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Speed of issuance and the adequacy of disclosure in the 144A high-yield debt market[☆]

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Abstract

I document the shift of high-yield issuance from the public to the Rule 144A private placement market and exploit data on credit spreads to investigate whether investors regard disclosure in the two markets as comparable. The key implications of the inadequate-disclosure hypothesis are that investors require premiums on 144A securities and that such premiums are largest for first-time bond issuers and privately owned firms about whom less information is publicly available. I find that 144A premiums, though positive initially, have vanished over time, and I find no evidence of larger 144A premiums for first-time issuers or private firms. Investors do, however, require premiums of first-time issuers, and to a lesser extent of privately owned firms, regardless of whether securities are issued in the 144A or public market. These findings imply that sophisticated investors do not value the incremental information provided by securities registration, but do value ongoing disclosure. © 2000 Elsevier Science S.A. All rights reserved.

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1. Introduction

Rule 144A, adopted by the SEC in April 1990, establishes conditions under which private placements can be freely traded among ‘qualified institutional buyers’ (QIBs). By creating a more liquid class of private placement, the SEC hoped to attract issuers – especially foreign issuers – dissuaded by the illiquidity premiums commanded in the traditional private placement market and the registration requirements of the public market (Carey et al., 1993). Since 1990, foreign bond issuance in the U.S. has increased sharply; foreign issuance has been robust in both the public and Rule 144A markets, however, and it is not clear that Rule 144A was needed to trigger this growth.

This paper focuses on a very different use of Rule 144A than the one anticipated by the SEC. Rule 144A has been widely adopted by domestic, below-investment-grade firms as a means of quickly issuing securities that are subsequently registered. By issuing high-yield debt as 144A private placements, issuers are able to raise funds as soon as their securities can be marketed to investors. When the bonds are subsequently registered, investors enjoy the benefit of public-market liquidity.

The ability to issue debt quickly through the Rule 144A market has revolutionized issuance procedures for junk-rated firms in the same way that Rule 415 shelf registrations did for investment-grade firms. With a shelf registration statement, firms are able to pre-register securities that are issued up to two years in the future. The purpose of pre-registration is to permit rapid issuance as financing needs arise without the delay of waiting for the SEC to approve a registration statement. Yet many junk-rated firms do not meet the SEC’s requirements for shelf registration, and even if they do shelf registration is not efficient for firms that cannot accurately predict their future financing requirements (Johnson, 1991, p. 417). The majority of junk-rated firms, therefore, register bonds at issuance, which, until the adoption of Rule 144A, led to potentially costly delays.

The use of Rule 144A by junk issuers has increased steadily over time: in 1993, less than 15% of junk-rated issues were issued through Rule 144A; in 1997, in conjunction with record issuance, more than 80% of below-investment-grade issues were issued in the 144A market. That trend continued in 1998, and market analysts have suggested that eventually all high-yield debt will be issued in the 144A market (Investment Dealers’ Digest, 1997).

While using the 144A market to issue bonds rapidly is extremely useful to issuers, it is unclear how this practice is viewed by investors. Lack of registration may imply less disclosure, and more rapid issuance may allow less time for due diligence by investors. Press accounts suggest that investors are divided about how significant the disclosure and due diligence issues are (Investment Dealers’ Digest, 1997). The reaction of investors to the 144A market is the focus of this paper.

First, I document that below-investment-grade issuers use the 144A market primarily to issue bonds that are subsequently registered. As reported below, I find that more than 97% of domestic 144A high-yield bonds issued over a recent 18-month period were subsequently registered. This finding confirms that below-investment-grade issuers use Rule 144A to facilitate speedy issuance of public-like securities, not to issue securities that are structurally different from public securities.

I then investigate whether investors require premiums on 144A issues as compensation for inadequate disclosure. If disclosure and the opportunity for investor due diligence in the 144A market is substantially less than in the public market, investors will require premiums as compensation for (i) greater uncertainty about credit quality and (ii) predictably higher levels of risk that result from the incentive of low- and high-risk firms to sort themselves into the public and 144A markets, respectively. Premiums on 144A issues could also reflect differences in liquidity between 144A and public securities. However, a key implication of the inadequate-disclosure hypothesis – and one that distinguishes it from the illiquidity hypothesis – is that 144a premiums should be largest for first-time bond issuers and privately owned firms about whom less information is available.¹

I find that, controlling for ratings and other issue characteristics, the premiums on 144A debt, though positive initially, have vanished over time, and there is *no evidence* of greater 144A premiums for first-time bond issuers or private firms. This finding suggests that investors regard disclosure in the 144A market as comparable to that of the public market. It implies that the adoption of Rule 144A has been a favorable development for the high-yield market, as issuers have indicated a strong preference for issuing 144A securities and investors do not require premiums. The vanishing yield premiums on below-investment-grade 144A securities also implies that investors now regard them as no less liquid than their public counterparts. This is not surprising, as 144A securities are very liquid to begin with and almost all of these 144A securities are subsequently registered.

While I find that 144A premiums are not incrementally larger for first-time bond issuers or privately owned firms, I find that the investors charge a premium on *all* below-investment-grade-debt issued by first-time issuers and privately owned firms. Premiums for first-time issuers average 30 to 35 basis points

¹ The inadequate-disclosure hypothesis is closely related to the discussion of information asymmetry and securities issuance in Smith (1986). Smith observes that, when there is information asymmetry between investors and firm managers, procedures that allow firms to issue securities more quickly – such as shelf registration and Rule 144A – have potential costs as well as benefits. In particular, information asymmetry may reduce the prices investors are willing to pay for securities. The empirical analysis in this paper tests whether information-related costs are present in the 144A high-yield debt market.

and are remarkably stable over time. Premiums for privately owned issuers average between 10 and 20 basis points, though these estimates are less robust. These findings suggest that ongoing disclosure reduces investor uncertainty, and, together with the result that investors do not require premiums on 144A issues, they lend support to SEC efforts to shift the focus of registration and disclosure from securities to firms.²

Finally, I report several findings concerning the relation between credit spreads on below-investment-grade debt and issue characteristics. As expected, credit spreads increase with lower ratings and are negatively related to issue size and maturity. A more surprising result is that, controlling for ratings and other variables, spreads on senior debt *exceed* those on subordinated debt by approximately 80 basis points. The most plausible explanation for this result is that rating agencies systematically rate subordinated debt about one (minor) rating level below where the market thinks it should be rated. The market thus views subordinated debt as having better credit quality than senior debt *of the same rating* and hence requires lower returns.

