

6-22-2010

Speed of Issuance, Lender, Specialization, and the Rise of the 144A Debt Market

Rongbing Huang

Kennesaw State University, rhuang1@kennesaw.edu

Gabriel G. Ramirez

Kennesaw State University, gramirez@kennesaw.edu

Follow this and additional works at: <https://digitalcommons.kennesaw.edu/facpubs>



Part of the [Corporate Finance Commons](#), and the [Finance and Financial Management Commons](#)

Recommended Citation

Huang, Rongbing, and Gabriel G. Ramirez. "Speed of Issuance, Lender Specialization, and the Rise of the 144A Debt Market." *Financial Management* 39.2 (2010): 643-673.

This Article is brought to you for free and open access by DigitalCommons@Kennesaw State University. It has been accepted for inclusion in Faculty Publications by an authorized administrator of DigitalCommons@Kennesaw State University. For more information, please contact digitalcommons@kennesaw.edu.

Speed of Issuance, Lender Specialization, and the Rise of the 144A Debt Market

September 8, 2009

Financial Management, forthcoming

Using a large sample of convertible and straight debt issues in the public, 144A, and bank loan markets from 1991-2004, we find that the 144A market has risen largely at the expense of the non-shelf public market, the overwhelming majority of the 144A issues are subsequently registered, and straight debt issuers with the highest credit quality and transparency tend to use the shelf public market. Our findings suggest that firms' preference for speed of issuance drives the growth of the 144A market, and banks and qualified institutional buyers have advantages over public lenders in handling credit risk and information asymmetry.

Rongbing Huang is an Assistant Professor in the Department of Economics, Finance, and Quantitative Analysis, Michael Coles College of Business, Kennesaw State University, Kennesaw, GA 30144.

Gabriel G. Ramírez is a Professor in the Department of Economics, Finance, and Quantitative Analysis, Michael Coles College of Business, Kennesaw State University, Kennesaw, GA 30144.

We thank the Editor, Doug Emery, Jacqueline Garner, Jean Helwege, Jay Ritter, Lei Zhou, an anonymous referee, participants at the Finance Conference in Honor of Stephen D. Smith at the Federal Reserve Bank of Atlanta and the Financial Management Association 2007 Conference for useful comments, Michael Roberts for providing DealScan-Compustat link information, Vandee Marquez at Sagient Research for help with the PlacementTracker database, and the Graduate College and the Coles College of Business at the Kennesaw State University for financial support.

I. Introduction

Rule 144A was approved by the Securities and Exchanges Commission (SEC) in April 1990. This rule allows qualified institutional investors (also known as QIBs) to buy privately placed securities at issuance and trade the securities after issuance among themselves without having to hold them for two years. The Rule 144A market allows speedy issuance because a pre-issue registration with the SEC is not required. Several earlier papers document a rapid growth of the 144A market since its inception (Fenn, 2000; Livingston and Zhou, 2002; Chaplinsky and Ramchand, 2004).

The existing literature provides two possible explanations for the increased use of the 144A market by U.S. firms. The first one is the speed of issuance hypothesis. Firms choose the 144A market because it allows them to issue securities quickly. Speed of issuance is perhaps especially valuable for low credit quality firms as they are likely to have urgent financing needs. Consistent with this view, Fenn (2000) finds that over 80% of the junk bond offerings by U.S. firms in 1997 occurred in the 144A market. The other explanation is the lender specialization hypothesis. Under this hypothesis, private lenders (e.g., banks and QIBs) have significant advantages over public lenders in terms of information production, monitoring efficiency, and liquidation and renegotiation efficiency in financial distress (Diamond, 1984; Fama, 1985; James, 1987; Chemmanur and Fulghieri, 1994). However, these private lenders, particularly banks, are likely to obtain and exploit an informational monopoly over their borrowers (Rajan, 1992). It is possible that, for low credit quality and high information asymmetry firms, the advantages of borrowing from banks and QIBs instead of public lenders outweigh the disadvantages. Denis and Mihov (2003) examine the choice among bank, private non-bank (mostly 144A), and public straight debt using a multinomial logit model. They conclude that credit quality is the primary

determinant of the issuer's choice among the public, 144A, and bank loan markets. Specifically, they find that firms with the highest credit quality borrow from public lenders, firms with medium credit quality borrow from banks, and firms with the lowest credit quality borrow from non-bank private lenders (mostly QIBs).

Existing studies of the choice between the public and 144A markets are limited in several regards. First, existing studies focus exclusively on straight debt issues. Like speculative grade straight debt issuers, convertible debt issuers are likely to be low credit quality firms with urgent financing needs. It is possible that firms' security and market choices are jointly determined by their need for speed of issuance and lender specialization. Thus, it is important to include convertible debt offerings in a study of the role of speed of issuance and lender specialization in the choice of markets.

Second, and perhaps more importantly, existing studies regarding the choice between public and 144A markets do not distinguish between shelf and non-shelf registered public issues. Although it could take several weeks or months to file and get the SEC's approval for a shelf registration, a firm can issue registered securities multiple times quickly over the two years following the approval of the shelf registration. Thus, speed of issuance can also be achieved with a shelf registration. Similarly, the bank loan market provides speed of issuance. Thus, a study of the speed of issuance needs to consider the interactions between these markets.

Third, and equally important, Denis and Mihov (2003) do not examine subsequent registrations of 144A issues. A 144A issue can be registered with the SEC after issuance and can be publicly traded once the registration is approved. Thus, issuers of subsequently registered 144A issues are only using the 144A market temporarily. In other words, the issuers' intent is not to stay in the 144A market, but to go to the public market soon after issuance. In these instances,

QIBs are better able to perform rapid due diligence than public lenders. But the temporary nature of subsequently registered 144A debt issues suggests that QIBs are unlikely to be as important as banks in monitoring, liquidation, and renegotiation.

Finally, existing studies do not address whether changing firm characteristics and market conditions are responsible for the rise of the 144A market. These studies were conducted in the early days of the 144A market. Specifically, the sample used by Denis and Mihov (2003) only covers 1995-1996 and the sample of Fenn (2000) covers 1990-1998. Furthermore, Fenn (2000) does not explicitly model the determinants of the market choice. An analysis of the market choice using a longer span of time is needed to study the long-term trend in the 144A market for the issuance of securities, and will shed more light on the contributions of speed of issuance and lender specialization to the growth of the market.

In this paper, we argue that the structures of security markets in the U.S. reflect issuing firms' need for an interplay of speed of issuance and lender specialization. Thus, a study of the role of speed of issuance and/or lender specialization in the choice of debt markets should consider all the major debt markets (shelf public, non-shelf public, 144A, and bank loan markets) simultaneously.

We distinguish between the short-term and long-term roles of different lenders. In the short term, since speed of issuance reduces the underwriters' ability to certify the quality of a security issue (Denis, 1991), more sophisticated lenders (e.g., banks and QIBs) are perhaps better able to perform rapid due diligence by themselves at issuance than less sophisticated lenders (e.g., public lenders). In this regard, the speed of issuance and lender specialization hypotheses are not necessarily mutually exclusive. In the long term, lenders also differ in monitoring, renegotiation, and liquidation efficiencies. We argue that it is important to understand whether the incremental

role of QIBs over public lenders extends beyond rapid due diligence and whether banks enjoy an efficiency advantage over QIBs in terms of monitoring, renegotiation, and liquidation.

We contribute to the literature by conducting a comprehensive analysis of the issuer's choice of convertible and straight debt and the issuer's choice among the shelf public, non-shelf public, 144A, and bank loan markets from 1991-2004. We find that the rise of the 144A market is largely driven by firms' preference for speed of issuance. We also find that banks and QIBs have advantages over public lenders in dealing with firms with high credit risk and information asymmetry. Overall, our findings provide support for an interplay of the speed of issuance and lender specialization hypotheses and shed light on their unique contributions to market segmentation.

Specifically, we first document that from 1991-2004, firms increasingly issue convertible and straight debt in the 144A market instead of the public market. In 1991, less than one year after inception, the 144A market accounted for approximately 12% of the dollar volume of convertible bond offerings while in 2004, the percentage increased to about 82%. Similarly, for junk bonds offered in the public and 144A markets, the 144A market's dollar volume share increased from 0% in 1991 to about 83% in 2004. In contrast, non-shelf registration of public issues for both convertible and straight debt indicates a downward trend from 1991 and has practically disappeared in the most recent years. Shelf registration of public issues demonstrates a general upward trend until 2001, at which point debt issuance started to decrease across the board. The dollar volume of the bank loan market increased from 1991-1997, but does not show a distinctive trend from 1998-2004. The migration from the non-shelf public market to the 144A market, but not from the shelf public market or the bank loan market to the 144A market, suggests that the shelf public and bank loan markets have some advantages over the non-shelf

public market, although we will further control for firm characteristics and market conditions in our multivariate analysis.

We also document that about 88% of the convertible debt issues and about 91% of the straight debt issues in the 144A market are subsequently registered with the SEC and that for over 80% of the registered issues, the registration is filed within three months after the deal's closing date. These results suggest that most of the 144A issues are actually meant to be publicly traded shortly after the offering. For these issues, the incremental role of QIBs over public lenders is to facilitate the issuing process.

A large percentage of the convertible debt issues and the vast majority of the bank loans are not rated. Thus, in order to analyze the role of credit quality in the market choice, we compute an implied credit rating for the unrated issues. We find that roughly 69% of the 144A issues and about 92% of the bank loans have a speculative grade rating or an implied rating of speculative grade if unrated. This finding is consistent with the lender specialization hypothesis that banks and QIBs are better able to serve low credit quality firms than public lenders.

Finally, we estimate a nested logit model for firms' debt security choice and the choice among the shelf public, non-shelf public, 144A, and bank loan markets. When comparing the shelf public and 144A markets, we find that firms with a shelf public issue in the year immediately prior to the current issue are more likely to issue shelf registered convertible and straight debt. There is no significant difference between the non-shelf and 144A markets in terms of a prior shelf issue. Convertible debt issuers without a credit rating are more likely to issue in the 144A market instead of the shelf or non-shelf public markets. Firms without a credit rating are also more likely to use the bank loan market instead of other markets for straight debt issues. We find that firms' propensity to use the 144A market has increased over time after controlling

for credit quality and other firm and issue characteristics. Furthermore, we find that the rise of the 144A market is accompanied by the demise of the non-shelf public market instead of the shelf public or bank loan market. These results suggest that the growth of the 144A market is driven by a need for speed of issuance.

Our nested logit results also provide support for the lender specialization hypothesis, but only for straight debt issues. Conditional on straight debt issuance, firms with the lowest credit risk and information asymmetry use the shelf public market, firms with medium credit risk and information asymmetry use the non-shelf public market, and firms with the highest credit risk and information asymmetry use the 144A and bank loan markets. Relative to other lenders, banks specialize in shorter term debt. Overall, the results for straight debt issues suggest that banks and QIBs have advantages over public lenders in handling credit risk and information asymmetry.

Our nested logit results provide mixed evidence regarding the relative efficiencies of QIBs and banks in dealing with credit risk and information asymmetry. Conditional on straight debt issuance, unrated, speculative grade, and smaller firms are more likely to borrow from banks than from the 144A market. This is inconsistent with the findings of Denis and Mihov (2003) that QIBs have advantages over banks in dealing with low credit quality firms. However, we do find that firms with a higher stock return volatility and higher total debt ratio are more likely to use 144A debt than bank debt.

Lastly, we find that growth firms are more likely to use the 144A market instead of the shelf public market for straight debt issues and that market conditions play an important role in the market choice for both convertible and straight debt issues.

The rest of our paper is organized as follows. Section II describes the data and sample selection. Section III presents descriptive statistics and the results of the regression analyses. Section IV provides our conclusions.

