

# The Impact of Rule 144A Debt Offerings Upon Bond Yields and Underwriter Fees

Miles Livingston and Lei Zhou\*

*Securities issued under Rule 144A do not have to file a public registration statement with the Securities and Exchange Commission, but can be sold only to qualified financial institutions. This paper examines industrial and utility bonds issued under Rule 144A. Rule 144A issues are found to have higher yields than publicly issued bonds after adjusting for risk. Yield premiums are higher if the issuer does not file periodic financial statements with the SEC. The yield premiums of Rule 144A issues may be due to lower liquidity, information uncertainty, and weaker legal protection for investors. Bonds issued under Rule 144A may have registration rights, which require the issuer to exchange the bonds for public bonds within a stated period, or pay higher yields. While high-yield bonds usually have registration rights, we find that the majority of investment-grade bonds do not. Registration rights have a greater impact on yields for high-yield than for investment-grade bonds. Underwriter fees for Rule 144A issues are not significantly different from underwriter fees for publicly issued bonds.*

Since 1990, the Securities and Exchange Commission has allowed firms to sell security issues to qualified institutional buyers under so-called Rule 144A. Rule 144A issues are not required to be registered with the SEC and may not be resold to individual investors, but may be traded between qualified institutional buyers. Rule 144A issues may have "registration rights," which require the issuer to exchange the original Rule 144A issue for a public bond issue within a stipulated period. If the exchange does not occur, the issuer must pay a higher interest rate.

The basic justification for the waiver of advance registration is the belief that large institutional buyers are sophisticated investors and do not need the SEC to examine each offering of securities in depth. Public issues of securities are required to be registered before they are offered for sale to individual investors, however, who are presumed to be less sophisticated and informed than large institutional buyers.

The Rule 144A market has been growing very fast. Annual issues of Rule 144A non-convertible debt have swelled from \$3.39 billion in 1990 to \$235.17 billion in 1998. In the meantime, the traditional private placement bond market has shrunk from \$109.94 billion annually to \$51.10 billion. Rule 144A issues have accounted for up to 80% of the high-yield bond market in recent years.

Despite its size, the Rule 144A market has drawn little attention from academics. One published article exclusively studies yields on high-yield Rule 144A bonds and focuses upon the information disclosure of these issues. Fenn (2000) argues that expedience is the only motivation for Rule 144A issues.

Unlike Fenn (2000), we find that yields for Rule 144A offerings are substantially higher than for public offerings for both investment-grade and high-yield bonds. In addition, we find that Rule 144A issues by private firms without any publicly traded securities, and consequently not required to file periodic financial statements with the SEC, have markedly higher yields. This finding is consistent with Bethel and Sirri's (1998) discussion of the importance of company reporting to the SEC. When we follow Fenn's (2000) methodology and reproduce his sample, we find that his findings seem to be sensitive to both time period and model specification.

There are several possible explanations for why Rule 144A issues might have higher yields. First, Rule 144A issues are less liquid than public bond issues, since the universe of buyers in

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*\*Miles Livingston is a Professor at the University of Florida. Lei Zhou is an Assistant Professor at Miami University of Ohio.*

the primary and secondary market is restricted to qualified financial institutions. Second, the disclosure requirements for Rule 144A issues are less stringent, giving issuing firms greater latitude as to information disclosure. Buyers of Rule 144A offerings may, thus, require higher yields because of information uncertainty. The effect is greater for privately held firms that do not file periodic financial statements with the SEC. Third, public debt issuers bear more legal liability than Rule 144A issuers. For Rule 144A issues, the bond buyer bears considerably more risk about information accuracy.

We also find a dramatic difference in the use of registration rights (the requirement to exchange the Rule 144A issue for a public offering) for investment-grade and high-yield Rule 144A bonds. While most high-yield Rule 144A issues include registration rights, more than half of investment-grade Rule 144A issues do not. In addition, registration rights have a greater impact on the yields for high-yield Rule 144A issues than for investment-grade Rule 144A issues. There is no significant difference in gross underwriter spread between Rule 144A issues and public bonds.

Our paper contributes to the literature in several ways. First, we provide new findings on the use and impact of registration rights in Rule 144A issues. There are conflicting reports on the use of registration rights, and no previous research studies the impact of registration rights on yields and underwriter fees.

Second, we find that about a quarter of Rule 144A bonds are issued by privately held firms that are not required to report to the SEC. While Rule 144A bonds pay yield premiums over public bonds in general, the Rule 144A issues by non-reporting firms have remarkably higher yield premiums. This finding supports the importance of company reporting to the SEC.

Third, we include both investment-grade and high-yield bonds in our sample, and we find differences between the two. Yield premiums on high-yield Rule 144A issues are considerably higher than those on investment-grade Rule 144A issues, for example. Other studies either ignore investment-grade Rule 144A issues or do not investigate the two types of Rule 144A issues separately.

Fourth, we study the gross underwriter spread of Rule 144A issues as well as the yields. Gross underwriter spread, an important component of total issuing costs, sheds light on the riskiness of an issue. No one has looked at the differences in gross underwriter spread between Rule 144A issues and public issues of debt.

Finally, we investigate in more detail the institutional background of the Rule 144A market—its liquidity, potential investors, information disclosure, and legal protection for investors—and relate this information to the empirical findings. Previous research focuses only on the information disclosure of Rule 144A issues.

The paper is organized as follows. Section I details the background and the development of the Rule 144A market. In this section, we also analyze the institutional details of Rule 144A issues and their expected impact on bond yields and underwriter spread. Section II describes the data and methodology. Section III presents empirical results. Section IV concludes the paper.

## **I. Background of Rule 144A**

This section describes the origin of Rule 144A, registration rights, the growth of the market, institution details, and the expected impact of Rule 144A upon underwriter spreads and bond yields.

### **A. The Origination of Rule 144A**

One of the basic rationales of the 1933 Securities Act is to protect unsophisticated individual

investors, or so-called widow and orphan investors, from fraud. In recent years, however, the US capital market has become more “institutionalized.” The SEC reports that the percentage of ownership of US equities by institutional investors increased from 29.3% in 1980 to 47.5% in 1990 (Securities and Exchange Commission, 1994). These large institutional investors have expertise and experience in investing their assets. A registration requirement for security issues may not add much value to such large institutional investors, while it imposes significant costs on the issuers. A public registration requirement may also hinder foreign participation in the US capital market because it is costly for foreign issuers to maintain GAAP-compliant accounting information and/or to disclose information not usually disclosed in their home countries.<sup>1</sup>

To address such concerns, the SEC adopted Rule 144A in 1990. Securities issued under Rule 144A do not require registration with the SEC, but can be traded without restriction in the secondary market among “qualified institutional buyers,” or QIBs.<sup>2</sup> Rule 144A issues, which are technically private placements, enjoy a much more liquid secondary market than traditional private issues.<sup>3</sup>

## B. Registration Rights

Although Rule 144A issues do not initially have a public registration statement, they may include so-called *registration rights*, which require the issuer to register the issue with the SEC or exchange it for a registered issue within a specified time. If the issuer fails to do this, the coupon on the bond is increased by a designated amount, usually 0.25% to 0.50%. For example, the registration rights agreement of the 6 5/8% debenture due 2038 of Boeing Corp issued under Rule 144A reads like this:

“Additional Interest shall accrue on the Initial Securities ... (if) any such Registration Default shall occur ... at a rate of 0.25% per annum.”

Most Rule 144A issues with registration rights do get registered eventually. In our study, we find only three Rule 144A issues with registration rights whose issuers failed to register the issues within the designated period, and the coupon rates were increased.

There are three published reports on the extent of the use of registration rights. *Investment Dealer's Digest* (1997) and Bethel and Sirri (1998) report that about one-third of Rule 144A debt issues have registration rights. Fenn (2000), on the other hand, reports that over 97% of high-yield Rule 144A bonds were subsequently registered with the SEC. Our study reconciles these seemingly contradictory reports. As we describe in detail later, we find that over 98% of high-yield bonds have registration rights, but only about 40% of investment-grade bonds do.

## C. Development of Rule 144A Non-Convertible Debt Market

Although both equities and bonds can be issued under Rule 144A, the majority of Rule

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<sup>1</sup>Since 1990, the amount of foreign issues in the Rule 144A market has increased significantly, to over \$50 billion in 1998. Almost half of all foreign issues in 1998 were offered in the Rule 144A market. Chaplinsky and Ramchand (2002) provide a detailed analysis of foreign Rule 144A debt issues.

