We document a significant shift of convertible debt offerings from the public to the 144A market. We then address the question of why firms increasingly use the 144A market to issue convertible debt. We hypothesize that a key advantage of the 144A market is the speediness of issuance. Our findings are consistent with this hypothesis.

We first investigate whether convertible debt issued in the 144A market is similar to convertible debt issued in the public market. Specifically, we study subsequent registrations of 144A issues and costs of convertible debt offerings. We find that 144A convertible debt has a high rate of registration, and a relatively short period between the closing and the registration of the deal. After controlling for credit risk, asymmetric information, market conditions, and issue characteristics, we find that gross spreads, offering yields, and announcement effects are statistically similar for 144A and public convertible debt issues. In addition, we find no differences in issue characteristics between public and 144A issues in a probit model for the choice of markets. These results suggest that issuers, underwriters, and investors view the public and the 144A markets for convertible debt offerings as comparable, and thus firms are able to issue convertible debt in the two markets at similar costs.

We present evidence that firms experiencing higher pre-issue stock returns and having higher cash-to-assets ratios are more likely to use the 144A market than the public market to issue convertible debt. This is consistent with the hypothesis that the speediness of issuance in the 144A market allows firms to better time equity market conditions.

An argument provided by recent work in this area is that firms' credit quality and information opacity are important determinants of their choice of markets. For example, both Fenn (2000) and Denis and Mihov (2003) suggest that the 144A market is primarily used by low quality firms for straight debt issues. If 144A convertible bonds are meant to be public bonds and the 144A market is used for speedier issuance, we should not expect to observe credit risk and information asymmetry affecting the choice between these two markets for convertible debt. Indeed, we find that information asymmetry and credit risk play a relatively less important role in the choice between the public and the 144A markets for convertible debt offerings. If anything, in the issuance of convertible debt, firms with greater stock return volatility, lower credit ratings, and shorter track records are less likely to use the 144A market.

Since both 144A issues and shelf registered public issues are executed more quickly than non-shelf registered public issues, we investigate potential reasons for firms preferring the 144A market to a shelf registration. We argue that it takes time for the initial shelf registration to be approved and that it is less crucial for 144A issues to acquire a credit rating. Indeed, we find that 144A convertible debt issues are less likely to have a shelf registration in place, and are less likely to acquire a credit rating prior to or on the offer date than shelf registered public convertible debt issues.

As a side in the investigation conducted in this paper and to the best of our knowledge, this is the first paper to investigate the determinants of gross spreads and offering yields for convertible debt issues in both the public and the 144A markets. We provide support for economies of scale and mixed evidence for the role of credit risk and information asymmetry in determining gross spreads of convertible debt issues. Our results on the determination of convertible debt yields provide evidence for economies of scale and credit risk effects.

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Appendix: Variable Definitions

<i>Variable</i>	<i>Definition</i>
Rule 144A dummy	A dummy variable that equals one for 144A issues, and zero otherwise
Subsequent Registration dummy	A dummy variable that equals one for subsequently registered 144A issues, and zero otherwise
Shelf Registration Dummy	A dummy variable that equals one for shelf registered public issues, and zero otherwise
Gross Proceeds	The total amount of proceeds raised through the offering expressed in millions of dollars of 2004 purchasing power
Yield-To-Maturity (%)	Percentage yield-to-maturity
Gross Spreads	The total amount of underwriter compensation as a percentage of gross proceeds
Conversion Premium (%)	$100 \times (\text{initial conversion price} - \text{the last common stock price}) / \text{the last common stock price}$
Pre-issue Market Capitalization	The total market capitalization (Compustat items 25*199) in millions of dollars of 2004 purchasing power at the fiscal year end prior to the offer date
Relative size (%)	The total proceeds as a percentage of the total pre-issue market capitalization
Total Debt Ratio	The book value of long-term and short-term debt (item 9 + item 34) divided by total assets (item 6) at the fiscal year end prior to the offer date
Maturity	The number of years from the offer date to the maturity date
First-issue Dummy	A dummy variable that equals one if the firm has no other public or 144A straight debt or convertible debt issue in Thomson Financial's SDC new issue database prior to the current issue, and zero otherwise
Firm Age	The number of years since the firm was first listed on CRSP
Return Volatility (%)	The standard deviation of daily close-to-close percentage returns over the 30 trading days ending 11 days before the offer
Tobin's Q	The sum of the market value of equity (items 25*199) and the book value of debt (items 181+10-35-79) divided by the book value of total assets (item 6) at the fiscal year end prior to the offer date
Pre-issue Return (%)	The percentage market-adjusted stock return of the issuer during the three months prior to the offer, using the CRSP value-weighted market return as the benchmark
Cash-to-Assets Ratio	The amount of cash and cash equivalents (item 1) divided by total assets at the fiscal year end prior to the offer date
Top-tier Bank Dummy	A dummy variable that equals one if the bookrunner's Carter-Manaster rank is at least 8, and zero otherwise
Interest Rate (%)	The daily yield on one year constant fixed maturity treasuries in the secondary market
Term Premium (%)	The daily yield difference on one and ten year constant fixed maturity treasuries from http://woodrow.mpls.frb.fed.us/research/data/us/
Default Premium (%)	The daily yield difference between Moody's Baa and Aaa rated corporate bonds from http://woodrow.mpls.frb.fed.us/research/data/us/
Prior Shelf Issue Dummy	The dummy variable equals one if the firm has at least one other shelf registered issue during the year immediately prior to the current issue, and zero otherwise
Prior Year 144A Share (%)	The number of 144A convertible debt issues as a percentage of the sum of public and 144A convertible debt issues during the year immediately prior to the current issue
CAR (-1, +1) (%)	Three-day (-1, +1) cumulative abnormal return using the market model based on data from a 255 trading-day estimation period ending 46 trading days before the announcement date
CAR (-2, +2) (%)	Five-day (-2, +2) cumulative abnormal return using the market model based on data from a 255 trading-day estimation period ending 46 trading days before the announcement date