One other recent paper that looks at the Rule 144A market is Chaplinsky and Ramchand (1997), but their analysis looks at all 144A issues – investment-grade and below-investment-grade, foreign and domestic – and is therefore quite general in nature. They do not identify speed of issuance as one of the advantages of issuing under Rule 144A. Using data through 1996, they conclude that premiums on domestic 144A issues declined from 179 basis points in 1990 to 106 basis points in 1996. By contrast, I find that premiums on domestic high-yield 144A issues were never as high as the estimates of Chaplinsky and Ramchand suggest and that such premiums had essentially disappeared by 1995.

The remainder of this paper is organized as follows. Section 2 provides some background on private placements, the adoption of Rule 144A, and the use of Rule 144A by below-investment-grade issuers. Section 3 outlines the inadequate-disclosure hypothesis and describes the cross-sectional regressions and data used to test it. Section 4 presents my empirical results, and Section 5 concludes.

² A 1996 SEC advisory report recommends replacing the current transaction- and securities-based registration process with ‘company registration’ (SEC, 1996; Bethel and Sirri, 1998). Company registration is a system in which public firms register as companies on a one-time basis. Subsequent securities issues *are not* registered, thus avoiding delay. The evidence in this paper supports three arguments for adopting company registration. First, and most important, securities registration is costly to issuers and of little apparent value to investors. Second, issuers are finding ways of avoiding securities registration under existing regulations. Third, investors value ongoing disclosure, which would be the focus of company registration.

2. Private placements and Rule 144A

Section 4(2) of the Securities Act of 1933 exempts from registration ‘transactions not involving any public offering’. Primary offerings of securities that use this exemption are commonly referred to as ‘private placements’.

In the debt market, there are two primary reasons firms issue private placements. First, firms may wish to issue a security that is similar in structure to a public bond but without the public disclosure, expense, or delay of a registered offering. Second, characteristics of the firm – such as size, riskiness, or line of business – may necessitate more numerous and restrictive covenants than are normally found in a public bond (Carey et al., 1993). Lending to such firms is most efficiently provided by a small number of buy-and-hold investors that conduct extensive due diligence, structure the terms and covenants of the security indenture, and renegotiate these terms and covenants as conditions warrant. Private placements issued under these circumstances often are more similar to bank loans than they are to public bonds.

Until 1990 most private placements were structured like bank loans (Carey et al., 1993). The SEC concluded that the development of a market for private placements that were structured like public bonds was hampered by the relatively small universe of private placement investors (mainly insurance companies). The limited investor base stemmed, in part, from investor uncertainty regarding restrictions on resales of private placements.

Table 1

Public and 144A below-investment-grade securities issuance by U.S. nonfinancial firms, 1990–1998

Below-investment-grade securities are those rated double-B or below by at least one of the two major ratings agencies, Moody’s and Standard & Poor’s. Securities include straight debt, convertible debt, preferred stock, and convertible preferred stock.

Year	Total issuance (\$mil)		Share of issuance (%)	Average issue size (\$mil)	
	Public	144A	144A	Public	144A
1990	3104	0	0	141	—
1991	19,732	11	0	247	11
1992	40,559	490	1	166	163
1993	60,482	11,425	16	174	197
1994	31,746	3500	10	182	109
1995	24,593	8053	25	202	161
1996	34,943	28,824	45	190	188
1997	21,527	78,325	78	215	198
1998 ^a	12,991	59,913	82	217	212
Total	249,676	190,539	43	187	195

^aThrough May 31, 1998.

Source: Securities Data Company.

In April 1990, the SEC adopted Rule 144A, which establishes fairly minimal conditions under which private placements can be freely traded among a large class of institutional investors known as ‘qualified institutional buyers’ (QIBs). By recognizing the legitimacy of secondary trading in private placements, the SEC hoped to widen the investor base, lower private placement spreads, and attract greater issuance. It specifically sought to encourage greater foreign issuance (Johnson, 1991; Carey et al., 1993).

2.1. The use of Rule 144A by below-investment-grade issuers

A largely unanticipated effect of Rule 144A was to cause domestic, high-yield issuers of public bonds to shift their financing activity from the public to the 144A market. As documented below, domestic high-yield securities issued in the 144A market remain private only temporarily, as almost all are subsequently registered. By issuing 144A securities and subsequently registering them, issuers combine two of the best features of the private and public markets: speedy issuance (private markets) and maximum liquidity (public markets).³

Table 1 summarizes below-investment-grade issuance by domestic nonfinancial firms in the 1990s. Below-investment-grade securities include straight debt, convertible debt, preferred stock, and convertible preferred stock, rated double-B or below by at least one of the two major rating agencies, Moody’s and Standard & Poor’s. I exclude foreign issuers because many of them use Rule 144A to avoid compliance with SEC disclosure requirements and therefore their securities remain private. Financial issuers are excluded because they account for a very small fraction of the high-yield market. As shown in Column 3, the use of Rule 144A by below-investment-grade issuers began in 1993, picked up in 1995, and became dominant in 1997, when Rule 144A issues accounted for

³ Prior to the adoption of Rule 144A, high-yield issuers could have used the traditional private placement market to issue bonds that were subsequently registered, and indeed, this was done to some extent by clients of Drexel Burnhams’:

In selling high-yield debt securities to finance corporate takeovers where speed was of the essence, Drexel Burnham Lambert developed a procedure whereby the securities would be sold initially to a limited group of institutions that were part of Drexel’s network of junk bond investors with an agreement to register the bonds promptly. Here the intention was to register the securities for resale by the holders as soon as practicable after the initial sale. The procedure pioneered by Drexel has been adopted by other firms dealing in junk bonds....This procedure has been touted as revolutionizing the world of private placements. Whether or not revolutionary, it is a perfectly legitimate procedure that has been a boon to those who seek to finance an acquisition with the utmost speed. (Johnson, 1991, pp. 373–74)

Once again, however, a lack of familiarity with traditional private placements and investor concerns about their liquidity before they were registered may have presented obstacles to the widespread use of traditional private placements in this manner.