II. Data and Sample Selection

We first download all public and 144A convertible and straight debt offerings of U.S. domestic non-financial firms from 1991-2004 in Thomson Reuters' Securities Data Company Global New Issues database (commonly referred to as the SDC database in prior research). We start our sample period from 1991 because the Rule 144A placement of securities to QIBs was first allowed by the SEC in April 1990.

Before imposing other screening restrictions, we have 414 public and 855 Rule 144A convertible debt offerings by non-financial U.S. firms during 1991-2004. Among them, 384 public issues and 792 Rule 144A issues can be linked to CRSP and Compustat. Excluding mandatory conversions, exchangeable offers, perpetuities, and units reduces the sample to 337 public and 775 Rule 144A issues. Removing floating rate issues and issues with missing values on key issue characteristics (maturity, gross proceeds, yield to maturity, and conversion premium) and firm characteristics further reduces our sample to 284 public and 554 Rule 144A issues.¹ Gross spread is available for 741 of these 838 issues.

¹ Information on gross spreads is available in SDC for 282 public offers, but only 195 Rule 144A offers. Missing gross spreads for 144A offers are concentrated in recent years. The PlacementTracker database of Sagient Research provides much more comprehensive coverage of placement fees for Rule 144A convertible debt issues in recent years than SDC. Therefore, we obtain additional information on fees from PlacementTracker resulting in 459 Rule 144A issues with non-missing fees. When the conversion premium is missing in SDC, we also use information from PlacementTracker. For some issues, yield to maturity and coupon rate are not equal even though the convertible debt is issued at par. After double checking these issues using information from the Fixed Income Securities Database (FISD), we reset yield to maturity to coupon rate. For an issue on October 5, 2000 by Dominion Resources Inc., SDC reports an offer price of \$50 and a yield to maturity of 26.457%, while FISD reports an offer price of \$100 and a missing yield to maturity. We drop this issue because of the discrepancy.

Similarly, there are 7,078 public and 2,245 Rule 144A straight debt issues by non-financial U.S. firms from 1991-2004. Among them, 6,229 public issues and 1,741 Rule 144A issues are by firms listed in both CRSP and Compustat. Excluding exchangeable offers, perpetuities, and units reduces the sample to 6,206 public and 1,697 Rule 144A issues. We then remove floating rate issues and issues with missing values on key issue characteristics (maturity, gross proceeds, and yield to maturity) and firm characteristics resulting in a final sample of 4,773 public and 1,414 Rule 144A issues. Gross spread is available for 4,551 of these 6,187 issues.

We use Reuters Loan Pricing Corporation's DealScan database to obtain information regarding bank loans. We focus on term loans and revolvers with maturity of at least one year. There are 37,974 such loans completed by non-financial U.S. firms from 1991-2004. We are able to link 17,162 of the loans to CRSP and Compustat.² Our final sample includes 15,112 bank loans with non-missing values on key loan and firm characteristics.³

III. Empirical Analysis

A. Descriptive Analysis

1. Dynamics of Convertible and Straight Debt Offerings in U.S. Markets

Figure IA plots the total gross proceeds in billions of dollars in 2004 purchasing power for public and Rule 144A convertible debt offerings by publicly traded non-financial U.S. firms each year from 1991-2004. Similarly, Figure IB illustrates the total gross proceeds for public and

² We use ticker symbols or company names of the borrower or the borrower's parent on the facility start date to match DealScan with CRSP. When matching them by ticker symbols, we further check company names to remove mismatches. Since only 19,358 (or about 51%) of loans are made to firms that have a ticker symbol in DealScan, we also use a file kindly provided by Michael Roberts to increase the number of matches. The file contains additional matches performed by hand and a computer algorithm between the DealScan and Compustat datasets extracted on August 15, 2008. See Chava and Roberts (2008) for details.

³ For comparison, the final sample of Denis and Mihov (2003) includes 530 public debt issues, 740 bank loans, and 290 private debt placements (mostly 144A issues) from 1995-1996.

144A straight debt offerings and bank loans (only completed term loans and revolvers with maturity of at least one year).

Insert Figures 1A and 1B About Here.

The striking feature in Figure 1A is the tremendous growth of convertible debt offerings in the 144A market relative to the convertible debt offerings in the public market. In 1991, the total amount of convertible debt issued in the 144A market was \$1.4 billion. By 2004, the total amount rose to \$22.4 billion. In sharp contrast, the amount of convertible debt issues offered in the public market dropped from \$9.7 billion in 1991 to \$4.8 billion in 2004. The 144A market overtook the public market in 1996 and has completely dominated the public market in the issuance of convertible debt since 2001.⁴ As shown in Figure 1B, 144A straight debt is not the dominant source of funding despite the general decrease in the total dollar amount of public debt issues observed since 1999. Bank loans actually dominate both public and 144A straight debt offerings. There are two other interesting features in this figure. Since 1998, there is generally a downward trend in public straight debt offerings while 144A straight debt offerings have represented a significant source of funding relative to public straight debt offerings. To assess the impact of “junk” bond issuance in these two markets, we further analyze straight debt issuance broken down by credit ratings. Figures 1IA and 1IB report total gross proceeds for public straight debt issues of investment and speculative grade ratings, respectively.

⁴ The increase of convertible and straight debt issuance in the 144A market does not come from the private market. In analysis not reported here, the amount of private issuance of convertible debt was negligible relative to the amount of public and 144A issuances of convertibles during each year of 1991-2004. The amount of straight debt issuance in the private market does not demonstrate a clear trend over time and was much smaller than the amount of straight debt issuance in the 144A market during each year of 1996-2004.

Insert Figures IIA and IIB About Here.

Figure IIA confirms that investment grade straight debt issuance in the public market gained importance from 1991-2001 and leveled off during 2002-2004. In terms of the dollar amount of investment grade straight debt issuance, the public market dominates the 144A market every year from 1991-2004. The pattern for speculative straight debt issuance in Figure IIB is strikingly different. The dollar amount of 144A issuance of speculative straight debt has an upward trend beginning in 1991 and has dominated the public issuance of speculative straight debt since 1999. In short, Figures I and II, which cover a longer period of time than those shown in other published studies, document that the issuance of convertible and speculative grade straight debt increasingly occurs in the 144A market instead of the public market. Furthermore, the bank loan market does not experience a similar growth. Understanding the growth of the 144A market is one of the objectives of this paper.

2. Subsequent Registrations of 144A Offerings

In this paper, we investigate two possible explanations for the rise of the 144A market for convertible and junk bond offerings. To this end, it is important to know whether a 144A security is subsequently registered (Fenn, 2000; Livingston and Zhou, 2002). Subsequently registered 144A issues can be publicly traded once the registration is declared effective by the SEC and for all practical purposes registered 144A issues are essentially public issues.

Insert Table I About Here.

Table I reports the registration rate for 144A convertible and straight debt issues during the period 1996-2004. Data on registrations of 144A issues are not available in the SDC database. We search company filings in the SEC's Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system to obtain registration information for 144A straight debt issues. For 144A convertible debt issues, we obtain registration information from the PlacementTracker database of Sagient Research, which also relies on company filings in EDGAR. We use data starting in 1996 rather than 1991 since company filings in EDGAR are not comprehensive prior to 1996. Among the 550 issues in SDC from 1996-2004, 501 issues are also found in PlacementTracker of which 441 issues are reported as subsequently registered. The registration rate for all 144A convertible debt issues is about 88%. The registration rate for the subsamples broken down by investment or speculative grade, or unrated is relatively similar. For all straight debt issues, the registration rate is about 91% and there is more variation in the rate across the subsamples broken down by credit rating.

We further examine the time it takes to register 144A debt securities to shed more light on the role of QIBs. Figure IIIA presents the histogram of the number of days to register a 144A convertible debt issue (the number of days between the closing date and the registration date). Figure IIIB reports the same type of information for straight debt issues.

Insert Figures IIIA and IIIB About Here.

Approximately 80% of the convertible and straight issues are registered within 30-90 days of issuance. This registration period is shorter than that found by Fenn (2000) for high yield bonds in part because we use the date of registration with the SEC instead of the time of

completion of the exchange offer used to consummate the registration. Doing the latter would add, on average, three months to the registration period. Typically, it takes about two months for the SEC to review and declare the registration effective. In addition, the exchange offer is usually completed about 30 days after the registration statement is declared effective. In short, the high registration rate of 144A convertible and straight debt issues within a short period of time after the deal's closing date suggests that the 144A market for debt offerings is largely transitional and that QIBs only play a temporary role in the issuance process of these securities.

It is important to note that even unregistered 144A issues can be traded immediately after issuance among QIBs. An institution must have at least \$100 million of securities to be a QIB, a condition met by a large number of institutions (e.g., mutual funds, hedge funds, and insurance companies). Therefore, unregistered 144A debt securities can be quite liquid even though they are likely less liquid than public debt securities.

3. Shelf Registration and Credit Rating

The 144A market allows firms to issue securities rapidly as no pre-issue registration is required. Qualified firms could also issue securities quickly in the public market through a shelf registration under the SEC's Rule 415.⁵ Thus, it is possible that the speed of issuance allowed by the 144A market is more attractive to firms that would otherwise use the non-shelf public market than to firms that would otherwise use the shelf public market. Figures IVA and IVB plot the total annual dollar amounts of non-shelf registered and shelf registered convertible and straight debt issues, respectively, in the public market from 1991-2004.

⁵ Rule 415 allows qualified firms to shelf register securities and then issue all or part of the registered securities with little additional paperwork during the following two years. In the public equity market, shelf registration has recently experienced a revival (Autore, Kumar, and Shome, 2008; Bethel and Krigman, 2009). Bortolotti, Megginson, and Smart (2008), Gao and Ritter (2008), and Huang and Zhang (2009) report that firms increasingly implement several accelerated techniques preceded by a shelf registration for seasoned equity offerings (SEOs).

Insert Figures IVA and IVB About Here.

Figure IVA indicates that non-shelf public issuance of convertible debt (in dollar terms) dominated in the early 1990s, lost its dominance in the mid 1990s, and has practically disappeared since 2002. More importantly, the downward trend of non-shelf convertible debt issues is in sharp contrast with the upward trend of 144A convertible debt issues shown in Figure IB. Alternatively, shelf registered issues overtook non-shelf registered issues in 1997 and significantly increased in the early 2000s. Similar trends are observed for straight debt issues in Figure IVB. Non-shelf public issuance has trended downward during the sample period and has become rare since 2000. The amount of shelf issues of straight debt is hump-shaped during our sample period. The decreasing use of non-shelf public issuance points to the importance of speed in the issuance of debt securities.

Since the major objective of this paper is to assess the role of lender specialization and speed of issuance, we proceed to analyze the sample distribution by credit ratings. It is important to study credit ratings for two reasons. First, the existence of a credit rating can be related to speed of issuance. Although almost all 144A issues will be publicly traded after the SEC approves their subsequent registrations, they cannot be publicly traded immediately after the offering. Instead, they can be traded among QIBs, who are more sophisticated and rely less on credit ratings than public lenders. Firms of 144A issues could obtain a credit rating for their issues between the offering and the subsequent registration dates. Similarly, a credit rating is less necessary for bank loans. Therefore, the time it takes to obtain a credit rating will not slow down the borrowing process in the 144A and bank loan markets. Second, lender specialization often

results from the differences in the abilities of lenders to handle credit risk. Consequently, a study of the credit quality of convertible and straight debt issues in different markets will shed light on the importance of lender specialization. Table II reports the distribution of debt issues' credit ratings and the existence of a firm credit rating for the convertible and straight debt subsamples, respectively.

Insert Table II About Here.