Table 1

Registration of Rule 144A Convertible Debt Issues during 1996-2004

This table shows the number of 144A issues in the sample during 1996-2004.

Number of 144A convertible debt issues	542
Number of 144A convertible debt issues that are also in PlacementTracker	493
Number of 144A convertible debt issues that are subsequently registered	434
Percent subsequently registered	88.03

Table 2**Securities Issues in the Prior Year and Distribution of Credit Rating**

This table compares frequency of prior securities issues and distribution of credit rating for non-shelf registered public issues, shelf registered public issues, and 144A issues. Panel A reports frequency of securities issues in the year immediately prior to each current convertible debt issue. Panel B reports sample distribution by pre-existing company rating and convertible debt issue rating. The pre-existing company rating is based on S&P long-term domestic issuer credit rating (Compustat item 280). The convertible debt issue rating is the S&P rating for the convertible debt issue as provided in Thomson Financial's new issues database.

Panel A: Frequency of Securities Issues in the Prior Year

	Non-Shelf Public	Shelf Public	144A
Number of current issues	189	96	546
Percent preceded by at least one security issue in the year prior to the current issue	38.6	56.2	28.0
Percent preceded by at least one shelf registered security issue in the year prior to the current issue	7.4	36.5	5.5
Mean number of securities issues in the year prior to each current issue	0.534	0.938	0.386
Mean number of shelf registered securities issues in the year prior to each current issue	0.153	0.604	0.097

Panel B: Sample Distribution by Credit Rating

	Non-Shelf Public		Shelf Public		144A	
	N	%	N	%	N	%
<i>Current convertible debt issue S&P rating</i>						
AAA	--	--	--	--	1	0.2
AA+, AA, AA-	3	1.6	--	--	2	0.4
A+, A, A-	12	6.3	9	9.4	11	2.0
BBB+, BBB, BBB-	17	9.0	21	21.9	45	8.2
BB+, BB, BB-	16	8.5	7	7.3	25	4.6
B+, B, B-	78	41.3	26	27.1	69	12.6
CCC+, CCC, CCC-	10	5.3	8	8.3	18	3.3
CC, C	--	--	2	2.1	3	0.5
Not Rated	53	28.0	23	24.0	372	68.1
All	189	100.0	96	100.0	546	100.0
<i>Pre-existing company S&P rating</i>						
AAA	--	--	--	--	--	--
AA+, AA, AA-	2	1.1	1	1.0	1	0.2
A+, A, A-	14	7.4	9	9.4	23	4.2
BBB+, BBB, BBB-	11	5.8	18	18.8	61	11.2
BB+, BB, BB-	20	10.6	32	33.3	82	15.0
B+, B, B-	15	7.9	12	12.5	59	10.8
CCC+, CCC, CCC-	1	0.5	3	3.1	7	1.3
CC, C	--	--	--	--	--	--
Not Rated	126	66.7	21	21.9	313	57.3
All	189	100.0	96	100.0	546	100.0

Table 3
Summary Statistics

This table reports means and medians of issue and firm characteristics. Variable definitions are presented in the Appendix. T-tests are performed for the difference in means and Wilcoxon rank sum tests are performed for the difference in medians. The t-statistics for the difference in means and the z-statistics for the difference in medians are reported in the last two columns.