Table 2

Public and 144A below-investment-grade securities issuance of U.S. nonfinancial firms, by rating class, 1990–1998

Rating class describes ratings assigned at the time of the issue by Moody's and S&P. BB, B, and Below-B rated securities are rated BB, B, and Below-B, respectively, by *both* rating agencies, or by one agency if only one agency rates the bond. Split ratings describe securities rated differently by the two agencies: split-investment-grade securities are rated investment-grade by one agency (BBB or higher) and below-investment-grade (BB and below) by the other; split BB securities are rated BB by one agency and B or below by the other; split B securities are rated B by one agency and Below-B by the other.

Rating class	Public securities (\$mil)	144A securities (\$mil)	Total (\$mil)	144A as share of rating class (%)
Split investment-grade	41,489	15,890	57,749	28
BB	58,746	20,816	79,562	26
Split BB	30,016	10,904	40,920	27
B	106,954	120,807	227,760	53
Split B	8048	12,712	20,760	61
Below-B	4053	9412	13,465	70
Total	249,676	190,539	440,215	43

Source: Securities Data Company.

nearly 80% of total issuance. Columns 4 and 5 indicate that the average sizes of Rule 144A and public issues are nearly identical and stable over time.

Table 2 reports the breakdown of the sample by ratings. For descriptive purposes, I divide the sample into six below-investment-grade rating categories frequently used by market analysts. As shown in Table 2, lower-rated issuers rely most heavily on the 144A market. In the top three rating categories – split investment-grade, BB, and split-BB – 144A issues account for slightly less than 30% of total issuance. Conversely, among B-rated bonds, the 144A share is 53%, and for the lowest-rated bonds the 144A share exceeds 60%. The higher incidence of Rule 144A use among lower-rated firms likely reflects the fact that fewer of these firms meet the SEC's requirements for shelf registration, under which public bonds can be issued quickly.⁴

⁴ Consistent with this interpretation, 52% of the public bonds issued by firms in the top three rating categories were issued using shelf registration; only 18% of the public bonds issued by firms in the bottom three rating categories were issued using shelf registration. Eligibility requirements for shelf registration include filing Exchange Act reports (10-Ks, 10-Qs, and 8-Ks) over the previous 12 months and at least 75 million in public float (SEC, 1996). As lower-rated firms are likely to be both younger and smaller than higher-rated firms, they are less likely to meet these requirements.

Table 3

Registration of 144A below-investment-grade securities issued by U.S. nonfinancial firms between January 1, 1996 and June 30, 1997.

Number of 144A securities issued and remaining on the Bloomberg System ^a	305
Number of 144A securities subsequently registered	296
Percent subsequently registered	97.0

^aTwo 144A securities issued during this period had matured or were called, and information about these securities, including whether they had been registered, had been removed from the Bloomberg System.

Source: Securities Data Company and Bloomberg.

2.2. Registration of below-investment-grade Rule 144A issues

Anecdotal reports suggest that many 144A issues carry ‘registration rights’ and are subsequently registered, but the extent to which 144A securities are registered has not been documented. Such information is important to understanding the nature of 144A securities and why they are issued.⁵

To determine the extent to which domestic, below-investment-grade Rule 144A securities are registered, I review the registration outcomes of all such securities issued over a recent 18-month period, January 1, 1996 to June 30, 1997. The dates are chosen to maximize the opportunity to identify whether the bonds were registered using the Bloomberg System. Bonds issued before 1996 are (marginally) more likely to have been retired (through maturities or calls), in which case they are removed from Bloomberg. Bonds issued after mid-1997, are more likely to not yet have been registered (as of the date of this study) even though they ultimately will be.

Three-hundred-seven 144A below-investment-grade securities were issued by domestic nonfinancial firms over this period, 305 of which remained on the Bloomberg system in mid-1998 (Table 3). Of these 305 securities, 296, or 97%, were subsequently registered. Thus, nearly all domestic, below-investment-grade Rule 144A securities are registered.⁶ Fig. 1 shows the distribution of the time to

⁵ Securities Data Company (SDC), the source of the data used in this study, has in its database a variable that indicates whether a private placement was issued with registration rights. I found this variable to be highly inaccurate. Specifically, the SDC data indicates that only about 60 percent of domestic high-yield bonds issued under Rule 144A are issued with registration rights contrary to my findings discussed below.

⁶ Rule 144A securities become registered in one of two ways. The more common procedure is through an exchange offer in which the issuer exchanges registered securities for the 144A securities. Form S-4 is used to effect the exchange. The alternative procedure is to register the old 144A bonds ex-post using a shelf registration. The shelf registration appears to be more burdensome as the holders of securities at the time the registration statement becomes effective must be named in the prospectus (see Johnson, 1991, p. 374).

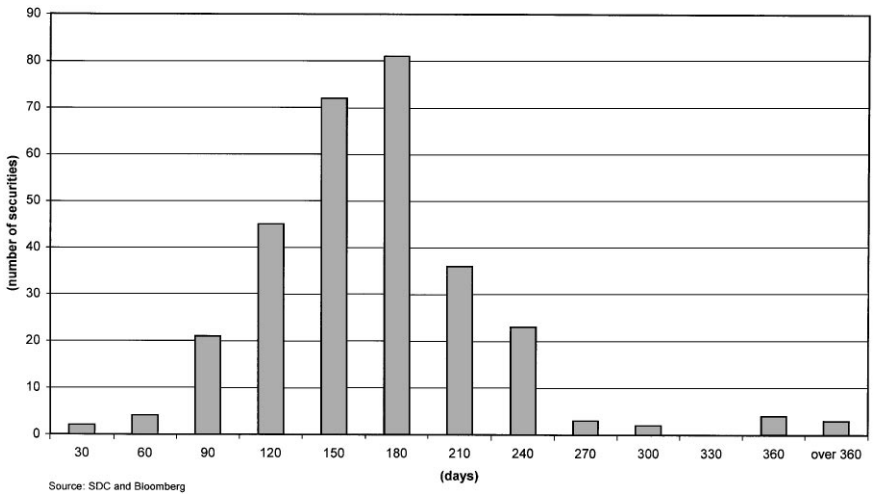


Fig. 1. Distribution of number of days to register 144A securities. (Based on 296 below-investment-grade 144A securities issued by U.S. nonfinancial firms between 1/96 and 6/97 and subsequently registered).