First, we note that the majority (554 of 838) of the convertible debt issues are 144A issues while the majority (15,112 of 21,287) of the straight debt issues are bank loans. More importantly, the results from Table II demonstrate significant differences in credit ratings among shelf public, non-shelf public, and 144A issues of convertible and straight debt, respectively. As illustrated in Panel A of the table, 54.65% of the 144A convertible debt issues in our sample do not have an S&P credit rating while only 23.96% of the shelf registered and 28.72% of the non-shelf registered public convertible issues are lacking an S&P rating. This suggests that issuing convertible debt in the shelf or non-shelf public market is more likely to require an issue credit rating than issuing convertible debt in the 144A market. Panel B shows that only a small percentage of straight debt issues in the public and 144A markets are not rated. In contrast, 94.71% of the bank loans are not rated. There is also a positive correlation between the existence of a firm rating prior to the issuance and the likelihood of an issue having a rating suggesting that a firm's security and market choices could be influenced by whether the firm has an existing credit rating.

For convertible debt issues, shelf registered issues are more likely to be investment grade than non-shelf public and 144A issues, although there is no obvious difference in the proportion of investment grade issues between non-shelf public and 144A issues. For straight debt issues, shelf public issues are the most likely to be investment grade and 144A issues and bank loans are the least likely to be investment grade. However, a thorough analysis of the difference in credit quality of issues in different markets is not possible at the moment as large proportions of convertible debt issues and bank loans are not rated. We will perform a more thorough analysis of the difference in credit quality of issues in different markets in subsection B. While in Table II we only report the S&P ratings for the issues in our sample, in unreported analysis we find that the issue ratings assigned by Moody's show similar patterns (Livingston, Naranjo, and Zhou, 2007).

As discussed earlier, speed of issuance can be obtained when firms have shelf registrations. Thus, we proceed to analyze the likelihood of a prior shelf issue for the convertible and straight debt subsamples and for their respective subsamples further broken down by credit quality. Table III presents the results of this analysis. For each subsample, results are presented for shelf public, non-shelf public, and 144A debt issues, and additionally for bank loans for the straight debt subsample.

Insert Table III About Here.

Panel A of the table indicates that only 5.6% of all 144A convertible debt issues in our sample are preceded by at least one shelf registered security issue during the year prior to the current issue. This percentage is similar to the 6.9% for non-shelf public convertible debt issues,

but differs sharply from the 35.4% for shelf convertible debt issues. Similar conclusions are obtained for straight debt issues (including bank loans) in Panel B of the table. These results confirm that issuing firms in the non-shelf public, 144A, or bank loan market are not very likely to have a shelf registration in place. Rule 144A issues, non-shelf public issues, and bank loans are similar in terms of the likelihood that the issuer does not have a shelf registration in place. Thus, if firms intending to be in the public market value speed of issuance and they are not able to achieve it due to a lack of a shelf registration, they can use the 144A market to do so. This is consistent with the migration patterns documented in Figures IVA and IVB.

Table III also demonstrates that issuers of investment grade debt are more likely to have a shelf registration in place than issuers of speculative grade or unrated debt regardless of whether convertible or straight debt is issued.⁶ For example, about 50% (62%) of the investment grade convertible (straight) debt issues in the shelf public market are preceded by a shelf issue during the year prior to the offer date. In contrast, about 31% (53%) of the speculative grade convertible (straight) debt issues in the shelf public market are preceded by a shelf issue during the prior year. Similar patterns exist for the non-shelf public, 144A, and bank loan markets.

4. Descriptive Statistics of the Regression Sample

Before proceeding to the regression analysis, we report in Table IV the descriptive statistics of firm and issue characteristics of our sample. The table reports means and medians of proxies for credit quality, information opacity, growth opportunities, market conditions, and other issue and firm characteristics for the convertible debt and straight debt samples. The detailed definitions of the variables are provided in the Appendix.

⁶ An exception is issuers of unrated straight debt in the shelf public market, perhaps because there are only three such issues.

Insert Table IV About Here.

Panel A of the table indicates that there are several similarities between non-shelf public and 144A convertible debt offerings. Issues in the two markets have similar gross spread, gross proceeds, pre-issue market capitalization, return volatility, and total debt ratio. However, convertible issues in the 144A market have a higher market-to-book ratio and pre-issue return. Shelf public convertibles appear to be significantly different from 144A convertibles in terms of gross spread and proceeds, market capitalization, total debt ratio, market-to-book ratio, and pre-issue return.

From Panel B of the table, non-shelf public and 144A straight debt issues have similar gross spread, market capitalization, return volatility, and total debt ratio. Shelf public straight debt issues have lower gross spreads, a larger market capitalization, and an older listing age than non-shelf public and 144A straight debt issues. Bank loans are associated with the smallest gross proceeds and shortest maturity by issuers with the smallest market capitalization and youngest listing age.

Panels C and D of the table report the descriptive statistics for the subsamples of investment grade and speculative grade straight debt issues, respectively. Investment grade straight debt issues in Panel C have a smaller gross spread, a lower offering yield spread, larger gross proceeds, a larger market capitalization, an older listing age, and a lower debt ratio than the speculative grade debt issues in Panel D.

B. Predicting the Credit Rating of Unrated Issues

Since a large percentage of the convertible debt issues and the vast majority of the bank loans are unrated as demonstrated in Table II, an implied credit rating for convertible issues and bank loans is needed to examine the role of credit quality in firms' security and market choices. Thus, we proceed to obtain the implied credit rating for all unrated issues. We first estimate the following model using the subsample of rated issues:

$$\begin{aligned}
 \text{Investment grade issue: } I_i &= 1 \text{ if } \gamma' Z_i \geq u_i \\
 \text{Speculative grade issue: } I_i &= 0 \text{ otherwise}
 \end{aligned}
 \tag{1}$$

The dependent variable is equal to one for investment grade issues and zero for speculative grade issues. Because the dependent variable is a dummy variable, we estimate Equation (1) using a maximum likelihood probit model. We follow Blume, Lim, and MacKinlay (1998) and Amato and Furfine (2004) to choose the set of independent variables. Specifically, the independent variables include the natural logarithm of gross proceeds, the natural logarithm of maturity, four interest coverage ratio variables, profitability, long-term debt ratio, total debt ratio, the natural logarithm of market capitalization, the beta coefficient and the standard error of residuals from a market model, and year dummies. We also follow S&P's 2008 corporate ratings criteria and use three-year averages of the financial ratios. Before taking the three-year average, any annual interest coverage ratio that is negative is set to zero. *ICR* is then computed as the three-year average of the annual interest coverage ratio. We further set *ICR* to 100 if it is greater than 100 as any increase beyond 100 is unlikely to convey additional information. As in Blume et al. (1998) and Amato and Furfine (2004), the four interest coverage ratio variables,

$ICR_i (i = 1, 2, 3, 4)$, are then created as follows to capture the non-linear effect of the interest coverage ratio on credit ratings:

	ICR_1	ICR_2	ICR_3	ICR_4
$ICR \in [0, 5)$	ICR	0	0	0
$ICR \in [5, 10)$	5	$ICR - 5$	0	0
$ICR \in [10, 20)$	5	5	$ICR - 10$	0
$ICR \in [20, 100)$	5	5	10	$ICR - 20$

Structural differences could exist in the determination of credit ratings for different types of securities, so we estimate our regressions respectively for the subsample of convertible debt issues, the subsample of public and 144A straight debt issues, and the subsample of bank loans. Results are presented in Panel A of Table V.

Insert Table V About Here.

As expected, issues of larger firms and firms with a larger ICR_1 and lower return volatility are more likely to receive an investment grade rating. These results are generally consistent with those in Blume et al. (1998) and Amato and Furfine (2004).

We then use the estimated coefficients in Panel A to predict a rating for each issue in our sample. Panel B of Table V reports the distribution of implied and actual credit ratings. The predictive powers of the probit regressions are quite high. The rate of correct prediction is over 85% in any of the estimations. We are especially interested in the implied credit quality of unrated convertible debt issues and bank loans. The results indicate that unrated convertible debt issues and bank loans are very likely to have an implied speculative grade rating. For example, if

a credit rating were assigned, only 40 of the 287 unrated 144A convertible issues and 866 of the 11,254 bank loans would have received an investment grade rating. The numbers of unrated issues for the other categories are minor. Overall, approximately 69% of the 1,668 Rule 144A issues and 92% of the 12,481 bank loans either have a speculative grade rating, or are unrated and receive an implied rating of speculative grade. In contrast, only about 14% of the 4,738 public issues of convertible and straight debt either have a speculative grade rating, or are unrated and receive an implied rating of investment grade. These results, together with the Table II results, are consistent with the lender specialization hypothesis that QIBs and banks are likely to have an advantage over public lenders in serving low credit quality firms.

C. Security and Market Choices

As argued by Gomes and Phillips (2007), the choice of security and the choice of market need to be studied simultaneously. Thus, we estimate a nested logit model for the joint choice of securities and markets (Greene, 2003). Our nested logit model includes two decision levels. The first level alternatives are convertible versus straight debt while the second level alternatives include the shelf public, non-shelf public, 144A, and bank loan markets. Let $Pr(i)$ = either the probability of convertible debt issuance ($i=c$) or the probability of straight debt issuance ($i=s$); $Pr(j/c)$ = either the probability of shelf public issuance ($j=s$), the probability of non-shelf public issuance ($j=n$), or the probability of 144A issuance ($j=r$) conditional on convertible debt issuance; and $Pr(k/s)$ = either the probability of shelf public issuance ($k=s$), the probability of non-shelf public issuance ($k=n$), the probability of 144A issuance ($k=r$), or the probability of non-shelf public issuance ($k=b$) conditional on straight debt issuance. Then:

$$Pr(j|c) = \frac{\exp(x_{cj}\beta)}{\exp(x_{cs}\beta) + \exp(x_{cn}\beta) + \exp(x_{cr}\beta)}, \quad (2)$$

$$Pr(k|s) = \frac{\exp(x_{sk}\beta)}{\exp(x_{ss}\beta) + \exp(x_{sn}\beta) + \exp(x_{sr}\beta) + \exp(x_{sb}\beta)}, \quad (3)$$

$$Pr(i) = \frac{\exp(y_i\alpha + \eta_i I_i)}{\exp(y_c\alpha + \eta_c I_c) + \exp(y_s\alpha + \eta_s I_s)}, \quad (4)$$

where x_{cj} , x_{sk} , y_c , and y_s are the row vectors of the independent variables, η_c and η_s are the inclusive parameters, and I_c and I_s are the inclusive values.⁷ Specifically, I_c and I_s are defined as follows:

$$I_c = \ln\{\exp(x_{cs}\beta) + \exp(x_{cn}\beta) + \exp(x_{cr}\beta)\}, \quad (5)$$

$$I_s = \ln\{\exp(x_{ss}\beta) + \exp(x_{sn}\beta) + \exp(x_{sr}\beta) + \exp(x_{sb}\beta)\}. \quad (6)$$

We use convertible debt as the base alternative at the first decision level and the 144A market as the base alternative at the second decision level. The nested logit model is estimated using full information maximum likelihood.

The independent variables include proxies for issuing speed, credit quality, information asymmetry, growth opportunities, and market conditions, as well as other firm and issue

⁷ A nested logit model is more general than a multinomial logit model. A nested logit model only assumes that the choices are independent within a subgroup or “nest” of alternatives, while a multinomial logit model assumes that choices between any two alternatives are independent of the other alternatives. If we restrict both $\eta_c = 1$ and $\eta_s = 1$, then we have a multinomial logit model.

characteristics. We include the prior shelf issue dummy and the unrated firm dummy to help capture the role of speed of issuance. We use the investment grade firm dummy, total debt ratio, and return volatility to examine the role of credit quality (Lewis, Rogalski, and Seward, 1999). We use the market capitalization and listing age to capture information asymmetry effects. The market-to-book ratio and stock return prior to the offer are used as proxies for growth opportunities.⁸ The term spread and default spread are proxies for market conditions (Barry, Mann, Mihov, and Rodriguez, 2008; Frank and Goyal, 2009). We use gross proceeds and maturity to control for firms' financing and maturity needs. We also include profitability, asset tangibility, and a utility dummy as control variables. Finally, we include a time trend to capture the migration from one market to the other. We report coefficients and z-statistics of the nested logit regression in Table VI. For brevity, we selectively report the economic effects of some variables in the text but do not report them in the table.