<sup>2</sup>QIBs are generally defined as institutions that own or have investment discretion over \$100 million or more in assets. In addition to the \$100 million requirement, banks and savings and loan associations must also have at least \$25 million of net worth to qualify as QIBs. For registered broker-dealers, \$10 million investment in securities would meet the requirement.

<sup>3</sup>Loss and Seligman (2001, pp. 391-396) discuss the legal details of Rule 144A and Rule 144.

144A issues are non-convertible bonds. For example, a total of \$262 billion of Rule 144A securities was issued in 1997: \$40.7 billion in equities and \$11.2 billion in convertible bonds (Bethel and Sirri, 1998). The remaining \$210.1 billion, or 80% of all Rule 144A securities, was non-convertible debt. We examine Rule 144A non-convertible debt issues only.

Figure I compares the annual issues of Rule 144A debt to the traditional private placement and public debt. Since adoption of the rule, the Rule 144A non-convertible debt market has been growing very quickly. Total annual new issues in the Rule 144A market have grown from \$3.39 billion in 1990 to \$235 billion (in inflation adjusted 1990 dollars) in 1998. New public debt issues have also experienced significant growth, from \$106 billion in 1990 to \$975 billion in 1998. Although both markets have grown significantly, the Rule 144A market has grown proportionally faster. The traditional private market has shrunk, from \$110 billion in 1990 to \$51 billion in 1998. The rapid growth of the Rule 144A market seems to have come partially at the expense of the private placement market.

Figure II shows the average issue size in the three markets. Privately placed non-convertible bonds are much smaller on average than publicly placed bonds. Small issues by small firms are usually placed in the private market because small firms are more likely to be subject to agency problems (Blackwell and Kidwell, 1988). Strict covenants, renegotiation provisions, and a small number of investors in private placements help to alleviate the asset substitution and underinvestment problems. Figure II also shows that the average size of Rule 144A issues increased continually from 1991 to 1998, while public issue size has been decreasing. In fact, Rule 144A issue size on average has surpassed public issue size since 1996.

Obviously the Rule 144A market has attracted many large issues that would otherwise have been placed in the public market. Thus, the growth of Rule 144A issues may also come at the expense of the public market.

#### **D. Institutional Details of Rule 144A Issues**

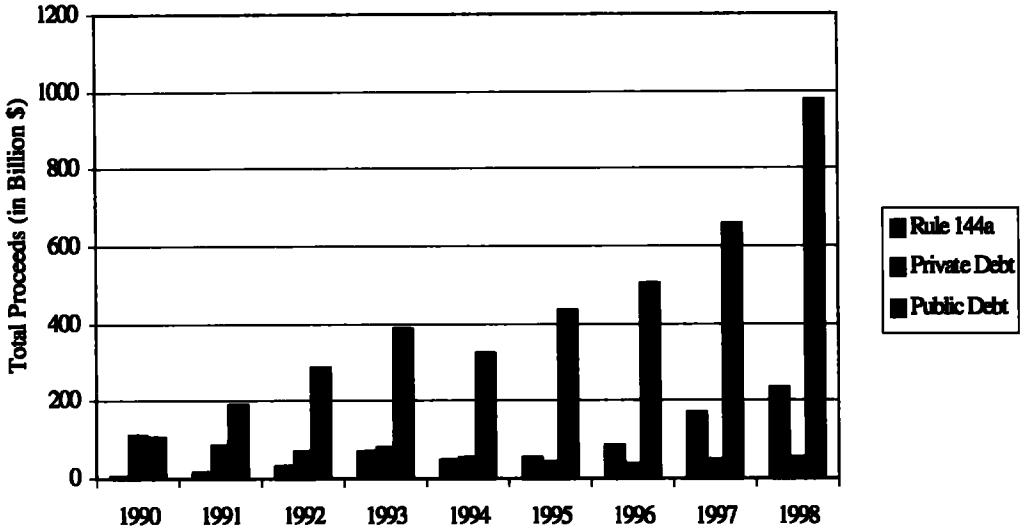
Rule 144A offers several advantages to issuing firms. Less information needs to be disclosed, and the information disclosed does not need to meet certain criteria. For example, financial statements need not be GAAP-consistent for Rule 144A issues. A firm can issue the debt quickly. Timely issuance may let a firm sell debt under favorable market conditions, when interest rates are lower. For these benefits, the issuing firms may be willing to pay premium yields. Indeed, if issuing firms did not have to pay premiums for such advantages, we would expect Rule 144A issues to dominate the market. While the Rule 144A market has been very successful, especially in attracting high-yield issues, it far from dominates the public debt market. Indeed, about 20% of high-yield bonds and over 80% of investment-grade bonds are still offered in the public debt market.

Hence, there must be some costs to issue in the Rule 144A market, and the issuing firms must be balancing the costs and benefits. The yield premium and/or the higher gross underwriter spread may constitute the costs of issue in this market.

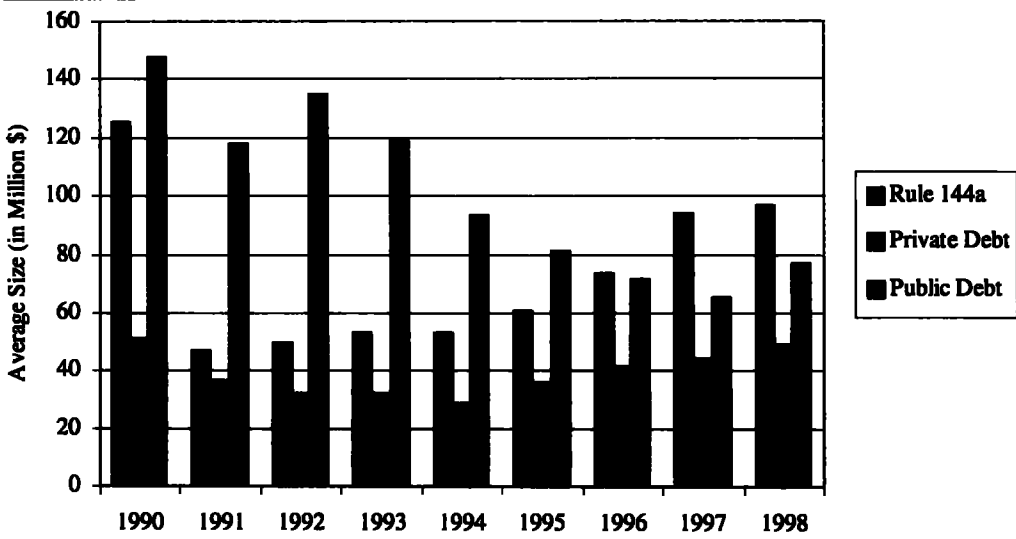
For investors, Rule 144A issues may be riskier than public issues. First, Rule 144A issues are less liquid than public bond issues, since the universe of buyers in both the primary and the secondary market is restricted to qualified financial institutions. Indeed, Cox (1999) finds that the number of bond buyers more than doubled and the number of transactions increased by approximately one-third following the subsequent public registration of bonds issued originally as Rule 144A issues.<sup>4</sup> The restricted potential investor universe is clearly an

<sup>4</sup>While the total trading volume of Rule 144A issues declines after the post-issue registration, this does not contradict the argument that public registration makes Rule 144A issues more liquid. A newly issued security is usually much more liquid than a seasoned security. Hence, the observed decline in trading volume may just reflect the lower liquidity of seasoned securities.

**Figure I. Annual Issues of Rule 144A, Private, and Public Non-Convertible Debt Market**



**Figure II. Average Issue Size**



important factor.

Furthermore, Rule 144A issues may be categorized as “restricted securities” by some institutional investors such as insurance companies, pension funds, or mutual funds. These institutional investors may be constrained in the percentage of their portfolios they may invest in restricted securities, or they may have to maintain larger capital reserves for

investment in Rule 144A issues. Indeed, the American Bar Association argued in 1999 that the use of registration rights in Rule 144A issues:

“permits an investment institution to reclassify “restricted securities” held in its portfolio to unrestricted status upon the completion of the exchange offer, without the need to sell those securities to make capital available for additional investment in privately placed debt securities.”

Even though Rule 144A issues may be reclassified as unrestricted securities if registered later, the issues may have a limited pool of potential buyers at the initial sale if they are “restricted securities.” Hence, the smaller base of potential buyers and the “restricted securities” status may together reduce the liquidity of Rule 144A issues, producing a yield premium over public debt.