registration for these issues, measured in number of days from the date they were originally issued as 144A securities. Most of these securities (77%) were registered in a period ranging from 90 to 210 days, or three to seven months.⁷

The nearly universal registration of 144A securities in the domestic high-yield market suggests several important facts about the nature of these securities and why they are issued. First, it suggests that they are structurally similar if not identical to public securities since they in fact become public securities. Although registration usually involves an exchange of old 144A securities for new registered securities, the prospectus for the exchange offer typically states that ‘the new notes will be substantially identical in all material respects (including interest rate, maturity, security, and restrictive covenants) to the old notes for which the may be exchanged pursuant to this offer’. Second, registration indicates that the key deterrent to registration of the original offering is the *delay* and not the public disclosure or expense incurred, as the latter are incurred anyway. Finally, registration implies that market participants value

⁷ The time to registration shown in Fig. 1 is actually the time to the completion of the exchange offer when an exchange offer is used. The completion of the exchange offer usually occurs about 30 days after the registration statement is declared effective. Registration rights agreements – which often require registration within 180 days – are satisfied on the date that registration is declared effective. Thus, the vast majority of securities appear to meet 180-day registration rights requirements.

even marginal increases in liquidity, since despite the highly liquid nature of the 144A market issuers are willing to incur registration costs to obtain access to the more liquid public market.

3. Cross-sectional tests of the inadequate-disclosure hypothesis

The key premise underlying the exemption of private placements from registration is that sophisticated investors can fend for themselves (Johnson, 1991). Consistent with this principle, Rule 144A establishes only minimal disclosure requirements.⁸ Some observers note that the offering documents used in 144A offerings are standardized and similar to those used in public offerings.⁹ Whether disclosure is actually comparable, however, is difficult to judge from the appearance of the documentation.

Broadly speaking, there are two possible hypotheses about the adequacy of disclosure in the 144A market. The first hypothesis is that disclosure and the opportunity for due diligence in the 144A market are comparable to that in the public market. Under this hypothesis, below-investment-grade firms choose to issue in one market over the other depending only on whether they have sufficient time to complete a registered offering before their desired issuance date. Ignoring potential differences in liquidity, spreads in the two markets should be identical, conditional on variables such as issue rating and size.

The alternative hypothesis is that disclosure and the opportunity for due diligence in the 144A market are less than in the public market. Under this hypothesis, high- and low-risk firms (within observable rating classes) face incentives to sort themselves into the 144A and public markets, respectively. The key testable implications of this hypothesis are that credit spreads in the 144A market are higher than in the public market, and that 144A premiums are greatest for first-time bond issuers and privately owned firms about which less information is publicly available.

3.1. *Model specification and data*

To test the inadequate-disclosure hypothesis I use data on all below-investment-grade straight debt issued between January 1, 1993 and May 31, 1998, the

⁸ No additional disclosure is required of companies that already file 1934 Exchange Act reports (10-Ks, 10-Qs, and 8-Ks). For non-reporting companies, only a brief business description and recent financial statements are required.

⁹ Carey et al. (1993) state that in many instances the offering memorandum is styled like a prospectus in a public offering. They attribute this to the demands of underwriters who wish to market the security like a public offering. Bethel and Sirri (1998) report that a 1994 survey found that 43% of CFOs whose companies made 144A offerings used standardized documentation.

end of my sample period. I restrict my sample to straight debt, as it is difficult to measure yields on convertible issues or preferred stock. I restrict my sample to debt issued since 1993 as it includes virtually all 144A high-yield issues (see Table 1). There are 1562 straight debt securities in the full sample.

The dependent variable in all regressions is the spread of an issue's yield-to-maturity over that of the nearest on-the-run Treasury. The Treasury maturities used include 2, 3, 5, 10, and 30 years.¹⁰ My primary source of data is SDC's New Issues database, but I rely heavily on Bloomberg to verify these data, especially outliers. Bloomberg is also used for yield-to-maturities on Treasuries.

My independent variables include: (1) variables used to test the inadequate-disclosure hypothesis, (2) rating variables, and (3) other control variables. The variables used to test the inadequate-disclosure hypothesis include a dummy variable for 144A issues, and interactions between this variable and dummy variables for first-time bond issuers and privately owned firms. Privately owned firms are based on the status of an issuer and its ultimate parent as reported in SDC. A firm is defined as privately owned if neither it or its ultimate parent are public companies.

First-time bond issuers are determined by examining all below-investment-grade securities issues in SDC's new issues database. I use two definitions of first-time issuers based on two alternative definitions of related issuers. The first, and more narrow, definition of related issuers is based on an exact 6-digit cusip match among issuers in the database. Where there are near matches – specifically, where there are 5-digit matches – and issuer names are similar, I hand-check the issuers to see whether there has been a minor company name change, in which case I combine the relevant entries. The second definition of related issuers includes affiliated companies, such as Time Warner and Time Warner Entertainment. Related issuers are determined by using Bloomberg to examine issuers with similar names or with the same immediate or ultimate corporate parent. By construction, there are fewer first-time issuers in the data set when the broad definition of related issuers is used. Results based on the two definitions of related issuers are quite similar and I only report results based on the narrow definition in the tables below.¹¹

I explore several different methods of controlling for ratings. One approach includes dummy variables for the six rating categories described in Table 2; this approach controls for differences in major rating levels assigned by Moody's

¹⁰ The distribution of the nearest maturity Treasury is as follows: 2-year (9 observations), 3-year (14 observations), 5-year (293 observations), 10-year (1197 observations), and 30-year (49 observations).

¹¹ The final step in each case was to search all other fixed-income securities in the new issues database – investment-grade and unrated issues – to ensure that first-time high-yield issuers had not previously issued investment-grade or unrated debt. This search was based on an exact 6-digit cusip match.

and S&P. A second approach includes dummy variables for each unique pair of Moody's and S&P ratings in the sample; this approach controls for variations in minor as well as major rating levels but results in 40 rating categories.¹² The second approach substantially increases the adjusted- R^2 of the regressions and lowers the standard errors of the regression estimates, suggesting that the predictive power of the additional ratings information more than offsets the loss of degrees of freedom.