	Public			144A			Difference	
	N	Mean	Median	N	Mean	Median	t-stat	z-stat
Gross Spread (%)	283	2.76	2.75	452	2.92	3.00	-2.16	-5.38
Yield-To-Maturity (%)	285	5.57	5.75	546	4.00	4.00	11.70	11.14
Conversion Premium (%)	285	26.74	23.08	546	32.94	30.01	-2.58	-9.28
Maturity	285	10.86	9.99	546	12.76	7.06	-3.96	0.40
Gross Proceeds	285	292	155	546	260	170	1.12	-1.70
Relative Size (%)	285	27.80	17.81	546	22.34	17.44	2.41	0.62
Pre-issue Market Cap.	285	3,631	898	546	3,042	987	1.18	-1.41
Total Debt Ratio	285	0.30	0.29	546	0.26	0.24	2.02	2.83
Return Volatility	285	3.25	2.78	546	3.68	3.30	-3.31	-4.67
First-issue Dummy	285	0.477	0.00	546	0.511	1.00	-0.92	-0.92
Firm Age	285	12.42	7.64	546	13.29	9.06	-1.02	-1.92
Tobin's Q	285	2.40	1.63	546	3.09	1.83	-2.15	-3.04
Top-tier Bank Dummy	285	0.88	1.00	546	0.95	1.00	-3.27	-3.66
Pre-issue Return	285	14.84	11.04	546	31.67	15.66	-4.57	-3.33
Cash-to-Assets Ratio	285	0.12	0.06	546	0.25	0.15	-8.63	-7.45
Interest Rate (%)	285	4.32	4.53	546	3.02	2.26	11.14	9.02
Term Premium (%)	285	1.74	1.89	546	1.84	2.27	-1.21	-0.88
Default Premium (%)	285	0.78	0.74	546	0.90	0.82	-8.83	-6.70
CAR(-1, +1)	284	-2.89	-2.45	546	-4.70	-4.44	3.67	4.36
CAR(-2, +2)	284	-2.67	-1.93	546	-4.47	-4.91	2.88	4.39

Table 4
Determinants of Gross Spread

The dependent variable is the total percentage gross spread obtained from either Thomson Financial's SDC database (variable GPCTP) or Sagient Research's PlacementTracker database. The definitions of the independent variables are presented in the Appendix. Industry dummies are constructed following Kenneth R. French's 17 industry classifications as detailed on his web site, though we exclude financial institutions. Only 735 convertible debt issues have non-missing gross spreads. The t-statistics are calculated using robust standard errors corrected for heteroscedasticity (White (1980)) and clustering at the firm level (Rogers (1993)).

	(1)		(2)	
	Coeff	t-stat	Coeff	t-stat
<i>Issue Characteristics</i>				
Rule 144A Dummy	0.058	0.68	0.034	0.25
Subsequent Registration Dummy			-0.015	-0.17
Shelf Registration Dummy			-0.054	-0.52
Conversion Premium	-0.001	-0.94	-0.001	-0.94
Ln(Gross Proceeds)	-0.434	-6.52	-0.431	-6.45
Relative Size	0.005	2.63	0.005	2.64
Ln(Maturity)	-0.008	-0.13	-0.007	-0.12
<i>Pre-existing S&P Company Rating Dummies</i>				
AA- or higher	-0.617	-1.58	-0.608	-1.56
A+, A, A-	-0.205	-1.46	-0.207	-1.46
BBB-, BBB, BBB+	-0.049	-0.44	-0.047	-0.43
BB-, BB, BB+	0.010	0.13	0.015	0.21
B-, B, B+	-0.018	-0.17	-0.017	-0.17
CCC+ or lower	0.086	0.57	0.082	0.54
<i>Other Proxies for Credit Risk</i>				
Return Volatility	0.038	1.55	0.038	1.56
Total Debt Ratio	0.056	0.36	0.058	0.37
<i>Proxies for Information Asymmetry</i>				
First-issue Dummy	0.092	1.25	0.091	1.23
Ln(Firm Age)	-0.041	-1.10	-0.040	-1.08
Tobin's Q	-0.005	-1.27	-0.005	-1.29
Top-tier Bank Dummy	-0.704	-3.22	-0.702	-3.22
<i>Proxies for Market Timing</i>				
Pre-issue Return	-0.001	-2.97	-0.001	-2.96
Cash-to-Assets Ratio	-0.079	-0.52	-0.075	-0.50
Interest Rate (%)	0.046	0.61	0.045	0.61
Term Spread (%)	0.009	0.11	0.007	0.09
Default Spread (%)	0.188	0.63	0.187	0.63
Constant	5.387	6.48	5.389	6.48
Industry Dummies	Yes		Yes	
Year Dummies	Yes		Yes	
Adjusted R ²	0.375		0.373	
N	735		735	

Table 5
Determinants of Yield-To-Maturity

The dependent variable is the yield to maturity. The definitions of the independent variables are presented in the Appendix. Industry dummies are constructed following Kenneth R. French's 17 industry classifications as detailed on his web site, though we exclude financial institutions. The t-statistics are calculated using robust standard errors corrected for heteroscedasticity (White (1980)) and clustering at the firm level (Rogers (1993)).