Second, disclosure requirements for Rule 144A issues are less stringent. Legally, a Rule 144A offering does not have to disclose the same information as required under the Securities Act of 1933; the issuing firm has greater latitude as to disclosure. Such lack of disclosure may be of greater concern to investors in offerings by less well-known issuers, especially issuers with no public securities that do not file periodic disclosures with the SEC. Even for public firms that file with the SEC, such periodic disclosures do not provide detailed issue-specific information required by the 1933 Securities Act, such as the intended use of the proceeds.

Third, investors in Rule 144A issues have weaker legal protection than investors in public debt issues (Bethel and Sirri, 1998). Under Section 11 of the Securities Act, the issuers of registered public debt are held “strictly liable” for losses to investors if they provide misleading information or omit material information in the registration statement. In other words, if ever there is misleading information or omission of material information, the issuer of registered public debt will be held liable, whether or not it acted knowingly. Investors in Rule 144A issues do not have such strong legal protection. Even if a Rule 144A issue has registration rights and is registered later, Rule 10b-5 of the Exchange Act provides less legal protection. Rule 10b-5 holds an issuer liable if the issuer *knowingly* provides misleading information *and* investors *make their investment decision on such misleading information*.

Hence, investors in Rule 144A issues have much weaker legal protection and would have a harder time suing an issuer in the event of default. Such concerns about legal protection may be important to insurance companies that, by regulation, have to make “prudent” investments, especially when they are investing in high-yield bonds.

### **E. Expected Impact of Rule 144A on Yields and Underwriter Fees**

Our discussion indicates that Rule 144A may have advantages for issuing firms, but disadvantages for investors. Issuing firms may be willing to pay for such advantages of Rule 144A offerings, possibly in the form of higher yields and/or gross underwriter spread. Similarly, investors may demand a higher rate of return on Rule 144A issues because of the disadvantages for them. Hence, we expect Rule 144A issues to have a yield premium over public issues.

The impact of Rule 144A on gross underwriter spread is less clear. First, fewer potential investors and information uncertainty make Rule 144A issues more difficult to sell than public debt, so an underwriter may require higher fees. Yet underwriting Rule 144A issues may be less risky in some ways and involve less work for underwriters. For example, weaker legal protection for investors in Rule 144A issues means less legal liability for underwriters. Also, it is estimated to take only half the time to issue debt under Rule 144A than to issue a

registered offering (*Investment Dealers Digest*, 1997). For an underwriter, shorter and less burdensome marketing means lower costs. A short underwriting period reduces interest rate risks for underwriters too.

Furthermore, while in a traditional public offering, the underwriter devotes considerable time and staff to help an issuer prepare a registration statement and file with the SEC, these are not necessary for a Rule 144A issue. If investment bankers can underwrite Rule 144A issues more quickly and with less work, the underwriter may be willing to charge a lower fee for Rule 144A issues. The net impact of Rule 144A on the underwriter gross spread is, therefore, unclear and is an empirical question that we address later.

## II. Data and Methodology

This section describes the sample used, summary statistics, and the methodology used.

### A. Construction and Description of the Sample

The New Issues Database of the Securities Data Company (SDC) is used to collect data for all non-convertible, domestic bond issues with fixed coupon rates in the Rule 144A and public market by industrial and utility firms from 1997 through 1999.<sup>5</sup> Issues not rated by both Moody's and Standard & Poor's are excluded.<sup>6</sup> A small number of issues with perpetual maturities have been excluded.

To check the data integrity, the Bloomberg database is used. As it is impractical to check every observation manually, about 100 outliers are checked. Among them, about one-fourth have problems.<sup>7</sup> Some of them are excluded. For example, issues of preferred stocks misclassified as bond offerings by SDC are excluded. Others are corrected.

This leaves us a total of 4,070 observations: 1,418 Rule 144A issues and 2,652 public issues.<sup>8</sup>

Table I gives the descriptive statistics for the full sample. There are a total of 1,542 issuing firms in the sample. Among them, 663 issued in the public market, 944 issued in the Rule 144A market, and 65 issued in both markets. Firms issuing in the public market have an average of 4.0 issues, while firms issuing in the Rule 144A market have an average of only 1.5 issues for the sample period.<sup>9</sup> The average size of a public offering is \$129.04 million; the average size

<sup>5</sup>We start the sample at 1997, because few Rule 144A issues before 1997 report gross underwriter spread in the SDC database. Since 1997, we can find gross underwriter spread for a significant number of Rule 144A, though still only about 30% of Rule 144A issues in our sample report gross underwriter spread.

<sup>6</sup>Potential credit ratings of the non-rated issues are not homogeneous, but vary widely from investment-grade to high-yield bonds. As credit rating is a very important determinant of gross underwriter spread and yield, we exclude non-rated issues.

<sup>7</sup>Outliers are those with a residual outside three standard deviations in the regressions. Half of the problematic observations have major errors, such as misclassification, wrong decimal points (a 2% gross underwriter spread mistaken for 0.2%). Another half have minor errors, such as a small difference in gross underwriter spread, yield, or rating. After correcting for these errors, we reran the regressions and checked for the new outliers. No major errors were, but a few outliers had minor errors.

<sup>8</sup>35.11% of public bonds and 26.94% of Rule 144A issues are issued by utility firms. We have studied the industrial issues and utility issues separately, and find the results are essentially identical.

<sup>9</sup>The issue frequency for public debt seems to be high: four issues on average for the 1997-1999 period. One potential explanation for such high issue frequency is that there are more short-term near-money debt issues in the public debt market. Yet the average maturity for public debt is 12.17 years, significantly longer than the average maturity of Rule 144A issues. We eliminate issues with maturity less than or equal to two years from the sample, and find that the issue frequency for public debt is still much higher than issue frequency of Rule 144A issues: 3.70 times vs. 1.48 times. Hence, short maturity does not seem to be the explanation for the high issue frequency in the public debt market. None of our results in the paper change with the modified sample.

**Table I. Descriptive Statistics for Full Sample (1997–1999)**

The sample is obtained from the New Issue Database of Securities Data Company (SDC) and consists of domestic Rule 144A and public non-convertible, fixed coupon rate bond issues by industrial and utility firms from January 1997 through the end of 1999. Issues that are not rated by both Moody's and S&P are excluded. Also, perpetual issues are excluded. The numbers in parentheses are numbers of observations used to calculate the averages.

	<b>Public Issues</b>	<b>Rule 144A Issues</b>
Number of Issues	2652	1418
Number of Issuing Firms	663	944
Average Number of Issues Per Issuing Firm	4.0	1.5
Average Proceeds (in Millions)	\$129.04 (2635)	\$177.69 *** (1406)
Percentage of Investment Grade Issues	91.48 %	31.59 %
Percentage of Senior Debt	98.30 %	67.70 %
Avg. Gross Underwriter Spread (in Basis Points)	72 (1985)	200 *** (444)
Original Yield	6.81 % (2093)	9.18 % *** (1317)
Avg. Basis Points of Treasury Spread	115 (2093)	351 (1317) ***
Percentage of Industrial Firms	64.89 %	73.06 %
Percentage of Utility Firms	35.11 %	26.94 %
Avg. Percentage of Years That are Call Protected	73.96 % (2648)	57.75 % *** (1288)
Average Years to Maturity	12.17	10.24 ***
Percentage of Public Firms	97.70 %	66.36 %
Percentage of First-Time Debt Issue	10.56 %	51.20 %
Percentage of Issues by Non-Reporting Firms	0.68 %	23.20 %

\*\*\*Significantly different from public issues at the 0.01 level.

of a Rule 144A offering is \$177.69 million.

Ninety-one percent of the issues in the public market are investment-grade, and over 98% are senior debt. Only 32% of Rule 144A issues are investment-grade, and 68% are senior debt. Indeed, 74% of all high-yield bonds in 1997 were issued in the Rule 144A market (Bethel and Sirri, 1998).



Figure III gives the distribution of ratings for the public and Rule 144A issues. For public issues, about 40% of issues are A-rated bonds and 30% are BBB-rated bonds. In total, about 90% of public issues are rated between AA and BBB. For Rule 144A issues, about 50% are B-rated bonds. A, A/BBB and BBB bonds account for about 25% of Rule 144A issues. Interestingly, more than 3% of Rule 144A issues are AAA bonds.