A third method of controlling for ratings is to assign values to Moody's and S&P ratings and use these to create a numeric bond rating variable. For example, a Moody's rating of Ba1 and its S&P equivalent (BB +) are assigned a value of 12, a Moody's rating of Ba2 and its S&P equivalent (BB) are assigned a value of 11, and so forth.¹³ The rating variable is set equal to the average numeric rating or, in the case of securities rated by only one agency, that agency's numeric rating. This approach preserves information about minor rating levels but conserves degrees of freedom. It implicitly assumes, however, that each unit change in ratings has the same effect on credit spreads. Despite this restrictive assumption, the results obtained using the numeric rating variable are virtually identical to those obtained using the full set of rating dummies, and I report these results below.

My other control variables include the following: (1) log of issue size in millions of dollars; (2) log of maturity in years; (3) a senior dummy, set equal to 1 for senior debt and 0 for subordinated debt; (4) a zero-coupon dummy; (5) the spread of the yield on the Merrill Lynch 175 High-Yield index over the 10-year Treasury; and (6) a time trend. These variables are similar to controls used in Chaplinsky and Ramchand (1997) and in other studies of bond pricing that they cite. Sample means and distributions of these variables are described in Table 4. The most striking characteristic of the sample is the high percentage of first-time bond issuers, 58.7%. This percentage is remarkably stable over time: it reaches a sample low of 51% in 1993 and fluctuates between 57% and 63% thereafter.

4. Results

Table 5 reports results for the credit-spread regressions outlined above. The following is a discussion of these results as well as those for some specifications not reported in the table.

¹² For securities that are rated differently by Moody's and S&P, I do not make distinctions based on which agency assigns which rating; were I to do so, there would be nearly 80 rating categories. In addition, bonds rated by only one agency are treated as if both agencies assigned the same rating.

¹³ Billett et al. (1995) use this procedure, albeit in a very different context.

Table 4
Descriptive statistics of the regression sample

The regression sample includes all below-investment-grade straight debt issued by U.S. nonfinancial firms between January 1, 1993 and May 31, 1998. The rating categories in the upper panel are described in Table 2. The rating variable in the lower panel is created by assigning a value of 12 to a Moody's rating of Ba1 and its S&P equivalent (BB +), a value of 11 to a Moody's rating of Ba2 and its S&P equivalent (BB), and so forth. For bonds rated by both Moody's and S&P, the average numeric rating is used; for bonds rated by only one agency, that agency's rating is used.

Number of issues by:					
Year		Rating		Industry	
1993	281	Split investment-grade	127	Manufacturing	581
1994	145	BB	223	Services	255
1995	134	Split BB	109	Communications	229
1996	265	B	990	Trade	189
1997	431	Split B	69	Energy	112
1998 ^a	306	Below-B	44	Transportation	71
				Mining, Construction & Agriculture	67
				Utilities	58
Total	1562		1562		1562
Sample characteristics:					
Average rating			8.6		
Average issue size (\$ mil)			196.5		
Average maturity (years)			9.8		
Percent senior			60.9		
Percent zero coupon			6.7		
Percent first-time bond issuers			58.7		
Percent privately owned issuers			29.2		
Percent Rule 144A			54.9		

^aThrough May 31, 1998.

4.1. The baseline regression

Table 5, Column 1 presents coefficient estimates for the baseline credit-spread regression containing all of the control variables but excluding the variables used to test the inadequate-disclosure hypothesis. The coefficient on rating, -0.68 , has the expected sign and implies that a downgrade from one rating category to the next lowest rating category results in a 68-basis-point increase in credit spreads. Thus, a downgrade from Ba1 to Ba2, or from Ba3 to B1, is associated with a 68-basis-point increase in spreads. Accordingly, a full letter

Table 5

Credit-spread regressions for below-investment-grade straight debt, 1993–1998

The sample includes all below-investment-grade straight debt issued by U.S. nonfinancial firms between January 1, 1993 and May 31, 1998. The dependent variable is the spread of an issue's yield-to-maturity over that of the closest maturity treasury. All regressions include a constant term. Rating is a numeric rating variable created by assigning a value of 12 to a Moody's rating of Ba1 and its S&P equivalent (BB +), a value of 11 to Moody's rating of Ba2 and its S&P equivalent (BB), and so forth. For bonds rated by both Moody's and S&P, the average numeric rating is used; for bonds rated by only one agency, that agency's rating is used. The senior dummy is 1 for senior debt and 0 for subordinated. The zero-coupon dummy is 1 for zero-coupon issues (including issues that step-up before maturity) and 0 otherwise. Year is a time trend equal to the year of issuance minus 1993. The 144A dummy is 1 for 144A issues and 0 for public issues. The first-time issuer dummy is 1 for firms that have not previously issued fixed-income securities included in Security Data Company's New Issues database (including straight debt, convertible debt, straight preferred, or convertible preferred). Privately owned firms include issuers that are neither publicly owned nor subsidiaries of publicly owned companies at the time of issuance. Standard errors are in parentheses.

Variables	(1)	(2)	(3)	(4)	(5)
<i>Issue characteristics</i>					
Rating	-0.68 ^a (0.01)	-0.67 ^a (0.02)	-0.63 ^a (0.02)	-0.63 ^a (0.02)	-0.63 ^a (0.02)
Log (issue size in \$ mil)	-0.12 ^a (0.03)	-0.12 ^a (0.03)	-0.10 ^a (0.03)	-0.10 ^a (0.03)	-0.11 ^a (0.03)
Log (maturity in years)	-0.26 ^a (0.08)	-0.26 ^a (0.08)	-0.23 ^a (0.08)	-0.23 ^a (0.08)	-0.23 ^a (0.08)
Senior	0.82 ^a (0.05)	0.81 ^a (0.05)	0.79 ^a (0.05)	0.79 ^a (0.05)	0.79 ^a (0.05)
Zero coupon	0.65 ^a (0.10)	0.67 ^a (0.10)	0.68 ^a (0.10)	0.68 ^a (0.10)	0.68 ^a (0.10)
<i>Market condition variables</i>					
Merrill Lynch 175 index minus 10 yr Treasury	0.57 ^a (0.06)	0.58 ^a (0.06)	0.58 ^a (0.06)	0.58 ^a (0.06)	0.59 ^a (0.06)
Year	-0.13 ^a (0.02)	-0.12 ^a (0.02)	-0.11 ^a (0.02)	-0.13 ^a (0.02)	-0.11 ^a (0.02)
<i>Inadequate disclosure hypothesis variables</i>					
144A		0.41 ^a (0.11)	0.33 ^a (0.12)	0.33 ^a (0.12)	0.36 ^a (0.11)
144A ^b Year		-0.08 ^b (0.03)	-0.08 ^b (0.03)	-0.09 ^a (0.03)	-0.08 ^b (0.03)
144A ^b First-time bond issuer			0.07 (0.10)		
144A ^b Privately owned			-0.06 (0.11)		