Insert Table VI About Here.

For both convertible and straight debt offerings, the coefficients for the prior shelf issue dummy are positive and significant for the choice between the shelf public and 144A markets. Economically, conditional on convertible debt issuance, a firm with a shelf issue in the year prior to the current issue is 20.37% more likely (e.g., from 50% to 70.37%) to have a shelf public issue and 2.22% and 18.15% less likely to have a non-shelf public and a 144A issue, respectively. Similarly, conditional upon straight debt issuance, a firm with a prior shelf issue is 10.46% more likely to have a shelf public issue and 1.70%, 2.44%, and 6.32% less likely to have a non-shelf

⁸ An alternative measure of growth opportunities is Tobin's Q. Erickson and Whited (2006) study various approaches used to compute Tobin's Q. They conclude that careful algorithms for calculating Tobin's Q do little to improve measurement quality. Therefore, in this paper, we use a simple market-to-book value measure.

public issue, a 144A issue, and a bank loan, respectively. These results suggest that if a firm has a shelf registration in place, convertible or straight debt is more likely to be issued in the shelf public market. These results confirm our argument that if a firm needs speed of issuance, it can issue in the shelf public market if it has a registration in place.

Conditional on convertible debt issuance, the coefficients for the unrated firm dummy are negative and statistically significant. Economically, a convertible debt issuer without a company rating is 12.57% and 1.13% less likely to use the shelf and non-shelf markets, respectively, and 13.70% more likely to use the 144A market. This result suggests that unrated firms issuing convertible debt are more likely to use the 144A market instead of the public market, consistent with the speed of issuance hypothesis. Conditional on straight debt issuance, firms without a rating are more likely to use bank loans rather than 144A debt. This result is perhaps because banks have advantages over QIBs when dealing with firms with higher information asymmetry.

For convertible debt issues, the coefficient for return volatility for the choice between the non-shelf public and 144A markets is negative and statistically significant, but the coefficients for the investment grade firm dummy and total debt ratio are not statistically significant at the conventional levels. Thus, there is only limited evidence that a convertible debt issuer's credit quality is a significant determinant of its choice between the public (shelf or non-shelf) and 144A markets. For straight debt issues, the coefficient for the investment grade firm dummy is positive and statistically significant for the choice between shelf public and 144A issues suggesting that low credit quality firms issuing straight debt are more likely to issue in the 144A market instead of the shelf public market. The coefficient for the investment grade firm dummy is negative and statistically significant for the choice between bank loans and 144A issues signifying that low quality firms are more likely to use the bank loan market instead of the 144A market. This result

implies that the bank loan market is even more appealing to low quality firms than the 144A market, inconsistent with Denis and Mihov (2003).⁹ Economically, a firm with an investment grade rating is 9.16% more likely to issue in the shelf public market and 1.14%, 1.37%, and 6.64% less likely to borrow in the non-shelf public, 144A, and bank loan markets, respectively. These results suggest that credit quality is a major determinant in the choice between the shelf public and bank loan markets, consistent with the lender specialization hypothesis.

Conditional on straight debt issuance, a firm with a higher stock return volatility is less likely to use the shelf and non-shelf public markets than the 144A market. This result indicates that higher credit quality firms are more likely to use the public market, consistent with the lender specialization hypothesis. Given the choice between the bank loan and 144A markets, a firm is also less likely to borrow from banks if it has a higher return volatility or higher total debt ratio. This result suggests that riskier firms are less likely to borrow from banks than from QIBs, consistent with the findings of Denis and Mihov (2003), but inconsistent with our earlier findings for the investment grade dummy. When combined, there is mixed evidence for the role of credit risk in the choice between the bank loan and 144A markets.

Conditional on convertible debt issuance, the coefficient for the natural logarithm of market capitalization is negative and statistically significant regarding the choice between non-shelf public and 144A issues, suggesting that larger firms are more likely to use the 144A market instead of the non-shelf public market. This result is inconsistent with the lender specialization hypothesis. Conditional upon straight debt issuance, larger firms are more likely to issue in the shelf or non-shelf public market and less likely to borrow from banks than to issue in the 144A market. Conditional on straight debt issuance, firms that have been listed on CRSP longer are

⁹ Lee and Mullineaux (2004) find that in the presence of more severe information opacity and greater credit risk of bank loan borrowers, banks form syndicates to enhance monitoring efforts and to facilitate renegotiations.

more likely to issue in the public market through a shelf registration than to issue in the 144A market. The results for straight debt issues imply that sophisticated lenders are better able to deal with firms with low credit quality and high information asymmetry.

Straight debt issuers with a higher market-to-book ratio are more likely to use the 144A market instead of the shelf or non-shelf public market. Straight debt issuers are also more likely to use the 144A market rather than the bank loan market following stock price run-ups. These results indicate that straight debt issuers with more growth opportunities are more likely to use the 144A market.

Market conditions also play an important role in the market choice. For convertible debt issues, the coefficient for the term spread is positive and statistically significant at the 10% level in the choice between the non-shelf public and 144A markets. Conditional upon straight debt issuance, the coefficient for the term spread is positive and statistically significant in both the choice between the non-shelf public and 144A markets and the choice between the bank loan and 144A markets. When the default spread is higher, convertible debt issuers are more likely to use the 144A market instead of the non-shelf public market, and straight debt issuers are more likely to use the 144A market instead of the non-shelf public or bank loan market.

Issue characteristics also differ across markets. Conditional on straight debt issuance, the coefficients for the natural logarithm of gross proceeds are negative and statistically significant suggesting that firms issuing straight debt use the 144A market for relatively larger issues. This is not the case for convertible debt issues where it appears that there are no significant differences in gross proceeds across markets. For both convertible and straight debt issues, the coefficients for the natural logarithm of maturity are negative and statistically significant implying that 144A issues have longer maturity than other issues. The coefficient is more

negative and statistically significant for the choice between bank loans and 144A issues confirming that banks specialize in shorter term debt. Economically, conditional on convertible debt issuance, if we increase the natural logarithm of maturity from half a standard deviation below to half a standard deviation above the actual value for all issues in the sample, the average likelihood of a shelf and a non-shelf public issue decreases by 0.68% and 6.87%, respectively, while the likelihood of a 144A issue increases by 7.54%. Conditional on straight debt issuance, a one standard deviation increase in maturity increases the likelihood of a shelf, a non-shelf public, and a 144A issue by 8.43%, 2.16%, and 10.37%, respectively and decreases the likelihood of a bank loan by 20.96%. This result indicates that banks and other lenders have substantially different capacities and technologies when dealing with credit risk and information asymmetry.¹⁰

Also, there is evidence that conditional on straight debt issuance, more profitable firms are more likely to use the shelf public market instead of the 144A market. Conditional upon convertible debt issuance, firms with more tangible assets are more likely to use the shelf or non-shelf market instead of the 144A market. Straight debt issuers with higher asset tangibility are more likely to borrow from the non-shelf public market and less likely to borrow from banks as compared with issuing in the 144A market. Utility firms are less likely to borrow from banks than from QIBs.

All of the coefficients for the time trend are negative and statistically significant in Table VI. Economically, conditional on convertible debt issuance, a one standard deviation increase in the time trend decreases the likelihood of issuing in the non-shelf public market by 23.26% and increases the likelihood of issuing in the shelf and 144A markets by 0.60% and 22.66%, respectively. Similarly, conditional on straight debt issuance, if we increase the time trend by one standard deviation, the likelihood of issuing in the shelf and non-shelf public markets decreases

¹⁰ Daniels and Ramírez (2008) reach a similar conclusion in their study of debtor-in-possession bank loans.

by 0.68% and 3.37%, respectively and the likelihood of issuing in the 144A and bank loan markets increases by 3.57% and 0.48%, respectively. These results are consistent with our earlier findings (documented in Figures I-IV) that the 144A market is replacing mainly the non-shelf public market, but not the shelf public or bank loan market. Since the shelf-public, 144A, and bank loan markets allow speed of issuance, while the non-shelf public market does not, these results provide support for the speed of issuance hypothesis as an explanation for the growth of the 144A market.

Overall, the results from Table VI indicate that 144A issues and non-shelf public issues are not substantially different in credit quality and many firm characteristics (the investment grade firm dummy, total debt ratio, listing age, pre-issue stock return, and profitability), while there is a strong migration from the non-shelf public market to the 144A market suggesting that the need for speed of issuance dominates other needs in the choice between the non-shelf public and 144A markets. Credit quality is not an important determinant of the choice of markets for convertible issues. However, for straight debt issues, most of the coefficients for the credit quality and information asymmetry proxies are statistically significant and have signs as predicted by the lender specialization hypothesis in the choice between the shelf public and 144A markets.

In the above analysis of the security and market choices, we do not consider the shelf registration requirements by the SEC. However, not all firms are eligible for a shelf registration.¹¹ In particular, there is a minimum public float requirement.¹² To evaluate the

¹¹ Firms are eligible for a shelf registration if they are eligible to use Form S-3. To use Form S-3, a company must meet the form's registrant requirements as well as at least one of the form's transaction requirements. The two major registrant requirements include: 1) the firm must not have defaulted on debt, preferred stock, or rental payments since the end of the last fiscal year, and 2) the firm must have met all SEC disclosure requirements for a minimum period of time immediately preceding the filing of this form. The minimum period of time was reduced from 36 calendar months to 12 calendar months in 1992. Two of the transaction requirements include: 1) the aggregate public float of the firm must be above a minimum, and 2) straight debt securities to be offered are of investment

influence of the shelf registration requirements on our results, we re-estimate the nested logit regression for the subsample of issues by firms that meet the minimum public float requirement. For convertible debt, none of the 96 shelf issues, 24 of the 188 non-shelf issues, and two of the 554 Rule 144A issues do not meet the public float requirement. For straight debt, three of the 4,209 shelf issues, 49 of the 552 non-shelf issues, 56 of the 1,414 Rule 144A issues, and 4,266 of 15,112 bank loans do not meet the public float requirement. Our results are essentially the same if we exclude the firms that do not meet the public float requirement.

In our nested logit regression, we implicitly assume that proceeds and maturity are predetermined. It is possible that proceeds and maturity are endogenous in the security and market choices (Strahan, 1999). In unreported analysis, we re-estimate the nested logit regression by excluding the natural logarithms of proceeds and maturity from the set of explanatory variables. Our major results remain qualitatively unchanged.

It is also important to note that the loans to private firms are excluded from our regression sample, as well as those of many existing empirical papers examining the market choice, for a lack of CRSP and Compustat data for these firms. This exclusion will result in an overestimation of the role of QIBs relative to banks in lending to low credit quality and high information asymmetry firms (Ackert, Huang, and Ramirez, 2007).

grade. The minimum public float was reduced from \$150 million to \$75 million in 1992. In May 1997, the SEC further changed this requirement by allowing the firm to use both voting and non-voting common equity by non-affiliates instead of only voting common equity by non-affiliates to calculate the public float. It is also important to note that the SEC adopted the universal shelf rule in October 1992. Firms filing under this rule are not required to specify a particular security until the issue date allowing them to choose among debt, convertible, and/or equity securities.