	(1)		(2)	
	Coeff	t-stat	Coeff	t-stat
<i>Issue Characteristics</i>				
Rule 144A Dummy	-0.119	-0.83	-0.043	-0.23
Subsequent Registration Dummy			-0.214	-1.44
Shelf Registration Dummy			-0.139	-0.75
Conversion Premium	0.003	3.74	0.003	3.84
Ln(Gross Proceeds)	-0.598	-6.37	-0.593	-6.39
Relative Size	0.008	2.58	0.008	2.56
Ln(Maturity)	-0.110	-0.83	-0.115	-0.87
<i>Pre-existing S&P Company Rating Dummies</i>				
AA- or higher	-1.562	-2.91	-1.523	-2.85
A+, A, A-	-0.930	-3.59	-0.943	-3.65
BBB-, BBB, BBB+	-0.081	-0.36	-0.071	-0.31
BB-, BB, BB+	0.007	0.05	0.024	0.16
B-, B, B+	0.534	2.53	0.527	2.49
CCC+ or lower	0.999	2.54	0.969	2.39
<i>Other Proxies for Credit Risk</i>				
Return Volatility	0.121	3.54	0.121	3.54
Total Debt Ratio	0.696	2.45	0.702	2.48
<i>Proxies for Information Asymmetry</i>				
First-issue Dummy	0.233	2.08	0.233	2.07
Ln(Firm Age)	0.062	1.16	0.059	1.11
Tobin's Q	-0.002	-0.32	-0.003	-0.43
Top-tier Bank Dummy	-0.191	-1.03	-0.186	-1.01
<i>Proxies for Market Timing</i>				
Pre-issue Return	-0.003	-3.26	-0.003	-3.12
Cash-to-Assets Ratio	-0.424	-1.80	-0.403	-1.73
Interest Rate (%)	0.414	3.11	0.423	3.17
Term Spread (%)	0.035	0.22	0.038	0.23
Default Spread (%)	1.215	2.20	1.200	2.17
Constant	6.638	4.67	6.606	4.68
Industry Dummies	Yes		Yes	
Year Dummies	Yes		Yes	
Adjusted R ²	0.573		0.573	
N	831		831	

Table 6
Determinants of Stock Price Reaction

The dependent variable is the three-day (-1, +1) cumulative abnormal return around the announcement date using the market model based on data from a 255 trading-day estimation period ending 46 trading days before the announcement date. The definitions of the independent variables are presented in the Appendix. Industry dummies are constructed following Kenneth R. French's 17 industry classifications as detailed on his web site, though we exclude financial institutions. Stock prices around the announcement are missing for one of the 831 convertible debt issues. The t-statistics are calculated using robust standard errors corrected for heteroscedasticity (White (1980)) and clustering at the firm level (Rogers (1993)).

	(1)		(2)	
	Coeff	t-stat	Coeff	t-stat
<i>Issue Characteristics</i>				
Rule 144A Dummy	-0.083	-0.12	-0.090	-0.08
Subsequent Registration Dummy			-0.247	-0.26
Shelf Registration Dummy			-0.327	-0.33
Conversion Premium	-0.004	-0.69	-0.004	-0.69
Ln(Gross Proceeds)	1.296	3.24	1.311	3.19
Relative Size	-0.038	-3.80	-0.038	-3.79
Ln(Maturity)	1.017	1.88	1.012	1.87
<i>Pre-existing S&P Company Rating Dummies</i>				
AA- or higher	-0.773	-0.54	-0.708	-0.48
A+, A, A-	0.718	0.64	0.698	0.62
BBB-, BBB, BBB+	-0.541	-0.55	-0.522	-0.53
BB-, BB, BB+	1.046	1.34	1.081	1.37
B-, B, B+	-0.417	-0.36	-0.422	-0.36
CCC+ or lower	1.765	0.64	1.732	0.62
<i>Other Proxies for Credit Risk</i>				
Return Volatility	-0.660	-3.17	-0.659	-3.17
Total Debt Ratio	1.451	1.02	1.467	1.03
<i>Proxies for Information Asymmetry</i>				
First-issue Dummy	1.099	1.76	1.098	1.76
Ln(Firm Age)	0.247	0.82	0.244	0.81
Tobin's Q	-0.008	-0.13	-0.009	-0.15
Top-tier Bank Dummy	-2.789	-2.20	-2.775	-2.18
<i>Proxies for Market Timing</i>				
Pre-issue Return	0.013	1.77	0.013	1.78
Cash-to-Assets Ratio	-0.072	-0.05	-0.042	-0.03
Interest Rate (%)	0.461	0.64	0.472	0.66
Term Spread (%)	0.059	0.07	0.059	0.07
Default Spread (%)	-1.513	-0.40	-1.529	-0.41
Constant	-11.315	-1.34	-11.381	-1.35
Industry Dummies	Yes		Yes	
Year Dummies	Yes		Yes	
Adjusted R ²	0.082		0.080	
N	830		830	

Table 7**The Choice between the Public and the 144A Markets for Convertible Debt Issues**

A probit regression is estimated. The dependent variable equals one if the firm issues in the Rule 144A market, and zero if it issues in the public market. The definitions of the independent variables are presented in the Appendix. The credit rating dummies are based on S&P long-term domestic issuer credit rating (Compustat item 280). Industry dummies are constructed following Kenneth R. French's 17 industry classifications as detailed on his web site, though we exclude financial institutions. The z-statistics are calculated using robust standard errors corrected for heteroscedasticity (White (1980)).