Table 5 (continued)

Variables	(1)	(2)	(3)	(4)	(5)
First-time bond issuer			0.32 ^a (0.07)	0.24 ^a (0.09)	0.35 ^a (0.05)
Privately owned			0.18 ^b (0.09)	0.17 (0.01)	0.14 ^a (0.05)
First-time bond issuer ^b Year				0.04 (0.03)	
Privately owned ^b Year				– 0.01 (0.03)	
Number of observations	1562	1562	1562	1562	1562
Adjusted-R-squared	0.66	0.67	0.68	0.68	0.68

^aSignificant at the 1% level.

^bSignificant at the 5% level.

downgrade – from Ba1 to B1, for example – is associated with approximately a 200-basis-point increase in spreads.

The coefficients on issue size and maturity are both negative and statistically significant at the 1% level. The expected sign on issue size is negative, as larger issues are thought to be somewhat more liquid. Larger issues are also undertaken by larger firms, about which there is generally more reliable information. The expected sign on issue maturity is uncertain – that is, there are competing theoretical effects (Helwege and Turner, 1999). The negative coefficient, however, is consistent with other studies that document a negatively sloped credit yield curve for below-investment-grade debt (Sarig and Warga, 1989; Fons, 1994).¹⁴

The coefficients on the senior and zero-coupon dummies are both positive and statistically significant, as in Fridson and Garman (1997, 1998). The coefficient on the senior dummy implies that senior debt yields a sizable 82 basis points *more* than subordinated debt with the same rating, size, etc. This result likely reflects the method used by rating agencies to assign ratings to subordinated debt. According to Standard & Poor's, subordinated high-yield debt is usually assigned a rating two minor levels below the rating of senior debt of the same firm – a process described as 'notching' (*Standard & Poor's Creditweek*, May 22,

¹⁴ Helwege and Turner (1999) argue that empirical estimates of a negatively sloped yield curve reflect sample selection bias: within a rating class, less risky firms are more likely to issue longer maturity debt. Using a sample of high-yield bonds issued on the same day by the same firm with the same rating and priority, they document a positive relation between maturity and credit spreads.

1995, p. 53). The lower ratings assigned to subordinated debt are intended to reflect the greater losses subordinated bondholders experience in default (S&P assumes that the probability of default is the same for senior and subordinated debt). The premium on senior debt implies that the market views the notching of subordinated debt as excessive.

The coefficient on the zero-coupon dummy is also large – 65 basis points. The premium on zero-coupon debt likely reflects the value of the issuer's default option. Because interest payments on zero-coupon bonds are partially deferred, the issuer's default option has a higher exercise price than if it issued a par bond with the same yield-to-maturity.¹⁵ The higher exercise price, in turn, may result in a greater risk of default or larger investor losses in the event of default than is reflected in a security's rating.

Finally, both controls for overall market conditions are significant. The Merrill Lynch 175 index includes 175 actively traded high-yield issues. Owing to the difficulty of obtaining reliable transaction data in the bond market, this index, like any bond index, is an imperfect measure of general market conditions and contains a substantial amount of noise. This noise may bias downward the estimated coefficient on the spread of this index over the 10-year Treasury. A time trend reflects the secular decline in spreads over the 1993–98 period not captured by the market spread variable, 13 basis points per year.

In addition to the control variables shown in Table 5, I also experiment with yearly dummies (instead of a time trend) and industry dummies. The yearly dummies result in virtually no improvement in explanatory power over the use of a simple time trend. The contribution of industry dummies also is marginal. The sample is divided into seven industry groups based on principal two-digit SIC codes: manufacturing (20–39), transportation (40–47), communications (48), utilities (49), trade (50–59), services (70 & up), energy (13), and mining, construction & agriculture (below 20, excluding 13). No industry dummies are significant at the 1% level, and only energy and utility dummies are significant at the 5% level. Negative coefficients on these dummies indicate slightly lower spreads on energy and utility issues. Though industry dummies are not included in the regressions reported below, their inclusion has no effect on any of the principal results.

4.2. *Tests of inadequate disclosure*

The overall fit of the basic specification appears quite good. Thus, it appears to be a reasonable model to gauge whether investors require premiums on 144A issues.

¹⁵ None of the zero-coupon securities in my data set are pure 'zeros'; instead, they are all 'reset' or 'set-up' notes. These securities, which are sold at a discount, pay no interest for the first several years and full coupons thereafter. Thus, only the initial interest payments are deferred.

Table 5, Column 2 adds two variables to the basic specification: a dummy variable for 144A issues and this dummy variable interacted with a time trend. The coefficient on the 144A dummy is a statistically significant 41 basis points. The interaction between the 144A dummy and the time trend is a statistically significant – 8 basis points, suggesting that premiums on 144A issues, while positive initially, vanish by the end of the sample period. The inclusion of the 144A variables results in a small increase in the regression's explanatory power and has little effect on the remaining regression coefficients.

The results reported in Column 2 suggest that high-yield investors initially required economically significant premiums on 144A issues, but the regression does not test a key implication of the inadequate-disclosure hypothesis: whether 144A spreads are (or were) highest for first-time bond issuers and privately owned firms. The specification in Column 3 adds interaction terms between the 144A dummy and the first-time issuer and privately owned issuer dummies in order to test this hypothesis. It also includes the latter by themselves to ensure that any apparently significant coefficients on the interaction terms do not reflect the independent effects of being first-time issuers or privately owned.