Gross underwriter spread is the compensation that the issuer pays to the underwriters. Original yield is the bond yield to maturity at original issuance. The yield on a comparable maturity Treasury is subtracted to arrive at the Treasury spread. Table I shows that the average gross underwriter spread and average Treasury spread are higher for Rule 144A issues than for public bond issues.

Table II gives the average gross underwriter spread and Treasury spread across different ratings. The differences in gross underwriter spread between Rule 144A issues and public issues are usually small, although we find significantly higher gross underwriter spreads for Rule 144A issues in three rating categories (AA/A, BBB, and BB). Rule 144A issues have higher Treasury spreads than public issues in 11 out of the 12 rating categories. Although the differences in the yields are significant at the 1% or 5% level in only 4 of the 12 rating categories, these four rating categories (A, BBB, BB, and B) account for the majority of the observations. Hence, rating differences cannot explain all the large differences in Treasury spread between public and Rule 144A issues.

Table I also shows that 97.70% of public debt offerings, and 66.36% of Rule 144A offerings are issued by public firms.<sup>10</sup> Another important difference between public debt and Rule 144A issues is that more than 50% of Rule 144A issues are first-time debt issues, compared to only 10% of public debt issues.<sup>11</sup>

Firms with neither publicly traded equity, nor public bonds are not required to file periodic disclosure with the SEC. These firms are usually called non-SEC-reporting firms, or simply non-reporting firms. We classify an issuing firm as non-reporting if: 1) it is not a public firm, and 2) it has not issued any public debt securities since 1970.<sup>12</sup>

Table I shows that 23% of Rule 144A offerings are issued by non-reporting firms, while under 1% of public offerings are issued by non-reporting firms. In total, 347 bonds are issued by non-reporting firms: 74% high-yield Rule 144A issues, 21% investment-grade Rule 144A issues, and only 5% public bond issues. This indicates that non-reporting firms have a strong preference for the Rule 144A market.

## B. Methodology

The primary methodology in this study is simple ordinary least squares regressions. Later we use Heckman's (1979) treatment effect for potential self-selection bias. The dependent variables are the gross underwriter spread and the Treasury spread in basis points. The independent variables are as follows:

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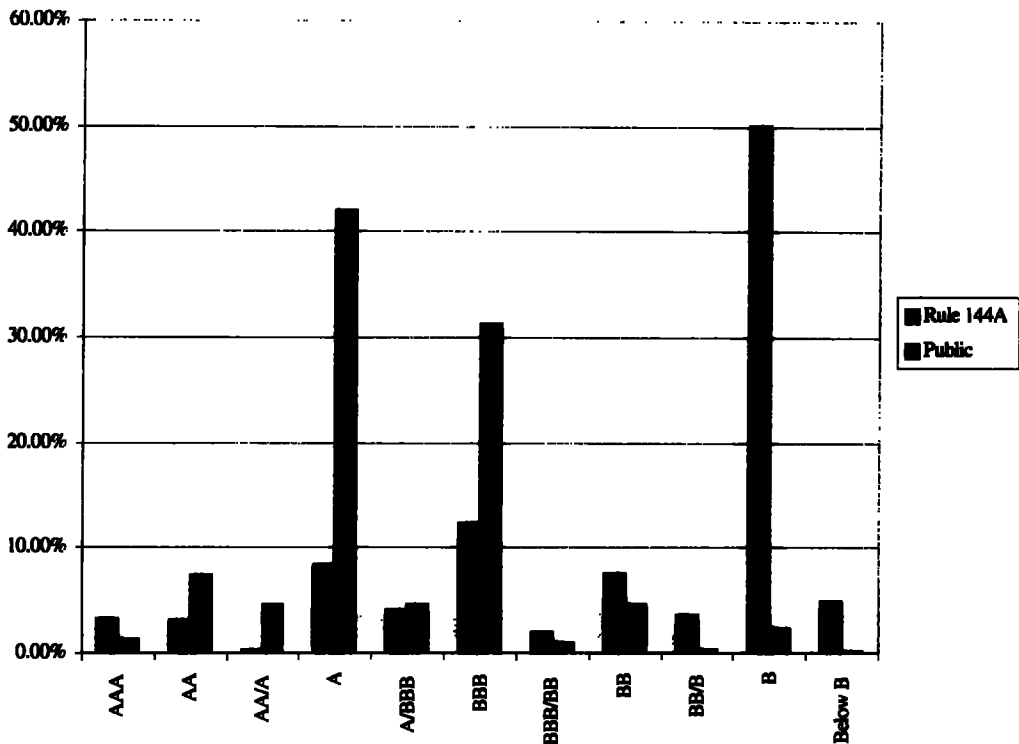
<sup>10</sup>An issuing firm is defined as a public firm if the firm or its parent has public traded equity. We find this information on SDC.

<sup>11</sup>A debt offering is classified as a first-time issue if the issuing firm has not sold any public fixed income security (straight or convertible debt, preferred stock) since 1970.

<sup>12</sup>Two possible misclassifications may occur. If a non-public firm issued a public bond before 1970, but not since then, and the bond is still outstanding, then our method would misclassify it as a non-reporting firm, while in fact it is still required to file with the SEC. Or, if a non-public firm issued a public bond after 1970 which had been retired and no other public debt is outstanding, we would misclassify it as a reporting firm while in fact it is not. Although these two situations are possible, we see the chances as small, and they will not make a significant difference in our results.

**Figure III. Distribution of Ratings**

Figure III gives the distribution of ratings for the public and Rule 144A issues. For public issues, about 40% of issues are A-rated bonds and 30% are BBB-rated bonds. In total, about 90% of public issues are rated between AA and BBB. For Rule 144A issues, about 50% are B-rated bonds. A, A/BBB, and BBB bonds account for about 25% of Rule 144A issues. Interestingly, more than 3% of Rule 144A issues are AAA bonds.



**A) Proxies for Risks of Individual Bond Issues:**

1. Rating Dummies
2. Log of Maturity
3. Percentage of Years of Call Protection
4. Senior Debt Dummy

**B) Proxies for Market Conditions:**

1. Default Risk Premium
2. Year1998 Dummy
3. Year1999 Dummy

**C) Other Control Variables:**

1. First-Time Debt Issue Dummy
2. Log of Issue Frequency
3. Public Firm Dummy
4. Log of Proceeds
5. Utility Firm Dummy

**Table II. Comparison of Gross Underwriter Spread and Treasury Spread by Ratings**

This table compares the mean gross underwriter spread and Treasury spread of Rule 144A and public issues of all rating categories. When an issue has either a Moody's or an S&P rating, that rating is used. If an issue is rated by both Moody's and S&P, and the two rating agencies agree on the rating, then that rating is used. If Moody's and S&P disagree on the rating, a split rating is assigned. For example, if Moody's rates an issue Aaa and S&P rates AA, then split rating AAA/AA is assigned to the issue. The numbers in parentheses are numbers of observations used to calculate the means.

Rating	Gross Underwriter Spread		Treasury Spread	
	Public Issues	Rule 144A Issues	Public Issues	Rule 144A Issues
AAA	65 (13)	51 (7)	78 (25)	103 (23)
AAA/AA	53 (7)	N.A. <sup>a</sup> (0)	81 (7)	208 (2)
AA	62 (144)	68 (4)	80 (142)	101 (24)
AA/A	57 (92)	88 ** (3)	96 (73)	146* (4)
A	55 (766)	54 (28)	80 (834)	118 *** (92)
A/BBB	67 (106)	59 (19)	116 (111)	111 (55)
BBB	61 (647)	67 ** (57)	120 (684)	162 *** (157)
BBB/BB	81 (26)	91 (12)	169 (26)	181 (29)
BB	154 (112)	176 ** (43)	217 (115)	276 *** (106)
BB/B	237 (10)	254 (18)	337 (10)	357 (50)
B	258 (56)	266 (223)	379 (60)	453 *** (704)
B/CCC	288 (4)	279 (24)	507 (4)	563 (51)
CCC and Below	335 (2)	321 (6)	661 (2)	687 (20)

<sup>a</sup>No Rule 144A issues with gross underwriter spread information fall into the AAA/AA category.

\*\*\*Significantly different from public issues at the 0.01 level.

\*\*Significantly different from public issues at the 0.05 level.

\*Significantly different from public issues at the 0.10 level.