	Coeff	z-stat	Mar. Effects
<i>Issue Characteristics</i>			
Conversion Premium	0.001	0.59	0.000
Ln(Gross Proceeds)	-0.060	-0.58	-0.021
Relative Size	-0.003	-0.98	-0.001
Ln(Maturity)	-0.168	-1.22	-0.060
<i>Pre-existing S&P Company Rating Dummies</i>			
AA- or higher	0.547	1.42	0.163
A+, A, A-	-0.407	-1.25	-0.154
BBB-, BBB, BBB+	-0.133	-0.53	-0.048
BB-, BB, BB+	-0.414	-2.01	-0.155
B-, B, B+	-0.321	-1.24	-0.120
CCC+ or lower	-0.772	-1.87	-0.299
<i>Other Proxies for Credit Risk</i>			
Return Volatility	-0.073	-1.56	-0.026
Total Debt Ratio	0.040	0.12	0.014
<i>Proxies for Information Asymmetry</i>			
First-issue Dummy	0.188	1.17	0.067
Ln(Firm Age)	0.157	2.35	0.056
Tobin's Q	-0.002	-0.19	-0.001
Top-tier Bank Dummy	0.275	1.07	0.102
<i>Proxies for Market Timing</i>			
Pre-issue Return	0.003	1.87	0.001
Cash-to-Assets Ratio	0.760	2.06	0.269
Interest Rate (%)	0.181	1.16	0.064
Term Spread (%)	0.151	0.83	0.054
Default Spread (%)	0.148	0.26	0.053
<i>Proxy for Issuing Speed</i>			
Prior Shelf Issue Dummy	-1.048	-4.90	-0.399
<i>Other Controls</i>			
Prior Year 144A Share (%)	4.652	2.87	1.650
Constant	-4.370	-3.05	
Industry Dummies	Yes		
Year Dummies	Yes		
Pseudo R ²	0.482		
N	831		

Table 8
Determinants of Costs and Self-Selection of Markets

The dependent variable the gross spread (%) in Panel (1), the yield to maturity (%) in Panel (2), and the three-day (-1, +1) cumulative abnormal return (%) around the announcement date using the market model based on data from a 255 trading-day estimation period ending 46 trading days before the announcement date in Panel (3). The definitions of the independent variables are presented in the Appendix. Industry dummies are constructed following Kenneth R. French's 17 industry classifications as detailed on his web site, though we exclude financial institutions. Only 735 convertible debt issues have non-missing gross spreads. Stock prices around the announcement are missing for one of the 831 convertible debt issues. The t-statistics are calculated using robust standard errors corrected for heteroscedasticity (White (1980)) and clustering at the firm level (Rogers (1993)).

	(1)		(2)		(3)	
	Gross Spread (%)		Yield-To-Maturity (%)		CAR (-1,+1) (%)	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
<i>Issue Characteristics</i>						
Rule 144A Dummy	0.025	0.11	-0.260	-0.49	-0.059	-0.03
Conversion Premium	-0.001	-0.94	0.003	3.57	-0.004	-0.68
Ln(Gross Proceeds)	-0.435	-6.43	-0.602	-6.54	1.297	3.15
Relative Size	0.005	2.63	0.008	2.55	-0.038	-3.75
Ln(Maturity)	-0.009	-0.15	-0.114	-0.87	1.018	1.87
<i>Pre-existing S&P Company Rating Dummies</i>						
AA- or higher	-0.616	-1.58	-1.556	-2.89	-0.774	-0.54
A+, A, A-	-0.208	-1.48	-0.945	-3.57	0.721	0.65
BBB-, BBB, BBB+	-0.050	-0.45	-0.086	-0.38	-0.540	-0.55
BB-, BB, BB+	0.007	0.10	-0.004	-0.02	1.048	1.31
B-, B, B+	-0.018	-0.18	0.532	2.51	-0.416	-0.36
CCC+ or lower	0.077	0.49	0.967	2.35	1.770	0.64
<i>Other Proxies for Credit Risk</i>						
Return Volatility	0.038	1.54	0.119	3.40	-0.659	-3.14
Total Debt Ratio	0.056	0.36	0.695	2.45	1.451	1.02
<i>Proxies for Information Asymmetry</i>						
First-issue Dummy	0.094	1.26	0.240	2.09	1.098	1.74
Ln(Firm Age)	-0.040	-1.08	0.066	1.18	0.246	0.80
Tobin's Q	-0.005	-1.26	-0.002	-0.30	-0.008	-0.14
Top-tier Bank Dummy	-0.701	-3.20	-0.179	-0.97	-2.791	-2.18
<i>Proxies for Market Timing</i>						
Pre-issue Return	-0.001	-2.87	-0.003	-2.89	0.013	1.70
Cash-to-Assets Ratio	-0.075	-0.48	-0.406	-1.64	-0.075	-0.05
Interest Rate (%)	0.047	0.62	0.417	3.13	0.461	0.64
Term Spread (%)	0.009	0.12	0.038	0.24	0.058	0.07
Default Spread (%)	0.192	0.64	1.233	2.22	-1.516	-0.40
<i>Self-selection</i>						
Inverse Mills Ratio	0.020	0.17	0.088	0.29	-0.015	-0.01
Constant	5.383	6.47	6.619	4.64	-11.312	-1.34
Industry Dummies	Yes		Yes		Yes	
Year Dummies	Yes		Yes		Yes	
Adjusted R ²	0.374		0.572		0.081	
N	735		831		830	