The inclusion of these additional variables yields two key results. First, the coefficient on the 144A dummy is reduced from 41 to 33 basis points while the coefficients on the interaction terms are almost identically zero. This specification implies that premiums on 144A issues vanish by 1997 and that in any event *they do not reflect investor concerns about inadequate disclosure*. Second, issuer characteristics in general are relevant to investors. Investors appear to require premiums of around 32 basis points on bonds issued by first-time issuers and 18 basis points on those issued by privately owned firms. Thus, a privately owned, first-time issuer in the below-investment-grade market is required to pay an additional 50 basis points over a publicly owned, repeat issuer, *regardless of whether securities are issued in the 144A or public market*. In Column 4, dummy variables for first-time issuers and privately owned firms are interacted with a time trend to examine whether these premiums vary systematically over time; they do not. The specification in Column 5 excludes all interaction terms; in this case the coefficients on both the first-time issuer and privately owned dummy variables are significant at the 1% level.¹⁶

Table 6 reports estimates of 144A, first-time issuer, and privately owned issuer premiums from a set of annual regressions. These results suggest that, in the

¹⁶I try including an interaction term between the first-time issuer and privately owned dummy variables – that is, a dummy variable equal to 1 for a firm that is a first-time issuer *and* privately owned and 0 otherwise. The interaction term is insignificant and has little effect on the other coefficients. Thus, the effects of being a first-time issuer and privately owned appear to be largely independent.

Table 6

Estimates of premiums for 144As, first-time bond issuers, and privately owned issuers from annual regressions

Table entries are regression coefficients for 144A, first-time issuer, and privately owned issuer dummy variables in annual regressions. The sample is the same one used in the regressions reported in Table 5, broken out by year of issuance. The specification for each of the annual regressions is the same: It includes each of the issue characteristic variables shown in Table 5, the spread of the Merrill Lynch 175 index over 10-year Treasuries, and dummy variables for 144A issues, first-time bond issuers, and privately owned issuers. Standard errors are in parentheses.

Year (sample size)	Estimated premiums for:		
	144As	First-time issuers	Privately owned firms
1993 (<i>n</i> = 281)	0.28 (0.15)	0.23 ^b (0.11)	0.18 (0.12)
1994 (<i>n</i> = 145)	0.62 ^a (0.22)	0.34 ^b (0.17)	0.17 (0.20)
1995 (<i>n</i> = 134)	-0.09 (0.22)	0.50 ^b (0.20)	0.30 (0.23)
1996 (<i>n</i> = 265)	0.07 (0.12)	0.09 (0.13)	0.35 ^b (0.14)
1997 (<i>n</i> = 430)	0.04 (0.11)	0.34 ^a (0.08)	0.13 (0.09)
1998 (<i>n</i> = 306)	0.18 (0.14)	0.41 ^a (0.10)	0.02 (0.11)
Average premium	0.18	0.32	0.19
Median premium	0.13	0.34	0.18

^aSignificant at the 1% level.

^bSignificant at the 5% level.

domestic high-yield market, 144A premiums are substantial in 1993 and 1994 and negligible thereafter. Estimates of premiums required of first-time issuers are remarkably robust: they are significant in five of the six years at the 5% level, and the mean and median of the annual estimates – 32 and 34 basis points, respectively – are roughly the same as the estimate obtained for the full sample. Estimates of premiums for privately owned issuers are considerably less robust. Though positive in each year, they are statistically significant only in 1996.

To further gauge the robustness of my results, I re-estimate the credit-spread regressions for the sub-sample of B-rated securities (securities rated B by both Moody's and S&P or by one agency if only one agency rates an issue). Though they account for nearly two-thirds of the full sample (Table 4), the B-rated securities are significantly more homogenous with respect to credit quality. The full sample includes, at one extreme, securities with split investment-grade ratings, and, at the other extreme, securities deemed as risky as those in or near default. To the extent that the relation between credit spreads and the other regression variables varies systematically with credit quality, the credit-spread regressions that I estimate are mis-specified. Restricting the regressions to a more homogenous group of securities should minimize the effects of mis-specification on the regression results.

Table 7, Column 1 reports results for the baseline model. Because there are only six rating pairs in the B-rated sample I report results for the specification that uses the full set of rating dummies. The coefficients on the five rating

Table 7
Credit-spread regressions for B-rated straight debt, 1993–1998.

The B-rated sub-sample includes debt rated B by both Moody's and S&P, or by one agency if only one agency rates the issue. The dependent variable is the spread of an issue's yield-to-maturity over that of the closest maturity treasury. All regressions include a constant term. Rating dummies indicate the pair of ratings assigned by Moody's and S&P where Moody's ratings of B1, B2, and B3 correspond to S&P ratings of B + , B, and B- (bonds rated by only one agency are treated as if both agencies assigned the same rating). The senior dummy is 1 for senior debt and 0 for subordinated. The zero-coupon dummy is 1 for zero-coupon issues (including issues that step-up before maturity) and 0 otherwise. Year is a time trend equal to the year of issuance minus 1993. The 144A dummy is 1 for 144A issues and 0 for public issues. The first-time issuer dummy is 1 for firms that have not previously issued fixed-income securities included in Security Data Company's New Issues database (including straight debt, convertible debt, straight preferred, or convertible preferred). Privately owned firms include issuers that are neither publicly owned nor subsidiaries of publicly owned companies at the time of issuance. Standard errors are in parentheses.