*D) Test Variables:*

1. Rule 144A Dummy
2. Dummy for Rule 144A issues by Non-Reporting Firm
3. Dummy for Rule 144A issues by Reporting Firm

## 1. Proxies for Risks of Individual Bond Issues

The rating dummy variables represent specific bond ratings.  $BBB = 1$  if the issue is rated BBB by both Moody's and S&P and zero otherwise,  $BBB/BB = 1$  if the issue is rated BBB by one rating agency, but BB by another agency, and zero otherwise, and so on. The regression base case is AAA-rated bonds. Previous studies find that bond ratings are significant determinants of both bond yield and gross underwriter spread (Lee, Lochhead, Ritter, and Zhao, 1996 and Jewell and Livingston, 1998).

Log of Maturity is the natural log of years to maturity. The longer the maturity, the riskier an issue.<sup>13</sup> Percentage of Years of Call Protection is the percentage of years that the call protection is in effect. Call protection reduces the reinvestment risk of investors and makes issues less risky. Senior Debt is a dummy variable equal to one if the issue is senior debt, and zero otherwise. Since senior debt is less risky, we expect the coefficients on Senior Debt to be negative in both regressions.

## 2. Proxies for Market Conditions

Bond default risk premium fluctuates with overall market conditions. To control for the fluctuation, we include in the regressions a Default Risk Premium variable, which is the difference between the Merrill Lynch BBB Corporate Bond Index and the 10-year US Treasury Index. Another two variables to control for market conditions are dummy variables for Years 1998 and 1999. In regressions, the base case is AAA-rated bonds issued in 1997.

## 3. Other Control Variables

The First-Time Debt Issue dummy equals one if the issuer has not issued any fixed income securities since 1970, and zero otherwise. A first-time issue may have a higher yield, as the issuer does not have a reputation in the security market. Also, the underwriting cost may be higher, as an investment banker must devote more resources and time to obtain information about a new issuer and to find buyers. Fenn (2000) finds that yield premiums on first-time issues are about 30 basis points.

Log of Issue Frequency is the natural log of the number of issues that each firm had over 1997 to 1999. Frequent issuers may have not only lower gross underwriter spread, but also lower yield since they are established players in the capital market and have a natural clientele. They may be regarded as less risky issuers. Frequent issues of debt, on the other hand, might convey a signal of financial trouble and add to a firm's debt level. That may increase the yields on frequent issuers. The net effect of issue frequency is therefore unclear.

The Public Firm dummy equals one if the SDC database indicates that the issuer has publicly traded equity and zero otherwise. Because there is usually more information on public firms available to investors, the yield and gross underwriter spread of bonds issued by public firms are expected to be lower.

Log of Proceeds is the natural log of total proceeds. Many empirical studies indicate that there are economies of scale in gross underwriter spread. That is, percentage gross underwriter spread falls as the size of an issue increases. (See, for example, Lee et al., 1990.) Altinklic and Hansen (2000) argue that there are also diseconomies of scale in spreads; 30% of the bond issues in their sample are in a range of diseconomies of scale. Hence, the sign of the coefficient on Log of Proceeds in the gross underwriter spread regression is not clear.

Large issues of bonds are usually more liquid than small issues, and investors may require

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<sup>13</sup>The relationship between maturity and gross underwriter spread and yields may not be linear. We have examined both years to maturity and log of maturity in the regressions. Log of maturity seems to have a better fit and is reported in the results, although the results are essentially the same if years to maturity is used.

lower rates of return for more liquid issues. Hence, we expect the sign on the coefficient on Log of Proceeds in the Treasury yield regression to be negative.

The Utility Firm dummy equals one if the issuer is a utility firm and zero otherwise.

#### 4. Test Variables

In the first set of regressions, the test variable is the Rule 144A dummy, which equals one for the Rule 144A issues and zero otherwise. The dummy variable is used to test whether the gross underwriter spread, and Treasury spread are different for the Rule 144A issues and public bond issues.

In another set of regressions, two dummy variables for Rule 144A issues are created, according to whether the issuing firms are required to file periodic disclosure with the SEC. If a Rule 144A offering is issued by a non-reporting firm, the dummy Rule 144A by Non-Reporting Firm equals one and zero otherwise. Similarly, if a Rule 144A offering is issued by a reporting firm, the dummy Rule 144A by Reporting Firm equals one and zero otherwise.

### III. Empirical Results

This section describes the impact of Rule 144A upon Treasury yield spreads, compares these results with Fenn's, analyzes the use of registration rights, and reports the impact of Rule 144A upon underwriter spreads.

#### A. Treasury Spread

The impact of Rule 144A offerings upon Treasury spread is examined in Table III. The Column A regression uses a single dummy variable for Rule 144A issues. The coefficient is 18.97 and significant, indicating that Rule 144A issues have yields that are almost 19 basis points higher than public bond issues.<sup>14</sup>

The first-time debt issue dummy variable is a positive 30 basis points, consistent with Fenn's (2000) finding. The public firm dummy is a negative 28 basis points, indicating that public firms have a cost advantage in raising external debt. The logarithm of issue frequency is a negative 8 basis points; more frequent issuers tend to have lower yields.

The default risk premium is positive and significant. The logarithm of proceeds, a measure of issue size, is a negative 3 basis points; that is, larger issues tend to be more liquid and, hence, have lower yields. The dummy variables for bond rating tend to increase as the rating gets lower. The risk premium rises at an increasing rate as ratings drop.

The coefficient for the senior debt dummy is positive and almost 49 basis points, indicating that senior debt has higher yields, a counter-intuitive result that may be caused by the rating agencies' tendency to give senior debt unjustified higher ratings. Fenn (2000) and Fridson and Garman (1997) have similar findings.

The log of maturity is a positive 17 basis points, suggesting that longer maturities have higher risk. The utility firm dummy variable is negative, implying lower risk for utility bonds.

Column B breaks the dummy variable for Rule 144A issues into two separate dummy variables: one for non-reporting firms, and the other for reporting firms. The coefficient for Rule 144A issues by non-reporting firms is 54 basis points, and the coefficient for Rule 144A issues by reporting firms is 19 basis points; both are highly significant. The difference between the two coefficients is significant at the 1% level. The absolute size for the first-time debt issue dummy

<sup>14</sup>We also break the sample into two subsamples: 1) issues with maturity shorter than or equal to 5 years and 2) issues with maturity longer than five years. The coefficients on the Rule 144A dummy in the sample are very similar, 18.16 and 19.17, respectively, both significant at the 1% level.

**Table III. Treasury Spread Regression**

This table shows the regressions of Treasury spread on control variables for risks and test variables. The dependent variable is the Treasury spread. The base case is an AAA-rated bond issued in 1997. First-Time Debt Issue dummy equals one if the issuer has not issued any fixed income security (straight debt, convertible debt or preferred stocks) since 1970, and zero otherwise. Public Firm dummy equals one if the issuer has publicly traded equity, zero otherwise. Log of Issue Frequency is the natural log of the number of the offerings each issuer had during the sample period. Year 1998 dummy equals one if the bond is issued in 1998 and zero otherwise. Year 1999 dummy equals one if the bond is issued in 1999 and zero otherwise. Default Risk Premium is the difference between the Merrill Lynch BBB Bond Index and the Merrill Lynch 10-Year Treasury Index. Percentage of Years of Call Protection is the percentage of years that the bond is call protected. Senior debt dummy equals one for senior debt issue, zero otherwise. Column A reports results when Rule 144A dummy is used. Rule 144A dummy equals one if the offering is issued under Rule 144A, and zero otherwise. The regression tests whether the Rule 144A issues have higher yields over public issues. Column B uses two dummy variables for Rule 144A issues: one for Non-Reporting Firms, and one for Reporting Firms. If the issuing firm of a Rule 144A offering has not issued any public fixed income security (straight debt, convertible debt or preferred stock) since 1970, and the issuing firm and its parent firm do not have public traded equity, we classify the firm as non-reporting. Rule 144A by Non-Reporting Firms dummy equals one if the issuing firm is a non-reporting firm, and zero otherwise. Rule 144A by Reporting Firms dummy equals one if the issuing firm is a reporting firm, and zero otherwise. Column C reports the regression results of Column A after correcting for selection bias. We first estimate a probit model on the choice of Rule 144A issue or public issue and then calculate the inverse Mills ratio. It is then added to the regression as an additional variable to detect and correct for possible selection bias.