Table 9
Determinants of Costs for B-rated Issues

The dependent variable the gross spread (%) in Panel (1), the yield to maturity (%) in Panel (2), and the three-day (-1, +1) cumulative abnormal return (%) around the announcement date using the market model based on data from a 255 trading-day estimation period ending 46 trading days before the announcement date in Panel (3). The definitions of the independent variables are presented in the Appendix. Industry dummies are constructed following Kenneth R. French's 17 industry classifications as detailed on his web site, though we exclude financial institutions. The t-statistics are calculated using robust standard errors corrected for heteroscedasticity (White (1980)) and clustering at the firm level (Rogers (1993)).

	(1)		(2)		(3)	
	Gross Spread (%)		Yield-To-Maturity (%)		CAR (-1,+1) (%)	
	Coeff	t-stat	Coeff	t-stat	Coeff	t-stat
<i>Issue Characteristics</i>						
Rule 144A Dummy	0.008	0.04	-0.155	-0.40	-2.150	-1.59
Conversion Premium	-0.006	-1.76	0.013	0.87	0.053	1.20
Ln(Gross Proceeds)	-0.346	-3.86	-0.189	-0.99	1.237	1.20
Relative Size	0.004	1.73	0.005	0.88	-0.029	-1.13
Ln(Maturity)	-0.218	-1.81	-0.958	-2.73	0.383	0.26
<i>Other Proxies for Credit Risk</i>						
Return Volatility	0.102	2.46	0.397	3.34	-1.273	-2.97
Total Debt Ratio	0.434	1.65	0.857	1.07	0.947	0.26
<i>Proxies for Information Asymmetry</i>						
First-issue Dummy	0.277	2.33	0.240	0.80	2.386	2.16
Ln(Firm Age)	0.016	0.32	-0.012	-0.12	0.660	1.17
Tobin's Q	-0.010	-0.59	-0.158	-3.52	0.155	0.83
Top-tier Bank Dummy	-0.216	-0.65	0.033	0.08	-2.198	-1.39
<i>Proxies for Market Timing</i>						
Pre-issue Return	-0.002	-1.17	-0.010	-3.29	0.009	0.37
Cash-to-Assets Ratio	-0.247	-0.77	-0.542	-0.49	0.178	0.04
Interest Rate (%)	-0.149	-1.19	0.845	2.60	0.035	0.03
Term Spread (%)	-0.076	-0.45	0.623	1.67	3.106	1.78
Default Spread (%)	0.211	0.39	-0.861	-0.84	8.797	1.22
Constant	6.134	4.11	4.799	1.49	-24.706	-1.63
Industry Dummies	Yes		Yes		Yes	
Year Dummies	Yes		Yes		Yes	
Adjusted R ²	0.243		0.513		0.103	
N	162		173		173	