Variables	(1)	(2)	(3)
<i>Rating dummies for B-rated sub-sample</i>			
B1/B2	0.37 ^a (0.11)	0.33 ^a (0.11)	0.33 ^a (0.11)
B1/B3	0.88 ^a (0.16)	0.74 ^a (0.16)	0.75 ^a (0.16)
B2/B2	0.66 ^a (0.11)	0.56 ^a (0.11)	0.57 ^a (0.11)
B2/B3	0.99 ^a (0.11)	0.86 ^a (0.11)	0.88 ^a (0.11)
B3/B3	1.32 ^a (0.11)	1.16 ^a (0.11)	1.18 ^a (0.11)

Table 7 (continued)

Variables	(1)	(2)	(3)
<i>Issue characteristics</i>			
Log (issue size in \$ mil)	− 0.26 ^a (0.05)	− 0.20 ^a (0.05)	− 0.20 ^a (0.05)
Log (maturity in years)	− 1.35 ^a (0.14)	− 1.30 ^a (0.14)	− 1.30 ^a (0.14)
Senior	0.77 ^a (0.06)	0.73 ^a (0.06)	0.74 ^a (0.06)
Zero coupon	0.75 ^a (0.13)	0.75 ^a (0.12)	0.75 ^a (0.12)
<i>Market condition variables</i>			
Merrill Lynch 175 index minus 10-yr Treasury	0.73 ^a (0.08)	0.76 ^a (0.08)	0.76 ^a (0.08)
Year	− 0.12 ^a (0.03)	− 0.05 (0.03)	− 0.06 (0.03)
<i>Inadequate disclosure hypothesis variables</i>			
144A		0.60 ^a (0.15)	0.48 ^a (0.13)
144A ^b Year		− 0.15 ^a (0.04)	− 0.15 ^a (0.04)
144A ^b First-time bond issuer		− 0.20 (0.12)	
144A ^b Privately owned		0.06 (0.13)	
First-time bond issuer		0.44 ^a (0.10)	0.32 ^a (0.06)
Privately owned		0.08 (0.11)	0.11 (0.06)
Number of Observations	990	990	990
Adjusted-R ²	0.48	0.51	0.51

^aSignificant at the 1% level.

^bSignificant at the 5% level.

dummies included in the regression (the B1/B1 dummy is omitted, as the regression includes a constant term) represent the incremental spread on the specified rating class over the spread on B1/B1 issues. With the exception of B1/B3 bonds, the magnitude of the coefficients appears roughly consistent with the cardinality assumption described earlier. That is, a unit change in an issuer's average rating increases spreads approximately 66 basis points, and a half-unit change increases spreads approximately 33 basis points. The coefficients on size

and maturity are negative, as in the full-sample regressions, and the coefficients on the senior and zero-coupon dummies are virtually identical to full-sample estimates. Not surprisingly, the adjusted R-squared of the baseline specification is lower for B-rated bonds (0.48) than for the full sample (0.66). One would expect that credit ratings would explain a smaller *proportion* of the variation in credit spreads within a sample in which there is less variation in credit quality.

The key result that 144A premiums are not incrementally higher for first-time issuers or privately owned firms appears robust to using a more homogenous regression sample (Column 2). The coefficient on the interaction between the 144A and first-time issuer dummies has the ‘wrong’ sign and is statistically insignificant, while the coefficient on the interaction between the 144A and privately owned dummies is again almost identically zero. Likewise, there is strong evidence that investors require premiums from first-time issuers; the estimated premium, 32 basis points in Column 3, is similar to the full sample and annual estimates reported in Tables 5 and 6. There is only weak evidence that investors require premiums from privately owned firms; the estimated premium is 11 basis points and is marginally significant (p -value = 0.06).

4.3. *Discussion of first-time issuer and privately owned issuer premiums*

What factors account for the premiums that investors consistently require of first-time issuers and to a lesser extent privately owned firms? Lack of disclosure in the form of 1934 Exchange Act reports (10-Ks, 10-Qs, 8-Ks) may be part of the story. In my sample, a company’s private/public status is a good proxy for whether a company files such reports: companies that are privately owned are unlikely to file them, whereas companies that are publicly owned almost certainly do.¹⁷ The stronger results for first-time issuers, however, suggest that factors other than SEC-mandated disclosure are also at work. One such factor may be the information that issuers provide informally to institutional investors and credit analysts on an ongoing basis. This information is not necessarily the same as the information disclosed in periodic SEC filings. Thus, even if a first-time issuer is publicly owned and meets Exchange Act reporting requirements, high-yield investors may lack critical information that they have about repeat issuers and require risk premiums to compensate them for the greater uncertainty.

An alternative interpretation of the first-time issuer premium is that issuers need to establish a reputation for not taking advantage of bondholders. There

¹⁷ Exchange Act reports are required of all companies with publicly traded securities except those with fewer than 300 investors (Levin, 1998). Only 79 of the 456 privately owned firms in my sample had public traded debt (i.e. were not first-time issuers), and some of these firms may have fewer than 300 bondholders. Conversely, publicly owned companies generally have more than 300 shareholders and therefore must file.

are many ways in which issuers can take advantage of bondholders, only some of which are explicitly precluded in the covenants and other provisions of the bond indenture. Eventually, a borrower's reputation for not behaving opportunistically results in lower interest rates, and it is the prospect of lower interest rates that helps elicit non-opportunistic behavior in the first place (Diamond, 1989). Until firms acquire such a reputation, they are perceived as a greater risk and charged a higher interest rate.

5. Conclusions

This paper's primary findings are that domestic high-yield issuers use Rule 144A to issue securities that are subsequently registered and are therefore fully public in nature, and that investors do not require premiums on 144A issues as compensation for inadequate disclosure. Its central message is that the adoption of Rule 144A has been a favorable development for the high-yield market. By circumventing the time-consuming securities registration process at issuance, high-yield firms are able to issue securities with less uncertainty about the final terms and conditions and receive funds more quickly, while apparently imposing no significant information costs on investors. Ironically, these benefits – indeed, the very manner in which Rule 144A has been used by high-yield issuers – were probably not anticipated by the SEC in adopting Rule 144A.

A broader implication of this study is that sophisticated investors do not need, and therefore do not value, the incremental information provided by securities registration. The presumption that investors can fend for themselves with respect to obtaining information has long been the basis for the private placement exemption from the registration provisions of the Securities Act. This presumption is inherently difficult to test, as it is infrequent that otherwise similar securities are offered privately and publicly, as has been the case in the high-yield bond market.

My results lend support to SEC efforts to shift the focus of registration and disclosure from securities to firms. In the high-yield debt market, securities registration (at the time of issuance) is costly to issuers and of little apparent value to investors. Moreover, issuers are finding ways of avoiding registration under existing law. Company registration would also allow the SEC to put more emphasis on improving the quality of ongoing disclosure. This emphasis appears warranted, as investors appear to value such information.

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