<b>Independent Variables</b>	<b>Column A (One Dummy for Rule 144A Issues)</b>	<b>Column B (Two Dummies for Rule 144A Issues)</b>	<b>Column C (Heckman's Treatment)</b>
Intercept	-108.07***	-122.78***	-108.58***
Rule 144A Dummy	18.97***		19.99***
Rule 144A by Non-Reporting Firm		53.92***	
Rule 144A by Reporting Firm		19.03***	
First Time Debt Issue Dummy	30.14***	24.38***	30.13***
Public Firm Dummy	-27.94***	-9.42	-27.97***
Log of Issue Frequency	-7.56***	-7.78***	-7.57***
Year 1998 Dummy	-10.66***	-10.51***	-10.77***
Year 1999 Dummy	5.34	5.40	5.16
Default Risk Premium	1.00***	0.99***	0.99***
Log of Proceeds	-3.11***	-3.19***	-3.14***
AA	9.73	9.12	9.82
AA/A	22.55	20.40	22.68
A	15.35	13.34	15.49
A/BBB	34.46***	33.65***	34.57***
BBB	54.49***	52.62***	54.63***
BBB/BB	93.50***	92.04***	93.14***
BB	173.18***	171.58***	173.20***
BB/B	286.43***	284.33***	286.16***
B	370.58***	368.17***	370.53***
B/CCC	483.48***	479.02***	480.61***
CCC and Below	592.77***	588.43***	592.39***
Percentage of Years of Call Protection	1.68	1.55	1.75
Senior Debt Dummy	48.95***	48.70***	49.34***
Log of Maturity	17.27***	17.31***	17.31***
Utility Firm Dummy	-9.30***	-8.87***	-9.32***
Inverse Mills Ratio			-0.58
Number of Obs.	3258	3258	3258
Adjusted R <sup>2</sup>	0.83	0.83	0.83

\*\*\*The White heteroscedastic-consistent t-statistic is significant at the 0.01 level.

drops from 30 to 24 basis points, and the public firm dummy becomes insignificantly different from zero. All the other coefficients are very similar to Column A results.

One possible explanation for the higher yields on Rule 144A issues is sample selection bias. The previous regressions implicitly assume that the Rule 144A dummy is exogenous, but issuers may not choose a public offering or a Rule 144A offering randomly. Perhaps riskier issuers (in a given rating category) may choose to issue in the Rule 144A market because less information needs to be disclosed.

To examine whether a selection bias exists, we estimate the Heckman's (1979) treatment effect model (Greene, 1993, pp. 713-714, and Maddala, 1983, p. 263). We use Heckman's two-stage regression methodology (Heckman, 1979). First, we estimate a probit model of the choice between Rule 144A and public debt and calculate the inverse Mills ratio. Next, we add the inverse Mills ratio to the regression as an additional explanatory variable. If its coefficient is not significantly different from zero, we can conclude there is no evidence of selection bias.

Column C in Table III presents the results of the first set of regressions after the Heckman's treatment. The coefficient on the inverse Mills ratio is not statistically different from zero. Nor does the coefficient on the Rule 144A dummy change significantly after Heckman's treatment. Thus, there is no evidence that the yield differences between Rule 144A issues and public issues are due to sample selection bias.

Table IV differentiates the regressions by high-yield bonds and investment-grade bonds. In Column A, the coefficient for Rule 144A issues is much higher for high-yield bonds than for investment-grade bonds. In other words, the yield premium for high-yield Rule 144A bonds is much higher than the yield premium for investment-grade Rule 144A bonds. Similarly, in Column B, the regression coefficient for SEC-reporting issues is higher for high-yield bonds than for investment-grade bonds.

For Rule 144A issues by non-reporting firms, the coefficient for high-yield bonds is slightly lower than the coefficient for investment-grade bonds, although the difference is not statistically significant.<sup>15</sup> This is somewhat surprising, given that high-yield Rule 144A issues on average have considerably higher yield premiums than investment-grade Rule 144A issues. One possible explanation is that the information uncertainty of non-SEC-reporting firms is very severe and has a first-order impact on yields. The difference between high-yield and investment-grade Rule 144A is overshadowed by the severe information uncertainty of the non-SEC-reporting firms.

In summary, we have three basic findings about Treasury spread. First, Rule 144A issues have on average a yield premium of 19 basis points over public debt, everything else equal. This is consistent with the expected impact of Rule 144A on bond yields.

Second, Rule 144A issues by non-SEC-reporting firms have considerably higher yield premiums, 54 basis points, than Rule 144A issues by SEC-reporting firms. This is consistent with the information uncertainty argument. Investors are concerned about the quantity and quality of disclosures for Rule 144A issues, because they are not registered with the SEC. Firms that file periodic disclosure statements with the SEC already have made a considerable amount of firm-specific information available, so there is less information uncertainty. For issuers without periodic reports or disclosure statements, information uncertainty is of greater concern, and yield premiums are higher.

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<sup>15</sup>To test the statistical significance of the difference between the two coefficients, we run a pooled regression of high-yield and investment-grade bonds. In addition to the explanatory variables in the separate regressions, we create a 0-1 dummy variable for high-yield bonds and interact it with all the other explanatory variables. The results of the pooled regression are identical to those of the separate regressions, and the coefficients on these interaction terms are the differences in the coefficients between the separate high-yield and investment-grade regressions. The coefficient on the interaction term between high-yield dummy and Rule 144A by non-reporting firm dummy is -10.64 but not significant. The coefficient on the interaction term between high-yield dummy and Rule 144A by reporting firm dummy is 22.22 and significant at the 1% level.

**Table IV. Separate Treasury Spread Regressions for High-Yield Bonds and Investment-Grade Bonds**

This table shows separate Treasury spread regressions for high-yield bonds and investment-grade bonds. Only coefficients on the Rule 144A dummies and first-time debt issue dummy are reported. The coefficients on other regressors are similar to those reported in Table III.

	High-Yield Bonds		Investment-Grade Bonds	
	Column A Regression	Column B Regression	Column A Regression	Column B Regression
Rule 144A	35.39***	-	13.94***	-
Rule 144A by Non-reporting Firm	-	47.73***	-	58.37***
Rule 144A by Reporting Firm	-	34.71***	-	12.49***
First Time Debt Issue Dummy	44.21***	40.94***	19.64***	15.97***
No. of Obs.	1065	1065	2193	2193
R <sup>2</sup>	0.59	0.59	0.54	0.54

\*\*\*The White heteroscedastic-consistent t-statistic is significant at the 0.01 level.

Third, high-yield Rule 144A issues have higher yield premiums than investment-grade Rule 144A issues. This finding is consistent with the weaker legal protection and liquidity arguments. Concerns about legal protection may be of greater importance to insurance companies, which are required by regulation to make prudent investments, especially when they are investing in high-yield bonds. High-yield Rule 144A issues are acceptable to a smaller pool of potential investors, and they are less liquid than investment-grade Rule 144A issues. It is not surprising that high-yield Rule 144A issues have higher yield premiums than investment-grade Rule 144A issues.

## B. Comparison to Fenn's (2000) Study

Our findings are different from those of Fenn (2000). Fenn finds that the yield premiums of Rule 144A over public debt issues have disappeared in recent years. We find the yield premiums of Rule 144A issues still exist. When we try to reproduce Fenn's results using his methodology, we find that they are sensitive to 1) the regression model specification and 2) the time period.

First, we follow Fenn's methodology and create a sample of non-convertible high-yield bond issues from 1993 to the first half of 1998. Our mimic sample is very close to Fenn's (1,566 observations compared to his 1,562). The distributions of the mimic sample over years, ratings, and industry categories are similar to Fenn's sample.<sup>16</sup>

To control for the variation of corporate bond yields over the years, Fenn uses a year trend variable, set equal to issuing year minus 1993. To test whether the yield premium on Rule 144A has changed over the years, Fenn adds an interaction term between the Rule 144A dummy and the year trend variable in the regression. He finds that the yield premium on Rule 144A issues over public debt issues is about 41 basis points, but dropping by 8 basis points every year (as the interaction term shows). Hence, Fenn concludes that the yield premium disappears by 1998 ( $41 - 8(1998-1993) = 1$ ). Fenn's results are provided in the first column of Table V (from his Table 5, column 2, p. 396).

We follow Fenn's methodology and run the same regression. Our results are reported in

<sup>16</sup>When we run the same baseline regression on our mimic sample set (with no Rule 144A dummies as in Fenn's paper), we find the coefficients are very close to Fenn's. The complete comparisons are available from the authors.