Figure 1A

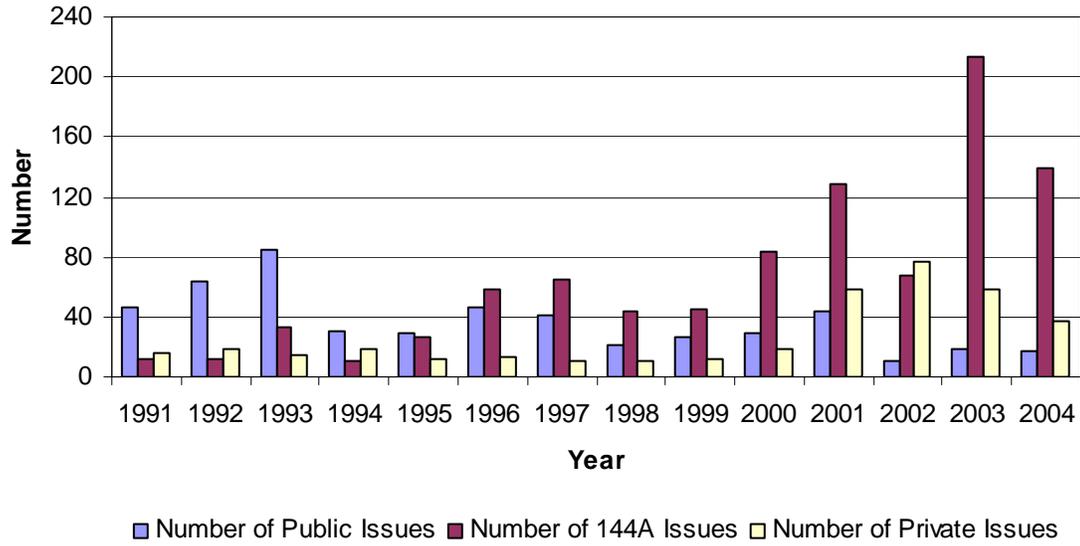


Figure 1B

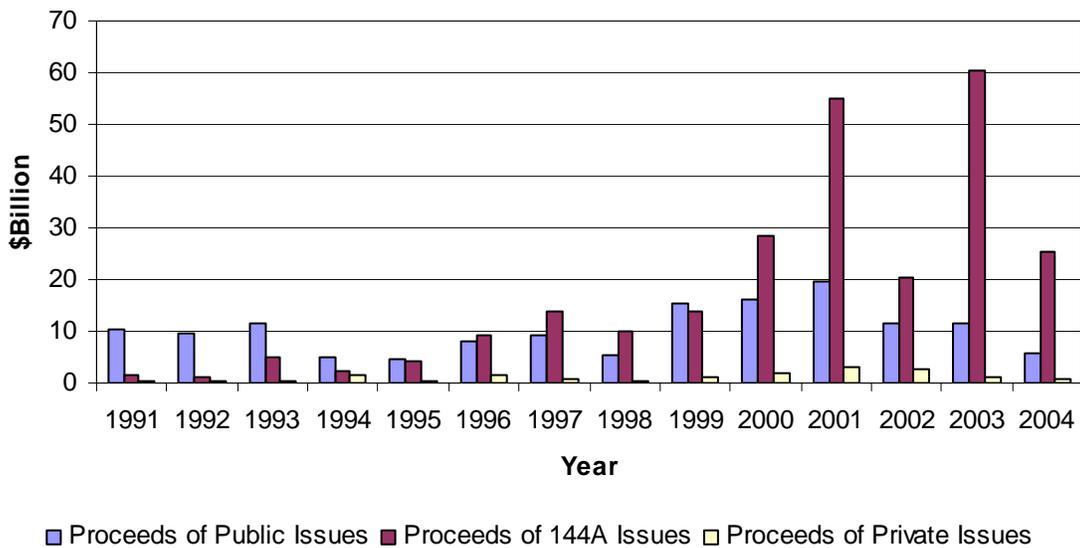


Figure 1. Number and Gross Proceeds of Convertible Debt Issues Each Year. This figure is plotted for the 509 public, 939 144A, and 376 private convertible debt offerings of U.S. firms during 1991-2004 before imposing any screening restrictions. Figure 1A plots the total number of issues and Figure 1B plots the total gross proceeds from these issues in billions of dollars in 2004 purchasing power.

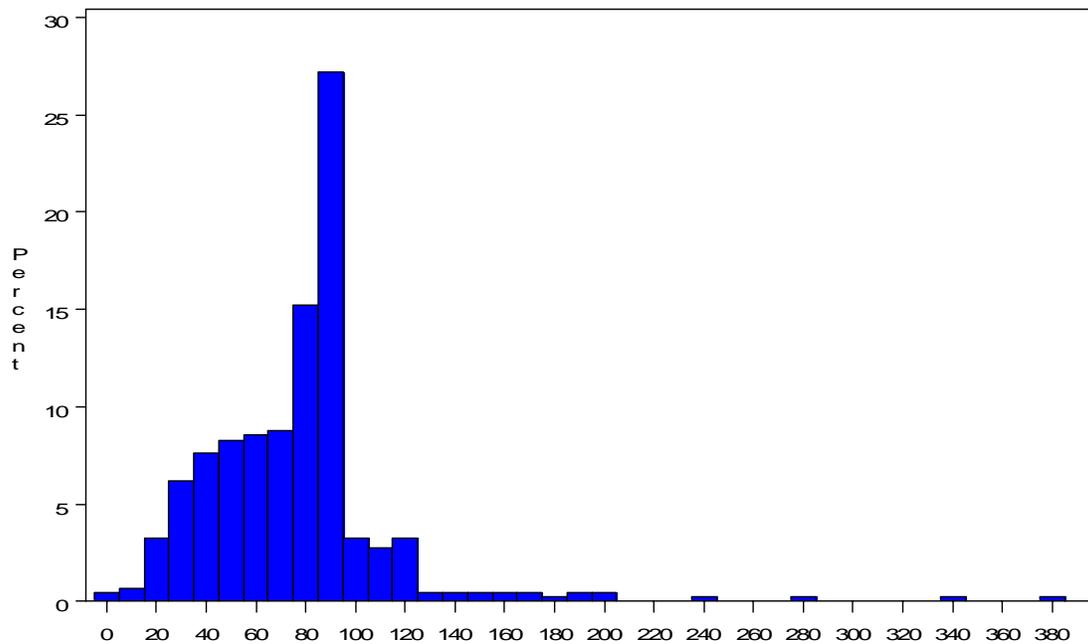


Figure 2. Histogram of Number of Days to Register 144A Convertible Debt Issues. This figure shows the histogram of the number of days between the registration date and the closing date for the 434 Rule 144A convertible debt issues during 1996-2004.