¹² We use the market capitalization from CRSP at the market close on the day immediately preceding the offer date as an approximation for the public float. The minimum market capitalization required was set to \$150 million for issues in 1991 and 1992 and \$75 million for issues from 1993-2004. This approximation appears quite effective with only three shelf straight debt issues being misclassified as not eligible. When increasing the cutoff points by \$50 million, we obtain qualitatively similar results.

D. Differences in the Issuing Costs across Markets

We also examine the differences in offering yield spreads and gross spreads among shelf public, non-shelf public, and 144A issues. For brevity, we discuss the results below, but do not report them in a table. For straight debt issues, we find that shelf public issues are associated with a lower gross spread and a lower offering yield spread than 144A and non-shelf public issues. We do not find statistically significant differences in the issuing costs between 144A and non-shelf public issues of straight debt. The lower costs of shelf public issuance relative to 144A issuance of straight debt help to explain why high credit quality and transparent straight debt issuers favor the shelf public market over the 144A market when both markets allow for speed of issuance. We do not find any differences in gross spreads or offering yield spreads among shelf public, non-shelf public, and 144A issues of convertible debt.

IV. Conclusions

Fenn (2000) provides evidence for the hypothesis that junk bond issuers prefer the 144A market for its speed of issuance. Denis and Mihov (2003) find that credit quality plays an important role in firms' choice among the public, 144A, and bank loan markets. Specifically, they find that the lowest credit quality firms borrow from the 144A market, the medium credit quality firms borrow from banks, and the highest credit quality firms borrow from the public market. They suggest that banks and QIBs have advantages over public lenders in serving low credit quality firms and banks are best suited for the lowest credit quality firms. We further examine the role of speed of issuance and lender specialization in the issuer's choice among the public, 144A, and bank loan markets for convertible and straight debt offerings using a larger sample, considering the role of shelf registration, and accounting for the self selection of security.

We find that most bonds issued in the 144A market are subsequently registered within a short time span consistent with the speed of issuance hypothesis. We also find that most of the 144A issues and the vast majority of the bank loans have an actual or implied rating of speculative grade. This finding is consistent with the lender specialization hypothesis that QIBs and banks have advantages over public lenders in serving low credit quality firms.

Using a nested logit regression for the choice between convertible and straight debt and the choice among the shelf public, non-shelf public, 144A, and bank loan markets, we provide evidence of an interplay between the speed of issuance and lender specialization hypotheses. We find that convertible debt issuers without a credit rating are more likely to issue in the 144A market instead of the shelf and non-shelf public markets. Firms without a credit rating are also more likely to use the bank loan market instead of other markets for straight debt issues. We also find that firms with a prior shelf registered issue are more likely to have a shelf public issue instead of a non-shelf public or a 144A issue. After accounting for credit risk, information asymmetry, growth opportunities, and market conditions, we find that the 144A market has risen at the expense of the non-shelf market, while the shelf-public and bank loan markets show no clear trend across time. These results are consistent with the speed of issuance hypothesis as an explanation for the growth of the 144A market.

The nested logit results are generally consistent with the lender specialization hypothesis. We find that credit risk and information asymmetry play a critical role in the market choice for straight debt issues. Specifically, riskier and more opaque straight debt issuers are more likely to use the bank loan market instead of the public market suggesting that banks are more efficient than public lenders in dealing with these firms. Lower credit quality issuers choosing straight debt are more likely to use the 144A market rather than the shelf public market. This result is

perhaps because, for these issuers, the advantage of QIBs over public lenders in performing rapid due diligence offsets any cost disadvantage of 144A issuance relative to shelf public issuance. Relative to other lenders, banks specialize in shorter maturity issues. This result implies that banks and other lenders differ in their capacities and technologies when dealing with credit risk and information asymmetry.

Our evidence regarding the relative efficiencies of QIBs and banks in serving low credit quality and high information asymmetry firms is mixed. Conditional upon straight debt issuance, unrated, speculative grade, and smaller firms are more likely to borrow from banks than from QIBs. However, firms with a higher stock return volatility and higher total debt ratio are more likely to borrow from QIBs. These results point toward a need to further study the relative efficiencies of banks and QIBs in dealing with high credit risk and information asymmetry firms.

References

Ackert, L., R. Huang, and G. Ramirez, 2007, "Information Opacity, Credit Risk, and the Design of Loan Contracts for Private Firms," *Financial Markets, Institutions & Instruments* 16(5), 221-242.

Amato, J.D. and C.H. Furfine, 2004, "Are Credit Ratings Procyclical?" *Journal of Banking and Finance* 28(11), 2,641-2,677.

Autore, D., R. Kumar, and D. Shome, 2008, "The Revival of Shelf-Registered Corporate Equity Offerings," *Journal of Corporate Finance* 14, 32-50.

Barry, C.B., S.C. Mann, V.T. Mihov, and M. Rodriguez, 2008, "Corporate Debt Issuance and the Historical Level of Interest Rates," *Financial Management* 37(3), 413-430.

Bethel, J.E. and L. Krigman, 2009, "Managing the Costs of Issuing Common Equity: The Role of Registration Choice," *Quarterly Journal of Finance and Accounting* 47(4), 57-85.

Blume, M.E., F. Lim, and A.C. MacKinlay, 1998, "The Declining Credit Quality of U.S. Corporate Debt: Myth or Reality?" *Journal of Finance* 53, 1,389-1,413.

Bortolotti, B., W. Megginson, and S.B. Smart, 2008, "The Rise of Accelerated Seasoned Equity Underwritings," *Journal of Applied Corporate Finance* 20, 35-57.

Chaplinsky, S. and L. Ramchand, 2004, "The Impact of SEC Rule 144A on Corporate Debt Issuance by International Firms," *Journal of Business* 77, 1,073-1,097.

Chava, S. and M. Roberts, 2008, "How Does Financing Impact Investment? The Role of Debt Covenants," *Journal of Finance* 63, 2,085-2,121.

Chemmanur, T.J. and P. Fulghieri, 1994, "Reputation, Renegotiation, and the Choice between Bank Loans and Publicly Traded Debt," *Review of Financial Studies* 7, 475-506.

Daniels, K. and G.G. Ramírez, 2008, "Information, Credit Risk, and Lending Specialization: Evidence from the DIP Lending Market," *Journal of Financial Research Services* 34, 36-59.

Denis, D.J., 1991, "Shelf Registration and the Market for Seasoned Equity Offerings," *Journal of Business* 64(2), 189-212.

Denis, D.J. and V.T. Mihov, 2003, "The Choice among Bank Debt, Non-Bank Debt, Private Debt, and Public Debt: Evidence from New Corporate Borrowings," *Journal of Financial Economics* 70, 3-28.

Diamond, D., 1984, "Financial Intermediation and Delegated Monitoring," *Review of Economic Studies* 51, 393-414.

Erickson, T. and T.M. Whited, 2006, "On the Accuracy of Different Measures of q," *Financial Management* 35, 5-33.

Fama, E., 1985, "What's Different about Banks?" *Journal of Monetary Economics* 15, 29-39.

Fenn, G.W., 2000, "Speed of Issuance and Adequacy of Disclosure in the 144A High-Yield Debt Market," *Journal of Financial Economics* 56, 383-405.

Frank, M. and V. Goyal, 2009, "Capital Structure Decisions: Which Factors Are Reliably Important?" *Financial Management* 38, 1-37.

Gao, X. and J.R. Ritter, 2008, "The Marketing of Seasoned Equity Offerings," University of Hong Kong and University of Florida Working Paper.

Gomes, A. and G. Phillips, 2007, "Private and Public Security Issuance by Public Firms: The Role of Asymmetric Information," Washington University and University of Maryland Working Paper.

Greene, W.H., 2003, *Econometric Analysis*, 5th edition, Upper Saddle River, NJ, Prentice-Hall.

Huang, R. and D. Zhang, 2009, "Managing Underwriters and the Marketing of Seasoned Equity Offerings," *Journal of Financial and Quantitative Analysis*, forthcoming.

- James, C., 1987, "Some Evidence on the Uniqueness of Bank Loans," *Journal of Financial Economics* 19, 217-235.
- Lee, S.W. and D.J. Mullineaux, 2004, "Monitoring, Financial Distress, and the Structure of Commercial Lending Syndicates," *Financial Management* 33, 107-130.
- Lewis, C., R. Rogalski, and J. Seward, 1999, "Is Convertible Debt a Substitute for Straight Debt or for Common Equity?" *Financial Management* 28, 5-27.
- Livingston, M., A. Naranjo, and L. Zhou, 2007, "Asset Opacity and Split Bond Ratings," *Financial Management* 36(3), 49-62.
- Livingston, M. and L. Zhou, 2002, "The Impact of Rule 144A Debt Offerings upon Bond Yields and Underwriter Fees," *Financial Management* 31(4), 5-27.
- Rajan, R., 1992, "Insiders and Outsiders: The Choice between Informed and Arm's-Length Debt," *Journal of Finance* 47, 1,367-1,406.
- Rogers, W., 1993, "Regression Standard Errors in Clustered Samples," *Stata Technical Bulletin* 13, 19-23.
- Strahan, P., 1999, "Borrower Risk and the Price and Nonprice Terms of Bank Loans," Federal Reserve Bank of New York Working Paper.

White, H., 1980, "A Heteroscedasticity-Consistent Covariance Matrix Estimator and a Direct Test of Heteroscedasticity," *Econometrica* 48, 817-838.

Appendix: Variable Definitions

Variable	Definition
Prior Shelf Issue Dummy	A dummy variable equal to one if the firm has at least one shelf registered issue during the year immediately prior to the current issue, and zero otherwise.
Gross Proceeds	The total amount of proceeds raised through the offering expressed in millions of dollars of 2004 purchasing power.
Conversion Premium	(Initial conversion price - the last common stock price) / the last common stock price.
Gross Spread (%)	The total amount of underwriter compensation as a percentage of gross proceeds.
Maturity	The number of years from the offer date to the maturity date.
Offering Yield Spread (%)	Percentage yield to maturity at the offering minus the percentage yield on constant maturity Treasuries with a similar maturity (3-month Treasury if $Maturity \leq 0.45$, 6-month Treasury if $0.45 < Maturity \leq 0.75$, 1-year Treasury if $0.75 < Maturity \leq 1.5$, 2-year Treasury if $1.5 < Maturity \leq 2.5$, 3-year Treasury if $2.5 < Maturity \leq 4$, 5-year Treasury if $4 < Maturity \leq 6$, 7-year Treasury if $6 < Maturity \leq 8.5$, 10-year Treasury if $8.5 < Maturity \leq 20$, and 30-year Treasury if $20 < Maturity$).
Market Cap.	The total market capitalization (Compustat Items 25 \times 199) in millions of dollars of 2004 purchasing power at the fiscal year end prior to the offer date.
Listing Age	The number of years since the firm was first listed on CRSP.
Return Volatility	The standard deviation of daily close-to-close returns over the 30 trading days ending 11 days before the offer.
Total Debt Ratio	The book value of long-term and short-term debt (Item 9 + Item 34) divided by total assets (Item 6) at the fiscal year end prior to the offer date.
Market-to-Book Ratio	The sum of the market value of equity (Items 25 \times 199) and the book value of debt (Items 181 + 10 - 35 - 79) divided by the book value of total assets (Item 6) at the fiscal year end prior to the offer date.
Pre-issue Return	The stock return of the issuer during the three months prior to the offer.
Profitability	Operating income before depreciation (Item 13) divided by total assets (Item 6) at the fiscal year end prior to the offer date.
Tangibility	Net property, plant, and equipment (Item 13) divided by total assets (Item 6) at the fiscal year end prior to the offer date.
Utility Dummy	A dummy variable equal to one if the firm has a sic code of 4900-4949, and zero otherwise.
Term Spread (%)	The daily yield difference between ten- and one-year constant fixed maturity treasuries from http://woodrow.mpls.frb.fed.us/research/data/us/ .
Default Spread (%)	The daily yield difference between Moody's Baa and Aaa rated corporate bonds from http://woodrow.mpls.frb.fed.us/research/data/us/ .
Time Trend	The number of days between the issue date and January 1, 1991 divided by 365.