**Table V. Comparison to Fenn (2000)**

The first column of this table reprints Fenn's results (column 2 of Table 5, p. 396 of Fenn's paper). The second column gives the regression coefficients for our mimic sample. The third column gives the regression coefficients after we change the year trend variable (issuing year-1993) to 0-1 dummy variables for each year. The fourth column reports the regression coefficients after we expand the sample by including the second half of 1998 and 1999 data.

<b>Variables</b>	<b>Fenn's</b>	<b>Mimic Sample</b>	<b>Mimic Sample with Modified Year Dummies</b>	<b>Expanded Sample (1993-1999)</b>
Rating	-0.67 ***	-0.67 ***	-0.67 ***	-0.66 ***
Log Issue Size	-0.12 ***	-0.22 ***	-0.22 ***	-0.09 ***
Log maturity	-0.26 ***	-0.32 ***	-0.32 ***	-0.14 **
Senior	0.81 ***	0.83 ***	0.83 ***	0.70 ***
Zero coupon	0.67 ***	0.45 ***	0.44 ***	0.56 ***
Merrill Lynch Index	0.58 ***	0.58 ***	0.58 ***	0.70 ***
Year	-0.12 ***	-0.09 ***	-	-
Rule 144A	0.41 ***	0.58 ***	0.55 ***	0.35 ***
144A*Year	-0.08 **	-0.12 ***	-0.09 **	0.03
Year 1993	-	-	0.46 ***	0.18
Year 1994	-	-	0.62 ***	0.47 ***
Year 1995	-	-	0.49 ***	0.16
Year 1996	-	-	0.30 ***	-0.01
Year 1997	-	-	0.00	-0.38 ***
Year 1998	-	-	-	-0.36 ***
Adjusted R <sup>2</sup>	0.67	0.60	0.61	0.59
No. of obs.	1562	1566	1566	2088

\*\*\*Significant at the 0.01 level.

\*\*Significant at the 0.05 level.

the second column of Table V. Most of our coefficients are very close to Fenn's and have the same significance level, although our mimic regression has a slightly lower R-squared value. The mimic regression finds that the yield premium for Rule 144A is about 58 basis points, and declines by 12 basis points each year. Although the coefficients on the Rule 144A dummy and the interaction term are higher for our mimic regression, the basic interpretation is the same as Fenn's; that is, the yield premium disappears by 1998 ( $58 - 12 \times 5 = -2$ ).

The year trend variable, however, implicitly assumes a linear time trend for yields on high-yield bonds. The yields on high-yield bonds increased from 1993 to 1995 and decreased significantly in 1997 and 1998. The annual averages of the Merrill Lynch High Yield 175 Index are 10.38%, 10.71%, 11.05%, 10.40%, 9.76%, and 9.19% from 1993 to 1998, clearly not a linear trend.<sup>17</sup>

A negative coefficient on the linear year trend variable in Fenn's study erroneously estimates declining yields from 1993 through 1995 and underestimates the decline in yields in 1997 and 1998. This underestimation coincides with an increased percentage of Rule 144A issues in the high-yield bond market. Hence, the interaction term of the Rule 144A dummy and the year variable picks up some of the underestimation of the yield decreases of high-yield bonds in 1997 and 1998.

When we change the year trend variable to 0-1 dummy variables for each year, we find that the coefficient on the interaction term drops significantly, from -12 to -9 basis points and

<sup>17</sup>The Merrill Lynch High Yield 175 Index tracks the performance of the 175 most liquid below-investment-grade public US corporate bonds.

the significance level declines from 1% to 5% (Table V, Column 3). The coefficient on the Rule 144A dummy changes only slightly. Hence, we can no longer claim that the yield premium disappears completely in 1998 ( $55 - 9 \times 5 = 10$ ), although it still shows a declining trend. The coefficients on the year dummies confirm that yields do not drop significantly until 1997.<sup>18</sup>

More important, when we expand the sample by including the second half of 1998 and 1999 (Table V, Column 4), the interaction term becomes insignificant, while the yield premium for Rule 144A issues is 35 basis points and significant. Thus, the yield premium for Rule 144A issues does not disappear over time. In separate regressions for each year (unreported but available on request), we find that the yield premiums for Rule 144A issues are low for 1996 and 1997 (similar to Fenn's), but range from 40 to 80 basis points in the second half of 1998 and 1999.

Hence, instead of disappearing yield premiums, we find fluctuating yield premiums on Rule 144A issues over the years: high in 1993 to 1995, low in 1996 to the first half of 1998, and high again in the second half of 1998 and 1999. Fenn's data end at the first half of 1998, while ours extend through 1999. This time period difference contributes to the different findings.<sup>19</sup>

In summary, the evidence of declining yield premiums is not robust to changes in regression specification and time periods.

### C. Use of Registration Rights and Their Impact

There have been conflicting claims about the use of registration rights. To investigate the question further, we search on the Bloomberg database for post-issue registration of every Rule 144A issue in our sample. For issues not in Bloomberg, we search the company name in the SEC's electronic database EDGAR for registration statements. We are able to find 1,326 of the 1,418 Rule 144A issues in either Bloomberg or EDGAR. Table VI gives our findings.

Like Fenn, we find that virtually all high-yield Rule 144A bonds issued between 1997 and 1999 have registration rights. Only 44% of the investment-grade Rule 144A bonds, however, have registration rights.<sup>20</sup>

The impact of registration rights on the Treasury spread is examined in Table VII for both investment-grade and high-yield bonds. The same regression as in Table III is run with two dummy variables for Rule 144A issues: those with registration rights and those without registration rights. Several results are noteworthy.

First, the coefficients for high-yield bonds are larger in absolute value than for investment-grade bonds, consistent with the findings in Table IV.

Second, the yield premium for high-yield Rule 144A issues without registration rights is 82 basis points, compared to 33 basis points for issues with registration rights. A chi-square test rejects the null hypothesis that these two coefficients are the same at the 10% level.<sup>21</sup>

<sup>18</sup>Since we do not have the exact same dataset as Fenn, our results suggest only a potential explanation for the difference.

<sup>19</sup>We obtain similar results when we include first-time issuer dummy, private firm dummy, and their interaction terms with the Rule 144A dummy in the regression. Similar results are also obtained when only B-rated bonds are investigated.

<sup>20</sup>While Rule 144A issues by non-reporting firms may choose not to have registration rights to remain private, the evidence does not support this argument. First, although more than a quarter of high-yield Rule 144A bonds are issued by non-reporting firms, 95% of them have registration rights. Second, for investment-grade Rule 144A issues, 39% of those by non-reporting firms have registration rights, while 44% of those by reporting firms have registration rights. Thus, there is no dramatic difference in the use of registration rights by reporting vs. non-reporting firms.

<sup>21</sup>We also run a regression on Rule 144A issues only, with a registration right dummy variable (1 if with registration rights, and zero otherwise). The coefficient on the registration rights is negative and significant at the 10% level, indicating that high-yield Rule 144A issues with registration rights have lower yields than similar Rule 144A issues without registration rights.

**Table VI. Use of Registration Rights by Rule 144A Issues**

This table gives information on the use of registration rights by Rule 144A issues. For every Rule 144A issue, we check Bloomberg and SEC's EDGAR for post-issue registration and exchange offer. If a Rule 144A has been exchanged for an identical publicly registered debt issue, or the Rule 144A has been registered with the SEC after the initial issue, we classify it as Rule 144A issue with Registration Rights. Of 1,418 Rule 144A issues in our sample, we find 1,326 on either Bloomberg or EDGAR.

	<b>High-Yield Rule 144A Issues</b>	<b>Investment- Grade Rule 144A Issues</b>	<b>All Rule 144A Issues</b>
No. of Issues with Registration Rights	936	163	1099
Percentage of Issues with Registration Rights	98.22%	43.70%	82.88%
Total No. of Issues	953	373	1326

**Table VII. Treasury Spread on Rule 144A Issues with and without Registration Rights**

This table compares Treasury spreads on Rule 144A offerings with registration rights, Rule 144A without registration rights, and public debt. The sample includes both Rule 144A issues and public debt issues. Only coefficients on the Rule 144A dummies, first-time issuer, and public firm dummies are reported. Coefficients on other regressors are similar to those reported in Table III. The dummy Rule 144A with Reg. Rights equals 1 if the bond is a Rule 144A issue with registration right and zero otherwise. The dummy variable Rule 144A w/o Reg. Rights equals 1 if the bond is a Rule 144A issue without registration right and zero otherwise. The base case is public issues. Two separate regressions are run for high-yield bonds and investment-grade bonds respectively.