Figure 3A

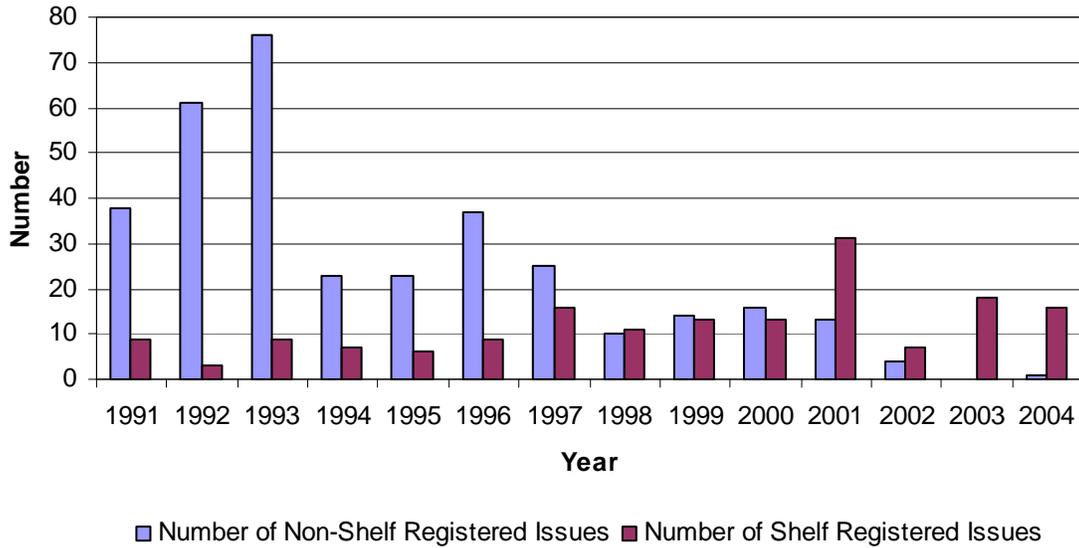


Figure 3B

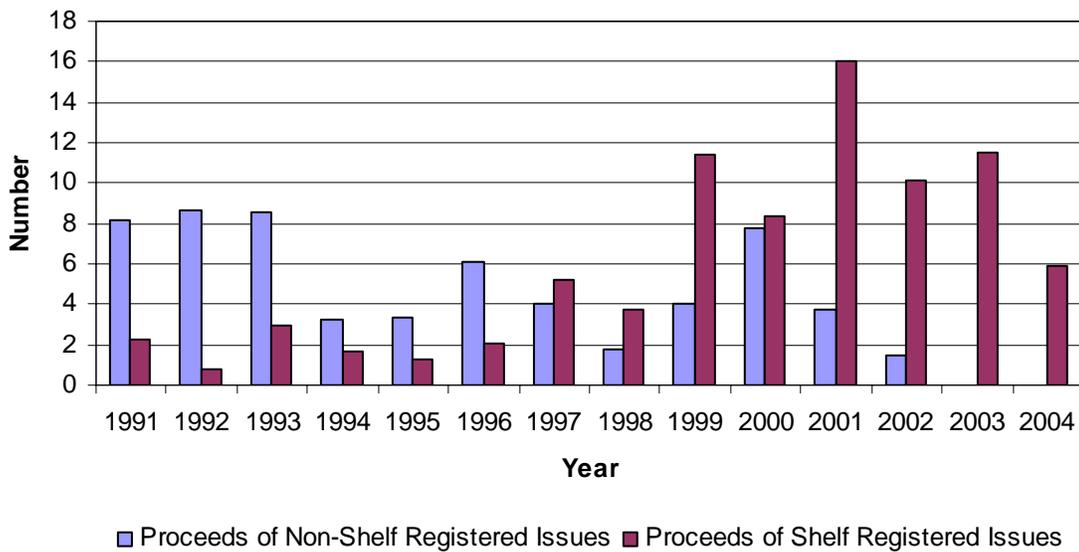


Figure 3. Shelf Registration of Public Convertible Debt Issues Each Year. This figure is plotted for the 341 non-shelf registered, and 168 shelf-registered public convertible debt offerings of U.S. firms during 1991-2004 before imposing any screening restrictions. Figure 3A plots the total number of issues and Figure 3B plots the total gross proceeds from these issues in billions of dollars in 2004 purchasing power.