Table I. Subsequent Registrations of 144A Issues during 1996-2004

This table reports the likelihood of a subsequent registration of both convertible and straight debt issues in the 144A market during 1996-2004. The PlacementTracker database of Sagient Research Systems is used to identify subsequent registrations of convertible debt issues. Note that only 501 of the 550 convertible debt issues from 1996-2004 in our sample are also in PlacementTracker. We searched company filings in the SEC's EDGAR system for subsequent registrations of straight debt issues.

	Number of Issues	Number of Issues Subsequently Registered	Percent of Issues Subsequently Registered
Convertible Debt Issues			
Investment grade	62	51	82
Speculative grade	125	108	86
Unrated	314	282	90
All	501	441	88
Straight Debt Issues			
Investment grade	361	293	81
Speculative grade	910	867	95
Unrated	53	41	77
All	1,324	1,201	91

Table II. Sample Distribution by S&P Credit Rating

This table reports the sample distribution by issue rating. The issue rating is the S&P rating for the issue as provided in Thomson Reuters' SDC new issues database or the Loan Pricing Corporation's DealScan database. The firm rating is based on the S&P long-term domestic issuer credit rating (Compustat Item 280). Panel A presents the distribution of convertible debt issues and Panel B reports the distribution of straight debt issues.

<i>Panel A. Convertible Debt Issues (N=838)</i>				
	Shelf Public (N=96)	Non-Shelf Public (N=188)	144A (N=554)	
Issue Rating				
≥AA-	0.00	1.60	0.72	
A+, A, A-	9.38	5.85	3.70	
BBB+, BBB, BBB-	21.88	9.04	9.79	
BB+, BB, BB-	7.29	8.51	5.73	
B+, B, B-	27.08	40.96	20.53	
≤CCC+	10.42	5.32	4.89	
Not Rated	23.96	28.72	54.65	
Firm Rating				
Not Rated	20.83	66.49	57.76	
<i>Panel B. Straight Debt Issues (N=22,125)</i>				
	Shelf Public (N=4,209)	Non-Shelf Public (N=552)	144A (N=1,414)	Bank Loan (N=15,112)
Issue Rating				
≥AA-	15.26	5.60	1.70	0.01
A+, A, A-	38.87	27.80	7.78	0.05
BBB+, BBB, BBB-	36.38	22.92	16.27	0.86
BB+, BB, BB-	6.38	12.64	17.89	3.98
B+, B, B-	2.92	26.35	44.20	0.36
≤CCC+	0.00	0.90	3.18	0.03
Not Rated	0.19	3.79	8.98	94.71
Firm Rating				
Not Rated	3.60	25.81	25.60	65.17

Table III. Likelihood of a Shelf Registered Issue in the Prior Year

This table reports the likelihood of a shelf registered security issue in the year immediately prior to each current issue. The number of current issues is reported in the parentheses. An issue is defined as of investment grade if it receives either an S&P rating of BBB- or above or a Moody's rating of Baa3 or above. An issue is defined as of speculative grade if it receives either an S&P rating of below BBB- or a Moody's rating of below Baa3.

<i>Panel A. Convertible Debt Issues</i>				
	Shelf Public	Non-Shelf Public	144A	
Investment Grade Issues	50.0%(34)	24.2%(33)	13.0%(69)	
Speculative Grade Issues	31.4%(51)	3.5%(114)	4.5%(132)	
Unrated Issues	9.1%(11)	2.4%(41)	4.5%(353)	
All	35.4%(96)	6.9%(188)	5.6%(554)	
<i>Panel B. Straight Debt Issues</i>				
	Shelf Public	Non-Shelf Public	144A	Bank Loan
Investment Grade Issues	62.1%(3,856)	28.8%(312)	22.2%(374)	19.7%(198)
Speculative Grade Issues	52.6%(350)	2.7%(224)	7.4%(934)	10.2%(1,195)
Unrated Issues	100.0%(3)	12.5%(16)	7.5%(106)	4.9%(13,719)
All	61.3%(4,209)	17.8%(552)	11.3%(1,414)	5.6%(15,112)

Table IV. Summary Statistics

This table reports the means and medians of key issues and firm characteristics. We use the drawn All-In-Spread (AIS) to measure the offering yield spread of a bank loan. The drawn All-In-Spread is defined as the sum of the coupon spread, annual fees, and upfront fees expressed as a mark-up over the London Inter-Bank Offered Rate (LIBOR). The definitions of other variables are presented in the Appendix. Panel A reports the summary statistics for convertible debt issues and Panel B presents the summary statistics for all straight debt issues. Panels C and D report the summary statistics for investment grade and speculative grade straight debt issues, respectively. An issue is defined as investment grade if it receives either an S&P rating of BBB- or above or a Moody's rating of Baa3 or above. An issue is defined as speculative grade if it receives either an S&P rating of below BBB- or a Moody's rating of below Baa3. Note that the number of issues in Panel B is not equal to the sum of the numbers of issues in Panels C and D as many issues are unrated. Also, note that the total number of issues with non-missing gross spreads are 741 (282 public and 459 Rule 144A issues) in Panel A, 4,542 (4,200 public and 342 Rule 144A issues) in Panel B, 3,792 (3,642 public and 150 Rule 144A issues) in Panel C, and 719 (541 public and 178 Rule 144A issues) in Panel D, respectively.

<i>Panel A. Convertible Debt Issues (N=838)</i>								
	Shelf Public (N=96)		Non-Shelf Public (N=188)		144A (N=554)			
	Mean	Median	Mean	Median	Mean	Median		
Gross Spread (%)	2.44	2.50	2.93	2.75	2.92	3.00		
Offering Yield Spread (%)	-1.14	-1.10	-0.21	-0.37	-1.02	-1.07		
Conversion Premium	0.35	0.25	0.22	0.22	0.33	0.30		
Gross Proceeds (\$millions)	503	300	182	123	259	166		
Maturity	13.02	10.02	9.68	9.99	12.74	7.06		
Market Cap. (\$millions)	6,395	2,990	2,130	515	3,013	987		
Listing Age	16.87	8.68	13.68	7.12	14.50	8.98		
Return Volatility	0.03	0.03	0.03	0.03	0.04	0.03		
Total Debt Ratio	0.37	0.39	0.26	0.24	0.26	0.24		
Market-to-Book Ratio	2.24	1.43	2.51	1.77	3.08	1.83		
Pre-Issue Return	0.16	0.09	0.15	0.12	0.31	0.16		
Profitability	0.08	0.09	0.11	0.12	0.06	0.10		
Tangibility	0.37	0.31	0.33	0.28	0.24	0.17		
Term Spread (%)	1.48	1.53	1.86	1.99	1.83	2.27		
Default Spread (%)	0.82	0.77	0.75	0.73	0.90	0.82		
Utility Dummy	0.04	0.00	0.01	0.00	0.01	0.00		
<i>Panel B. Straight Debt Issues (N=21,287)</i>								
	Shelf Public (N=4,209)		Non-Shelf Public (N=552)		144A (N=1,414)		Bank Loan (N=15,112)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Gross Spread (%)	0.73	0.65	1.80	1.82	1.63	1.38	N/A	N/A
Offering Yield Spread (%)	1.22	0.95	2.23	1.47	3.53	3.41	2.12	2.00
Gross Proceeds (\$millions)	418	232	260	134	434	235	208	74
Maturity	11.68	10.01	10.39	9.99	9.03	10.00	4.05	4.00
Market Cap. (\$millions)	16,994	5,959	5,280	1,444	4,758	965	1,788	279
Listing Age	38.11	36.13	26.71	21.85	17.61	9.39	14.18	8.23
Return Volatility	0.02	0.02	0.02	0.02	0.03	0.03	0.04	0.03
Total Debt Ratio	0.34	0.34	0.39	0.38	0.43	0.42	0.32	0.31
Market-to-Book Ratio	1.68	1.36	1.46	1.20	1.62	1.31	1.70	1.36
Pre-Issue Return	0.01	0.00	0.03	0.00	0.08	0.03	0.04	0.00
Profitability	0.15	0.14	0.14	0.13	0.12	0.12	0.12	0.12
Tangibility	0.48	0.47	0.51	0.54	0.41	0.39	0.33	0.28
Term Spread (%)	1.42	1.02	1.87	2.02	1.34	0.87	1.40	1.01
Default Spread (%)	0.81	0.75	0.76	0.71	0.83	0.79	0.79	0.72
Utility Dummy	0.20	0.00	0.20	0.00	0.07	0.00	0.03	0.00

Table IV. Summary Statistics (Continued)

Panel C. Investment Grade Straight Debt Issues (N=4,740)

	Shelf Public (N=3,856)		Non-Shelf Public (N=312)		144A (N=374)		Bank Loan (N=198)	
	Mean	Median	Mean	Median	Mean	Media n	Mean	Media n
Gross Spread (%)	0.65	0.65	0.68	0.65	0.65	0.65	N/A	N/A
Offering Yield Spread (%)	1.04	0.91	0.92	0.78	1.72	1.49	1.29	1.00
Gross Proceeds (\$millions)	427	234	173	78	778	372	661	433
Maturity	11.98	10.01	11.42	9.99	8.89	9.98	4.48	5.00
Market Cap. (\$millions)	18,009	6622	8,058	3750	13,650	4,677	6,838	2,268
Listing Age	39.19	37.62	36.25	35.85	31.93	29.93	24.74	15.95
Return Volatility	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02
Total Debt Ratio	0.33	0.33	0.33	0.33	0.33	0.32	0.28	0.29
Market-to-Book Ratio	1.71	1.37	1.54	1.17	1.98	1.55	1.68	1.34
Pre-Issue Return	0.01	0.00	0.01	0.00	0.03	0.02	0.06	0.05
Profitability	0.15	0.14	0.15	0.14	0.16	0.14	0.15	0.13
Tangibility	0.48	0.47	0.53	0.57	0.42	0.40	0.37	0.34
Term Spread (%)	1.42	1.01	2.00	2.11	1.29	0.86	1.84	1.91
Default Spread (%)	0.81	0.74	0.80	0.76	0.87	0.81	0.89	0.82
Utility Dummy	0.20	0.00	0.29	0.00	0.17	0.00	0.08	0.00

Panel D. Speculative Grade Straight Debt Issues (N=2,703)

	Shelf Public (N=350)		Non-Shelf Public (N=224)		144A (N=934)		Bank Loan (N=1,195)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Gross Spread (%)	1.63	1.60	2.65	2.75	2.40	2.63	N/A	N/A
Offering Yield Spread (%)	3.22	3.15	4.02	3.87	4.30	4.04	2.59	2.50
Gross Proceeds (\$millions)	320	212	395	176	321	213	329	193
Maturity	8.63	9.71	9.12	9.99	9.08	10.00	5.26	5.00
Market Cap. (\$millions)	3,536	2,187	687	326	1,294	587	1,866	768
Listing Age	25.28	14.64	13.69	6.79	11.78	6.99	14.37	8.10
Return Volatility	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.02
Total Debt Ratio	0.53	0.52	0.47	0.45	0.48	0.47	0.45	0.44
Market-to-Book Ratio	1.38	1.23	1.37	1.27	1.50	1.26	1.54	1.29
Pre-Issue Return	0.07	0.05	0.06	0.00	0.10	0.04	0.09	0.04
Profitability	0.12	0.11	0.11	0.11	0.11	0.11	0.14	0.13
Tangibility	0.43	0.48	0.48	0.49	0.41	0.39	0.34	0.30
Term Spread (%)	1.41	1.03	1.69	1.83	1.37	0.89	1.84	2.23
Default Spread (%)	0.81	0.76	0.70	0.68	0.83	0.78	0.87	0.80
Utility Dummy	0.21	0.00	0.06	0.00	0.02	0.00	0.02	0.00