	<b>High-Yield Bonds</b>	<b>Investment-Grade Bonds</b>
Rule 144A with Reg. Rights	32.57 ***	14.30 ***
Rule 144A w/o Reg. Rights	81.52 ***	7.11 ***
First Time Debt Issue Dummy	44.68 ***	14.94 ***
Public Firm Dummy	-26.90 ***	-5.81
No. of obs	1054	2155
R <sup>2</sup>	0.59	0.54

\*\*\*The White heteroscedastic-consistent t-statistic is significant at the 0.01 level.

This finding indicates that registration rights help to reduce the yield premium for high-yield Rule 144A bonds over public debt. Note that this finding should be treated with caution, because there are only 17 high-yield Rule 144A issues without registration rights.

The yield premium for investment-grade Rule 144A issues without registration rights is smaller than the yield premium on investment-grade issues with registration rights, but the difference between the two coefficients is not statistically significant.<sup>22</sup>

These findings together suggest that registration rights help to reduce yield premiums for

<sup>22</sup>A chi-square test fails to reject the null hypothesis that the two coefficients are the same. We also run a regression on Rule 144A issues only, with a registration right dummy variable (1 if with registration rights, and 0 otherwise). The coefficient on the registration rights is not statistically different from zero, indicating that registration rights do not have an impact on yields for investment-grade Rule 144A issues.

high-yield Rule 144A issues, and hence most issuers of high-yield Rule 144A issues choose to have registration rights. Registration rights do not seem to make a difference in yield premiums for investment-grade bonds, and issuing firms are, thus, relatively indifferent with respect to registration rights.

These findings are consistent with several explanations. First, because of the greater riskiness of high-yield bonds, agency costs and moral hazard problems tend to be higher (Jensen and Meckling, 1976 and Campbell and Kracaw, 1990). Hence, investors would want more information disclosure for high-yield bonds. With registration rights, the issuing firm promises to register in the near future and meet stricter disclosure requirements of the 1933 Securities Act, signaling investors that the issuer is not hiding unfavorable information.

Second, there is a smaller pool of potential investors for high-yield bonds than investment-grade bonds because of legal restrictions on investments in high-yield bonds for some institutional investors. The number of potential investors in Rule 144A issues increases after the issue becomes registered. Consequently, registration rights would help to reduce the illiquidity premium on high-yield Rule 144A issues, but would have less of an impact on investment-grade Rule 144A issues.

#### **D. Gross Underwriter Spread**

The impact of Rule 144A upon gross underwriter spread is shown in Table VIII. In Column A, the Rule 144A dummy variable includes all issues sold through Rule 144A. This coefficient is not significant. In Column B, Rule 144A issues are separated into non-reporting firms (with no publicly traded securities) and firms filing periodic financial statements with the SEC. Neither coefficient is significantly different from zero.

The first-time debt issue dummy variable is positive and significant. Log of issue frequency is negative and significant. Percentage of Years of Call Protection is negative and significant. Senior debt has a negative and significant coefficient. Maturity has a positive and significant coefficient. The utility firm dummy has a negative and significant coefficient.

Note that the coefficients for all the investment-grade rating dummy variables are not significantly different from zero. As ratings fall below investment grade, coefficients become significant and increase, indicating that gross underwriter fees are much higher for high-yield bonds because of the greater difficulties in selling these bonds. This is consistent with Livingston and Miller (2000).

An unreported regression for gross underwriter spread for high-yield bonds and investment-grade bonds separately finds that the coefficient for investment-grade Rule 144A issues is 4 basis points and significant, but a coefficient of this magnitude is not economically meaningful. The coefficient for the high-yield Rule 144A issues is not significant.

In summary, we find that gross underwriter spreads are not statistically different for Rule 144A and public debt issues in general. There are offsetting impacts of Rule 144A on the spread. On the one hand, fewer potential investors and information uncertainty make underwriting Rule 144A issues harder than public debt. On the other hand, underwriting Rule 144A issues may be less risky in some ways and involve less work for underwriters. Our finding of similar underwriter spreads suggests that the two impacts offset each other.

## **IV. Conclusion**

Rule 144A bonds do not require a registration filing with the Securities and Exchange Commission. They may be purchased by qualified financial institutions and traded to other

**Table VIII. Gross Underwriter Spread Regression**

This table shows the results of the regressions of gross underwriter spread on control variables for risks and test variables. The dependent variable is the gross underwriter spread in basis points. The base case in the regression is an AAA-rated bond issued in 1997. First-Time Debt Issue dummy equals one if the issuer has not issued any fixed income security (straight debt, convertible debt or preferred stocks) since 1970, and zero otherwise. Public Firm dummy equals one if the issuer has publicly traded equity, zero otherwise. Log of Issue Frequency is the natural log of the number of the offerings each issuer had during the sample period. Year 1998 dummy equals one if the bond is issued in 1998 and zero otherwise. Year 1999 dummy equals one if the bond is issued in 1999 and zero otherwise. Default Risk Premium is the difference between the Merrill Lynch BBB Bond Index and the Merrill Lynch 10-Year Treasury Index. Percentage of Years of Call Protection is the percentage of years that the bond is call protected. Senior debt dummy equals one for senior debt issue, zero otherwise. Column A reports the results of the regression where the Rule 144A dummy is used. Rule 144A dummy equals one if the offering is issued under Rule 144A, and zero otherwise. The regression tests if the Rule 144A issues have higher gross underwriter spread over public issues. Column B uses two dummy variables: Rule 144A by Non-Reporting Firms, and Rule 144A by Reporting Firms. If the issuing firm of a Rule 144A offering has not issued any public fixed income security (straight debt, convertible debt, or preferred stock) since 1970, and the issuing firm and its parent firm do not have public traded equity, we classify the firm as non-reporting. Rule 144A by Non-Reporting Firms dummy equals one if the issuing firm is a non-reporting firm, and zero otherwise. Rule 144A by Reporting Firms dummy equals one if the issuing firm is a reporting firm, and zero otherwise.

Independent Variables	Column A (One Dummy for Rule 144A issues)	Column B (Two Dummies for Rule 144A issues)
Intercept	44.30***	42.37***
Rule 144A Dummy	4.36	
Rule 144A by Non-Reporting Firm		8.15
Rule 144A by Reporting Firm		4.08
First Time Debt Issue Dummy	4.28**	4.02**
Public Firm Dummy	-3.12	-1.12
Log of Issue Frequency	-3.24***	-3.25***
Year 1998 Dummy	-1.35	-1.33
Year 1999 Dummy	-2.74	-2.72
Default Risk Premium	-0.01	-0.56
Log of Proceeds	-0.84	-0.83
AA	11.53	11.57
AA/A	7.25	7.23
A	10.27	10.30
A/BBB	13.62	13.68
BBB	11.73	11.73
BBB/BB	26.75***	26.74***
BB	110.66***	110.80***
BB/B	182.51***	182.51***
B	194.81***	194.80***
B/CCC	207.19***	206.61***
CCC and Below	261.88***	261.93***
Percentage of Years of Call Protection	-6.09***	-6.12***
Senior Debt Dummy	-14.21***	-14.20***
Log of Maturity	16.90***	16.89***
Utility Firm Dummy	-3.50***	-3.47***
Number of Obs.	2368	2368
Adjusted R <sup>2</sup>	0.83	0.83

\*\*\*Significant at the 0.01 level.

\*\*Significant at the 0.05 level.

qualified financial institutions, but may not be purchased by individuals.

Some Rule 144A bonds require the issuer to replace the bonds with publicly traded bonds within a stipulated period of time and are designated as having registration rights. Although high-yield bonds issued under Rule 144A usually have registration rights, we find that the majority of investment-grade bonds do not.

Our empirical results indicate that Rule 144A bond issues have higher yields to maturity than publicly issued bonds. The effect is greater for Rule 144A bonds issued by private firms without publicly traded securities. The yield premiums of Rule 144A issues are likely due to lower liquidity, information uncertainty, and weaker legal protection for investors. Gross underwriter spreads for Rule 144A bond issues and publicly registered bond issues are essentially equivalent. ■

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