Table V. Predicting Credit Rating of Unrated Issues

This table obtains implied credit ratings for unrated issues. Panel A reports probit regression results using rated convertible debt issues, public and 144A straight debt issues, and bank loans, respectively. The dependent variable is equal to one for investment grade issues and zero for speculative grade issues. An issue rated by either S&P or Moody's is defined as investment grade if it receives either an S&P rating of BBB- or above or a Moody's rating of Baa3 or above, and is defined as speculative grade otherwise. The four interest coverage ratios, (ICR_i, i=1, 2, 3, 4), are created on the basis of the average of the interest coverage ratios [Compustat Items (178 + 15) / Item 15] of the three fiscal years immediately prior to the current issue (see the text for details). Average Profitability is the average of profitability (Item 13 / Item 6) of the three fiscal years immediately prior to the current issue. Average LT Debt Ratio is the average of the long-term debt ratios (Item 9 / Item 6) of the three fiscal years immediately prior to the current issue. Average Total Debt Ratio is the average of the total debt ratios [(Item 9 + Item 34) / Item 6] of the three fiscal years immediately prior to the current issue. Beta is estimated from a market model using stock returns during the 200 days ending 11 days prior to the issue date or deal closing date using the CRSP value-weighted index as the market index. Residual Volatility is the standard error of the residuals from the market model. The definitions of other independent variables are presented in the Appendix. The z-statistics are calculated using robust standard errors corrected for heteroscedasticity (White, 1980) and clustering at the firm level (Rogers, 1993). Panel B reports the distribution of actual versus implied issue ratings. An issue is predicted to be investment grade if the predicted likelihood using the coefficients from Panel A is greater than or equal to 50% and as speculative grade otherwise. %Correct is the percentage of correct predictions computed as the sum of the number of investment grade issues being predicted as investment grade and the number of speculative grade issues being predicted as speculative grade divided by the total number of rated issues. Requiring non-missing values of the independent variables reduces the sample of the rated issues in Panel A to a total of 7,208 issues and reduces the sample of the rerated and unrated issues in Panel B to a total of 18,887 issues.

<i>Panel A. Probit Regressions Using Rated Issues</i>						
	Convertible Debt Issues		Straight Debt Issues			
			Public and 144A Issues		Bank Loans	
	Coeff.	z-stat	Coeff.	z-stat	Coeff.	z-stat
Ln(Gross Proceeds)	0.03	0.14	-0.02	-0.11	0.43 ^{***}	4.45
Ln(Maturity)	0.19	0.90	0.22 ^{**}	2.91	-0.99 ^{***}	-4.51
Interest Coverage Ratios:						
ICR ₁	0.29 ^{**}	2.75	0.25 ^{***}	4.21	0.15 ^{**}	2.11
ICR ₂	0.02	0.22	0.01	0.30	0.02	0.23
ICR ₃	0.00	-0.01	-0.06 ^{**}	-2.00	-0.07 [*]	-1.75
ICR ₄	0.01	0.63	-0.01	-1.13	0.01	1.52
Average Profitability	-0.01	-0.37	0.76 ^{**}	2.09	0.12	0.21
Average LT Debt Ratio	-4.33 ^{**}	-2.24	-5.79 ^{***}	-5.93	-0.52	-0.40
Average Total Debt Ratio	4.22 ^{**}	2.16	2.26 ^{**}	2.04	-1.97	-1.51
Ln(Market Cap.)	0.68 ^{***}	4.86	0.64 ^{***}	6.00	0.17 ^{**}	2.02
Beta	-0.28	-1.51	0.06	0.33	-0.24	-1.30
Residual Volatility	-33.01 ^{**}	-2.49	-58.60 ^{***}	-5.40	-29.05 ^{***}	-2.78
Constant	-5.96 ^{***}	-4.29	-2.09 ^{***}	-3.03	-2.18 ^{***}	-2.64
Year Dummies		Yes		Yes		Yes
Pseudo R ²		46.1%		61.1%		36.0%
N		368		5,613		1,227

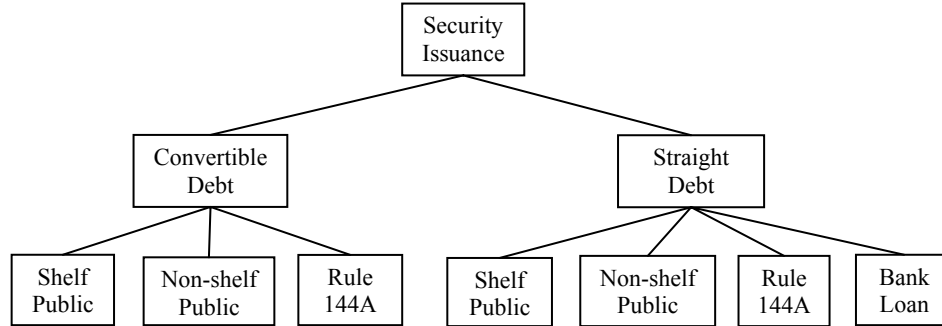
Superscripts ^{***}, ^{**}, ^{*} denote statistical significance at the 1%, 5%, and 10% levels in a two-tailed tests, respectively.

Table V. Predicting Credit Rating of Unrated Issues (Continued)

<i>Panel B. Sample Distribution by Implied and Actual Credit Ratings</i>				
Actual Rating		Implied Rating		%Correct
		Investment Grade	Speculative Grade	
Convertible Debt Issues:				
Shelf Public	Investment Grade	26	6	86.30
	Speculative Grade	4	37	
	Unrated	0	7	
Non-Shelf Public	Investment Grade	26	6	92.98
	Speculative Grade	2	80	
	Unrated	1	31	
144A	Investment Grade	51	14	83.98
	Speculative Grade	15	101	
	Unrated	40	247	
Straight Debt Issues:				
Shelf Public	Investment Grade	3,606	105	93.61
	Speculative Grade	153	174	
	Unrated	1	2	
Non-shelf Public	Investment Grade	287	6	89.35
	Speculative Grade	43	124	
	Unrated	2	9	
144A	Investment Grade	320	40	85.11
	Speculative Grade	126	629	
	Unrated	47	38	
Bank Loans	Investment Grade	72	111	88.59
	Speculative Grade	29	1015	
	Unrated	866	10,388	

Table VI. Nested Logit Regression of Market Choice

We estimate a nested logit model of the following structure:



Only the second level decision results are reported. We use 144A issues as the base alternative at the second decision level. Unrated Firm Dummy is equal to one if the issuer does not have an S&P long-term domestic issuer credit rating (Compustat Item 280) prior to the current issue, and zero otherwise. The definitions of all other independent variables are presented in the Appendix. The z-statistics are calculated using robust standard errors corrected for heteroscedasticity (White, 1980) and clustering at the firm level (Rogers, 1993). The sample is comprised of 22,125 issues including 838 convertible debt issues and 21,287 straight debt issues.

	Convertible debt issues				Straight debt issues					
	Shelf Public (vs. 144A)		Non-Shelf Public (vs. 144A)		Shelf Public (vs. 144A)		Non-Shelf Public (vs. 144A)		Bank Loans (vs. 144A)	
	Coeff	z-stat	Coeff	z-stat	Coeff	z-stat	Coeff	z-stat	Coeff	z-stat
Prior Shelf Issue Dummy	1.73***	5.54	0.63*	1.86	1.45***	13.70	-0.06	-0.39	-0.05	-0.43
Unrated Firm Dummy	-1.43***	-4.22	-0.57***	-2.57	-0.16	-1.12	-0.11	-0.63	0.40***	4.27
Investment Grade Firm Dummy	-0.30	-0.90	-0.21	-0.75	1.19***	10.22	0.00	-0.02	-0.27***	-2.55
Return Volatility	3.49	1.02	-10.30***	-2.77	-16.71***	-4.86	-12.19**	-2.47	-7.21***	-3.45
Total Debt Ratio	0.43	0.67	-0.37	-0.86	0.03	0.12	0.35	1.11	-0.35*	-1.95
Ln(Market Cap.)	0.09	0.86	-0.20***	-2.64	0.73***	17.27	0.55***	9.43	-0.08**	-2.24
Ln(Listing Age)	-0.05	-0.47	-0.06	-0.86	0.24***	6.14	0.02	0.29	0.05	1.49
Market-to-Book Ratio	-0.03	-0.69	0.02	1.20	-0.28***	-5.29	-0.30***	-3.24	0.03	0.77
Pre-issue Return	-0.35	-1.56	-0.09	-0.58	-0.23	-1.51	0.25	1.19	-0.22**	-2.22
Term Spread (%)	0.05	0.40	0.21*	1.74	0.05	0.99	0.20***	2.58	0.29***	7.24
Default Spread (%)	-0.51	-0.81	-1.37***	-2.67	0.22	0.94	-1.49***	-4.01	-1.27***	-6.30
Ln(Gross Proceeds)	0.07	0.56	0.07	0.83	-0.67***	-15.59	-0.75***	-13.61	-0.25***	-6.19
Ln(Maturity)	-0.47**	-1.96	-0.89***	-5.19	-0.39***	-4.79	-0.72***	-6.46	-4.20***	-44.92
Profitability	-0.40	-1.04	0.37	1.06	2.37***	4.07	1.10	1.28	0.41	1.13
Tangibility	1.27***	2.62	0.79**	2.16	-0.10	-0.59	0.58**	2.30	-0.42***	-2.98
Utility Dummy	0.50	0.83	-0.87	-1.19	0.25*	1.68	0.20	0.99	-0.88***	-5.59
Time Trend	-0.22***	-5.18	-0.55***	-11.10	-0.22***	-15.63	-0.56***	-18.88	-0.15***	-12.31
Constant	0.83	0.74	7.64***	9.33	0.12***	0.30	5.08***	8.27	13.65***	37.98

Superscripts ***, **, * denote statistical significance at the 1%, 5%, and 10% levels in a two-tailed tests, respectively.

Figure I. Convertible and Straight Debt Issues Each Year

Figure IA plots the total gross proceeds in billions of dollars in 2004 purchasing power from 414 public and 855 Rule 144A convertible debt offerings of publicly traded non-financial U.S. firms from 1991-2004. Figure IB plots the total gross proceeds in billions of dollars in 2004 purchasing power from 7,078 public and 2,245 Rule 144A straight debt offerings and 37,974 bank loans of publicly traded non-financial U.S. firms from 1991-2004. For bank loans, only completed term loans and revolvers with maturity of at least one year are included.

Figure IA. Total Gross Proceeds for Convertible Debt

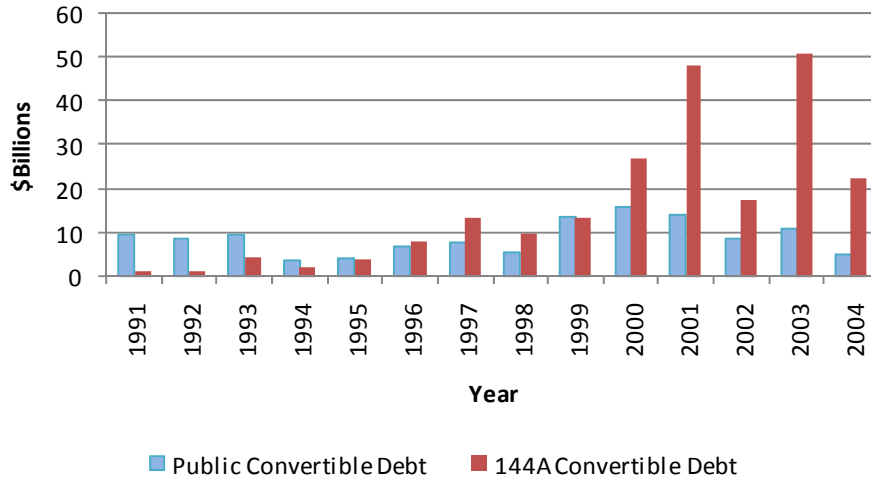


Figure IB. Total Gross Proceeds for Straight Debt

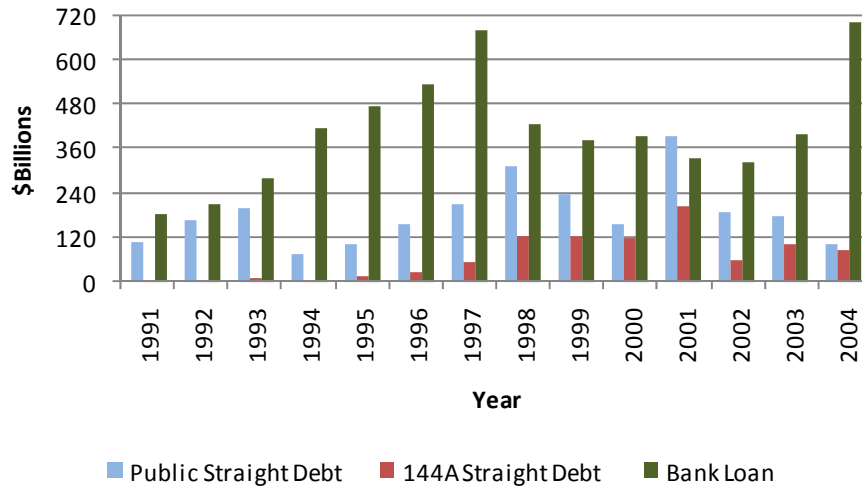


Figure II. Credit Rating and Public and 144A Straight Debt Issues Each Year

Figure IIA plots the total gross proceeds in billions of dollars in 2004 purchasing power from 6,187 public and 642 Rule 144A speculative grade straight debt offerings of publicly traded U.S. non-financial firms from 1991-2004. Figure IIB plots the total gross proceeds in billions of dollars in 2004 purchasing power from 849 public and 1,251 Rule 144A speculative grade straight debt offerings of publicly traded U.S. non-financial firms from 1991-2004.

Figure IIA. Total Gross Proceeds for Investment Grade Straight Debt

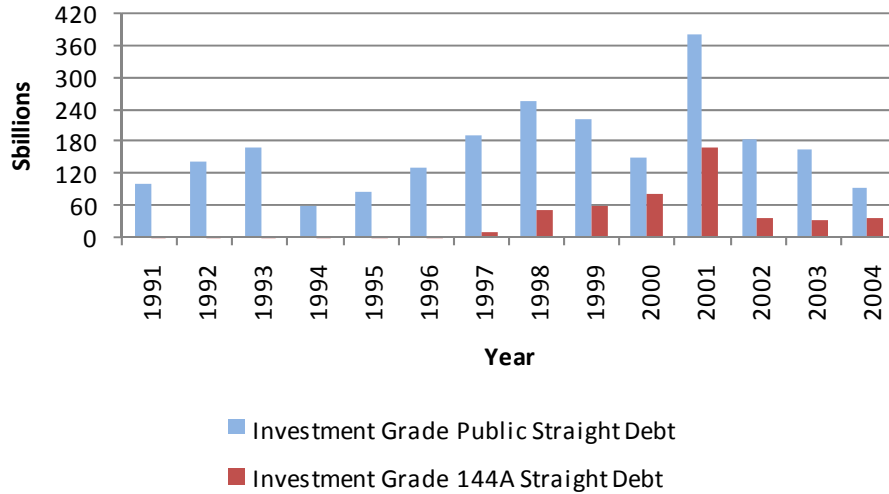


Figure IIB. Total Gross Proceeds for Speculative Grade Straight Debt

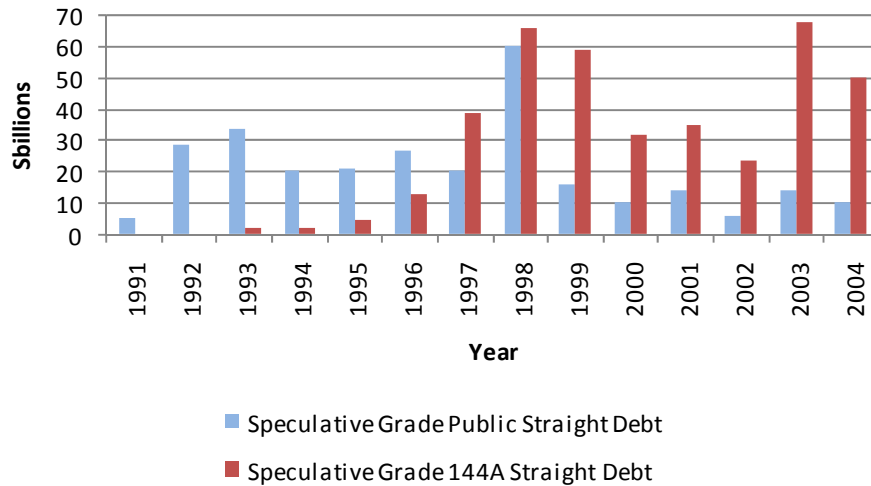


Figure III. Histogram of the Number of Days to Register 144A Issues from 1996-2004

Histograms of the number of days between the registration date and the closing date are plotted for the 434 Rule 144A convertible debt issues (Figure IIIA) and the 1,201 Rule 144A straight debt issues (Figure IIIB), respectively. For a better presentation, we winsorize the number of days when it is greater than 390. A normal density curve with the sample mean and standard deviation is also plotted.

Figure IIIA. Registration of Rule 144A Convertible Debt Issues

Percent of Deals

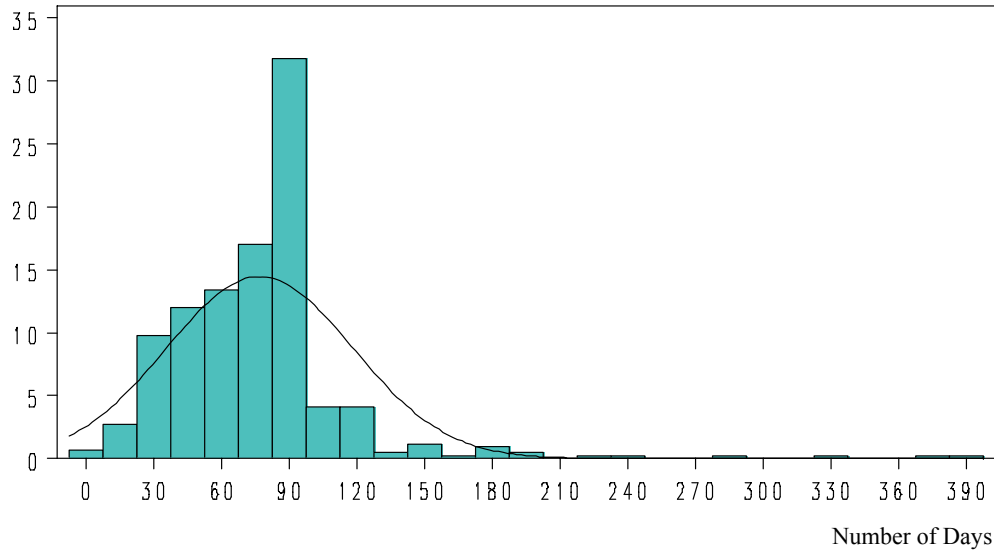


Figure IIIB. Registration of Rule 144A Straight Debt Issues

Percent of Deals

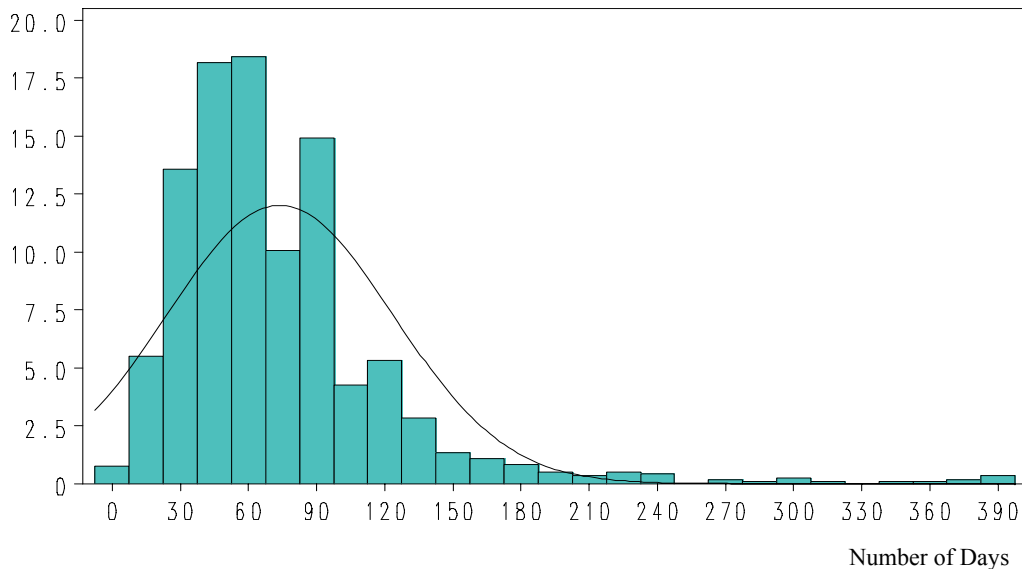


Figure IV. Shelf and Non-shelf Public Convertible and Straight Debt Issues Each Year

Figure IVA plots the total gross proceeds in billions of dollars in 2004 purchasing power from 273 non-shelf registered and 141 shelf registered public convertible debt offerings of U.S. non-financial firms from 1991-2004. Figure IVB plots the total gross proceeds in billions of dollars in 2004 purchasing power from 1,012 non-shelf registered and 6,066 shelf registered public straight debt offerings of U.S. non-financial firms from 1991-2004.

Figure IVA. Total Gross Proceeds for Convertible Debt

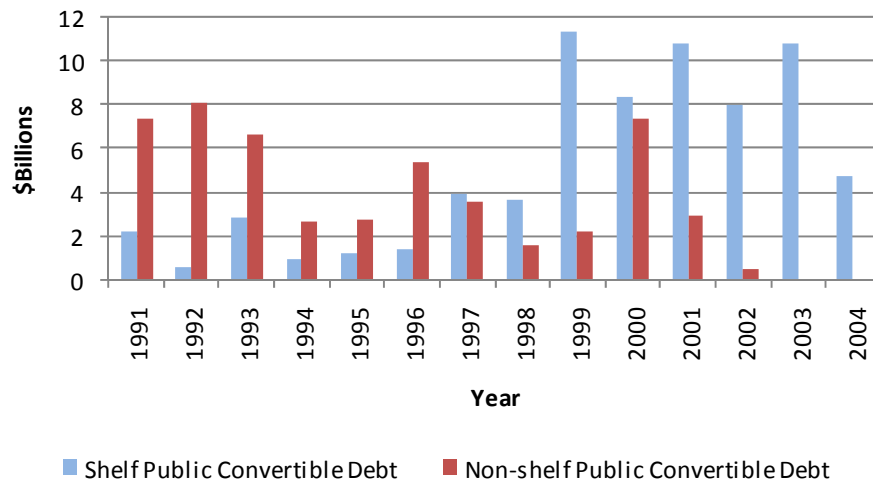


Figure IVB. Total Gross Proceeds for Straight Debt

